

ALMONDS

A MEDICAL DICTIONARY, BIBLIOGRAPHY,
AND ANNOTATED RESEARCH GUIDE TO
INTERNET REFERENCES



JAMES N. PARKER, M.D.
AND PHILIP M. PARKER, PH.D., EDITORS

Miss Page

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The collective knowledge generated from academic and applied research summarized in various references has been critical in the creation of this book which is best viewed as a comprehensive compilation and collection of information prepared by various official agencies which produce publications on almonds. Books in this series draw from various agencies and institutions associated with the United States Department of Health and Human Services, and in particular, the Office of the Secretary of Health and Human Services (OS), the Administration for Children and Families (ACF), the Administration on Aging (AOA), the Agency for Healthcare Research and Quality (AHRQ), the Agency for Toxic Substances and Disease Registry (ATSDR), the Centers for Disease Control and Prevention (CDC), the Food and Drug Administration (FDA), the Healthcare Financing Administration (HCFA), the Health Resources and Services Administration (HRSA), the Indian Health Service (IHS), the institutions of the National Institutes of Health (NIH), the Program Support Center (PSC), and the Substance Abuse and Mental Health Services Administration (SAMHSA). In addition to these sources, information gathered from the National Library of Medicine, the United States Patent Office, the European Union, and their related organizations has been invaluable in the creation of this book. Some of the work represented was financially supported by the Research and Development Committee at INSEAD. This support is gratefully acknowledged. Finally, special thanks are owed to Tiffany Freeman for her excellent editorial support.

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FORWARD

In March 2001, the National Institutes of Health issued the following warning: "The number of Web sites offering health-related resources grows every day. Many sites provide valuable information, while others may have information that is unreliable or misleading."¹ Furthermore, because of the rapid increase in Internet-based information, many hours can be wasted searching, selecting, and printing. Since only the smallest fraction of information dealing with almonds is indexed in search engines, such as **www.google.com** or others, a non-systematic approach to Internet research can be not only time consuming, but also incomplete. This book was created for medical professionals, students, and members of the general public who want to know as much as possible about almonds, using the most advanced research tools available and spending the least amount of time doing so.

In addition to offering a structured and comprehensive bibliography, the pages that follow will tell you where and how to find reliable information covering virtually all topics related to almonds, from the essentials to the most advanced areas of research. Public, academic, government, and peer-reviewed research studies are emphasized. Various abstracts are reproduced to give you some of the latest official information available to date on almonds. Abundant guidance is given on how to obtain free-of-charge primary research results via the Internet. **While this book focuses on the field of medicine, when some sources provide access to non-medical information relating to almonds, these are noted in the text.**

E-book and electronic versions of this book are fully interactive with each of the Internet sites mentioned (clicking on a hyperlink automatically opens your browser to the site indicated). If you are using the hard copy version of this book, you can access a cited Web site by typing the provided Web address directly into your Internet browser. You may find it useful to refer to synonyms or related terms when accessing these Internet databases. **NOTE:** At the time of publication, the Web addresses were functional. However, some links may fail due to URL address changes, which is a common occurrence on the Internet.

For readers unfamiliar with the Internet, detailed instructions are offered on how to access electronic resources. For readers unfamiliar with medical terminology, a comprehensive glossary is provided. For readers without access to Internet resources, a directory of medical libraries, that have or can locate references cited here, is given. We hope these resources will prove useful to the widest possible audience seeking information on almonds.

The Editors

¹ From the NIH, National Cancer Institute (NCI): <http://www.cancer.gov/cancerinfo/ten-things-to-know>.

CHAPTER 1. STUDIES ON ALMONDS

Overview

In this chapter, we will show you how to locate peer-reviewed references and studies on almonds.

The Combined Health Information Database

The Combined Health Information Database summarizes studies across numerous federal agencies. To limit your investigation to research studies and almonds, you will need to use the advanced search options. First, go to <http://chid.nih.gov/index.html>. From there, select the “Detailed Search” option (or go directly to that page with the following hyperlink: <http://chid.nih.gov/detail/detail.html>). The trick in extracting studies is found in the drop boxes at the bottom of the search page where “You may refine your search by.” Select the dates and language you prefer, and the format option “Journal Article.” At the top of the search form, select the number of records you would like to see (we recommend 100) and check the box to display “whole records.” We recommend that you type “almonds” (or synonyms) into the “For these words:” box. Consider using the option “anywhere in record” to make your search as broad as possible. If you want to limit the search to only a particular field, such as the title of the journal, then select this option in the “Search in these fields” drop box. The following is what you can expect from this type of search:

- **Masticatory Function in Patients with Xerostomia**

Source: Gerodontology. 13(1): 3-8. July 1996.

Contact: Available from FDI World Dental Press Ltd. 7 Carlisle Street, London W1V 5RG, United Kingdom.

Summary: No previous studies have assessed how reduced salivary output in patients with xerostomia (dry mouth) affects masticatory (chewing) function. This article reports on a study that compared masticatory performance and kinematic activity of patients who have xerostomia, with controls matched by age, gender, and number of occluding pairs. Masticatory function was evaluated by assessment of chewing motion and muscle activity while chewing an artificial food, chewing gum, and swallowing a bolus of almond. Chewing motion was recorded with the Optotrak computer system. Bilateral

muscle activity of both masseter and anterior temporalis was recorded using surface electrodes. Results revealed significant differences between patients and controls in their ability to process food and masticatory muscle activity. The majority of patients could not break down the artificial food; others had a larger median particle size than the controls. A significant difference was also observed in the number of chewing cycles required to swallow **almonds**; the patients required more than twice as many chews as the controls. The right masseter muscle displayed significantly less activity for the patient than the controls. These findings led the authors to conclude that patients with xerostomia exhibit reduced ability to process food. The observed decline in masticatory performance is probably due to reduced activity of the muscles of mastication. 4 tables. 20 references. (AA-M).

- **Fare Essentials**

Source: Runner's World. 38(4):28-29. April 2003.

Summary: The author, a nutritionist, chooses her ten top food selections for eating on a regular basis. The rationale and science behind her selections, along with ways to serve these foods, are explained. These foods include salmon, soy burgers, oranges, raisin bran, nonfat yogurt, **almonds**, canned refried beans, energy bars, salad greens, and tea.

- **Purines, Alcohol and Boron in the Diets of People with Chronic Digestive Problems**

Source: Journal of Nutritional and Environmental Medicine 11(3): 23-32. September 2001.

Contact: Available from BSAENM, P.O. Box 7, Knighton, Powys LD8 2WF, U.K. 01547 550380. Fax: 01547 550339. Website: www.bsaenm.org.uk.

Summary: This article reports on a study undertaken to determine whether there is a significant relationship between the consumption of alcohol, purines, and boron, and the incidence of irritable bowel syndrome (IBS) or frequent diarrhea. The study includes 120 individuals, seeking help with chronic health problems, who were assessed for their intake of purines, alcohol, and boron, which are dietary items that use body stores of vitamin B2 and molybdenum. The patients stated whether they had IBS or frequent diarrhea. The proportions with different types of diet who had symptoms were compared. The group was extended to 578 individuals, and the calculations repeated, both for the whole group and for males and females separately. In all three groups, those with higher intakes of alcohol, purines, and boron had a higher prevalence of IBS or frequent diarrhea. The relationship was found to be significant. High purine foods commonly eaten are meats, herring, mackerel, sardines, and yeast; other sources include mussels, roe, scallops, and some spices. Boron, a toxic mineral, can be found in tomatoes, peppers, apples, pears, peaches, plums, grapes, soya, parsnips, rosehips, hazelnuts, peanuts, and **almonds**. The author concludes that reducing alcohol, purines, and boron in the diet of patients with IBS or chronic diarrhea may be a cost effective treatment. One appendix reprints the nutrition and allergy clinic questionnaire that was used to gather patient information about dietary habits. 6 tables. 17 references.

- **Food Allergies**

Source: Nutrition Action Healthletter. 28(3): 10-13. April 2001.

Contact: Available from CSPI. 1875 Connecticut Avenue, NW, Suite 300, Washington, DC 20009. Fax (202) 265-4954. E-mail: circ@cspinet.org. Website: www.cspinet.org.

Summary: This article reviews food allergies and food intolerances. Food allergies occur when the immune system overreacts to certain proteins in food. Although more than 200 food ingredients can provoke an allergic reaction, the vast majority are caused by eight ingredients: nuts (like walnuts and **almonds**), peanuts (which are legumes), milk, eggs, fish, shellfish, soybeans, and wheat. Typical symptoms are nausea, hives, skin rash, nasal congestion, and wheezing. For most people with food allergies, allergic reactions to food are a temporary discomfort, but for many the result is anaphylactic shock, a quick reaction in which their throats may swell enough to cut off breathing. The author reviews the typical pattern of a study of 32 fatal reactions; all but two reactions were triggered by peanuts or nuts. Most of the victims were teenagers or young adults who had asthma, and most knew that they suffered from food allergies; 27 ate the food away from home, and only three were carrying emergency self injectable epinephrine. Most reactions to food are caused not by allergies but by intolerances, which are less severe. The author reviews intolerances to lactose (milk sugar), sulfites, monosodium glutamate (MSG), red wine, chocolate, and food colors. The article concludes with a discussion of four reminders regarding food allergies: offending foods may show up where they are not expected; trace amounts can trigger a reaction; foods can be contaminated with allergens; and labels do not have to disclose allergens in flavors. Appended to the article is a list of websites and resource organizations for readers wishing to obtain additional information. 1 figure. 6 references.

- **Health Nuts**

Source: Cooking Light. p.96-101,154. March 1999.

Summary: Thornton reports on research indicating that nuts may actually improve heart health, regardless of other risk factors such as weight, blood pressure, exercise, or gender. This may spring from the nature of the fat in nuts, which is both monounsaturated and polyunsaturated. These are the healthy forms of fat, found in such foods as olive and canola oils. In addition, nuts contain Omega-3 fatty acids, and are nutritionally dense with such nutrients as vitamin E, folic acid, niacin, copper, potassium, and magnesium. According to Thornton, nuts also contain flavonoids and isoflavones, compounds thought to prevent cancer and cardiovascular disease. Finally, since nuts have a high satiety factor, most people find a small amount filling, which contributes to weight loss. Recipes containing nuts are included, such as pork, cashew, and green bean stir-fry, Persian poached pears, hazelnut-fig quick bread, fruit and nut granola, and chicken tetrazzini with **almonds**.

Federally Funded Research on Almonds

The U.S. Government supports a variety of research studies relating to almonds. These studies are tracked by the Office of Extramural Research at the National Institutes of Health.² CRISP (Computerized Retrieval of Information on Scientific Projects) is a searchable database of federally funded biomedical research projects conducted at universities, hospitals, and other institutions. Search the CRISP Web site at http://crisp.cit.nih.gov/crisp/crisp_query.generate_screen. You will have the option to

² Healthcare projects are funded by the National Institutes of Health (NIH), Substance Abuse and Mental Health Services (SAMHSA), Health Resources and Services Administration (HRSA), Food and Drug Administration (FDA), Centers for Disease Control and Prevention (CDCP), Agency for Healthcare Research and Quality (AHRQ), and Office of Assistant Secretary of Health (OASH).

perform targeted searches by various criteria, including geography, date, and topics related to almonds.

For most of the studies, the agencies reporting into CRISP provide summaries or abstracts. As opposed to clinical trial research using patients, many federally funded studies use animals or simulated models to explore almonds.

The National Library of Medicine: PubMed

One of the quickest and most comprehensive ways to find academic studies in both English and other languages is to use PubMed, maintained by the National Library of Medicine.³ The advantage of PubMed over previously mentioned sources is that it covers a greater number of domestic and foreign references. It is also free to use. If the publisher has a Web site that offers full text of its journals, PubMed will provide links to that site, as well as to sites offering other related data. User registration, a subscription fee, or some other type of fee may be required to access the full text of articles in some journals.

To generate your own bibliography of studies dealing with almonds, simply go to the PubMed Web site at <http://www.ncbi.nlm.nih.gov/pubmed>. Type “almonds” (or synonyms) into the search box, and click “Go.” The following is the type of output you can expect from PubMed for almonds (hyperlinks lead to article summaries):

- **Aha!!, The smell of bitter almonds.cyanide poisoning.**
 Author(s): Mack RB.
 Source: N C Med J. 1983 January; 44(1): 27-8. No Abstract Available.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=6572293&dopt=Abstract
- **Almonds and almond oil have similar effects on plasma lipids and LDL oxidation in healthy men and women.**
 Author(s): Hyson DA, Schneeman BO, Davis PA.
 Source: The Journal of Nutrition. 2002 April; 132(4): 703-7.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11925464&dopt=Abstract
- **Asparagine-linked oligosaccharides in human placenta and umbilical cord as demonstrated by almond glycopeptidase.**
 Author(s): Takahashi N, Shimizu S, Yamada K.
 Source: Febs Letters. 1982 September 6; 146(1): 139-42.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=7140973&dopt=Abstract

³ PubMed was developed by the National Center for Biotechnology Information (NCBI) at the National Library of Medicine (NLM) at the National Institutes of Health (NIH). The PubMed database was developed in conjunction with publishers of biomedical literature as a search tool for accessing literature citations and linking to full-text journal articles at Web sites of participating publishers. Publishers that participate in PubMed supply NLM with their citations electronically prior to or at the time of publication.

- **Assessment of chewing efficiency: a comparison of particle size distribution determined using optical scanning and sieving of almonds.**
 Author(s): Mowlana F, Heath MR, Van der Bilt A, Van der Glas HW.
 Source: Journal of Oral Rehabilitation. 1994 September; 21(5): 545-51.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=7996338&dopt=Abstract
- **Cyanide poisoning after bitter almond ingestion.**
 Author(s): Shragg TA, Albertson TE, Fisher CJ Jr.
 Source: The Western Journal of Medicine. 1982 January; 136(1): 65-9.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=7072244&dopt=Abstract
- **Detection and stability of the major almond allergen in foods.**
 Author(s): Roux KH, Teuber SS, Robotham JM, Sathe SK.
 Source: Journal of Agricultural and Food Chemistry. 2001 May; 49(5): 2131-6.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11368566&dopt=Abstract
- **Detection of trace amounts of hidden allergens: hazelnut and almond proteins in chocolate.**
 Author(s): Scheibe B, Weiss W, Rueff F, Przybilla B, Gorg A.
 Source: J Chromatogr B Biomed Sci Appl. 2001 May 25; 756(1-2): 229-37.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11419715&dopt=Abstract
- **Effect of chamomile cream and almond ointment on acute radiation skin reaction.**
 Author(s): Maiche AG, Grohn P, Maki-Hokkonen H.
 Source: Acta Oncologica (Stockholm, Sweden). 1991; 30(3): 395-6.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=2036252&dopt=Abstract
- **Effect on body weight of a free 76 Kilojoule (320 calorie) daily supplement of almonds for six months.**
 Author(s): Fraser GE, Bennett HW, Jaceldo KB, Sabate J.
 Source: Journal of the American College of Nutrition. 2002 June; 21(3): 275-83.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12074256&dopt=Abstract
- **Effects of plant-based diets high in raw or roasted almonds, or roasted almond butter on serum lipoproteins in humans.**
 Author(s): Spiller GA, Miller A, Olivera K, Reynolds J, Miller B, Morse SJ, Dewell A, Farquhar JW.
 Source: Journal of the American College of Nutrition. 2003 June; 22(3): 195-200.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12805245&dopt=Abstract

- **Effects of roasting, blanching, autoclaving, and microwave heating on antigenicity of almond (*Prunus dulcis* L.) proteins.**
 Author(s): Venkatachalam M, Teuber SS, Roux KH, Sathe SK.
 Source: Journal of Agricultural and Food Chemistry. 2002 June 5; 50(12): 3544-8.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12033826&dopt=Abstract
- **Electrophoretic and immunological analyses of almond (*Prunusdulcis* L.) genotypes and hybrids.**
 Author(s): Sathe SK, Teuber SS, Gradziel TM, Roux KH.
 Source: Journal of Agricultural and Food Chemistry. 2001 April; 49(4): 2043-52.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11308365&dopt=Abstract
- **Facile cleavage of complex oligosaccharides from glycopeptides by almond emulsin peptide: N-glycosidase.**
 Author(s): Plummer TH Jr, Tarentino AL.
 Source: The Journal of Biological Chemistry. 1981 October 25; 256(20): 10243-6.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=7287707&dopt=Abstract
- **Fatal reaction to peanut antigen in almond icing.**
 Author(s): Evans S, Skea D, Dolovich J.
 Source: Cmaj : Canadian Medical Association Journal = Journal De L'association Medicale Canadienne. 1988 August 1; 139(3): 231-2.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=3395938&dopt=Abstract
- **Histochemical demonstration of asparagine-linked oligosaccharides in glycoproteins of human placenta and umbilical cord tissues by means of almond glycopeptidase digestion.**
 Author(s): Yamada K, Shimizu S, Takahashi N.
 Source: The Histochemical Journal. 1983 December; 15(12): 1239-50.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=6643119&dopt=Abstract
- **Identification and characterisation of the IgE-binding proteins 2S albumin and conglutin gamma in almond (*Prunus dulcis*) seeds.**
 Author(s): Poltronieri P, Cappello MS, Dohmae N, Conti A, Fortunato D, Pastorello EA, Ortolani C, Zacheo G.
 Source: International Archives of Allergy and Immunology. 2002 June; 128(2): 97-104.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12065909&dopt=Abstract
- **IgE binding to almond proteins in two CAP-FEIA-negative patients with allergic symptoms to almond as compared to three CAP-FEIA-false-positive subjects.**
 Author(s): Pasini G, Simonato B, Giannattasio M, Gemignani C, Curioni A.
 Source: Allergy. 2000 October; 55(10): 955-8.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11030377&dopt=Abstract

- Managing a complex river catchment: a case study on the River Almond.**
 Author(s): Pollard P, Devlin M, Holloway D.
 Source: The Science of the Total Environment. 2001 January 29; 265(1-3): 343-57.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11227277&dopt=Abstract
- Mental retardation, short stature, almond-shaped eyes, small downturned mouth and coned epiphyses: a new case of Hunter-Fraser syndrome.**
 Author(s): Van Maldergem L, Gillerot Y, Perlmutter N, Wetzburger C, Koulischer L.
 Source: American Journal of Medical Genetics. 1990 October; 37(2): 283-5.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=2248298&dopt=Abstract
- Natural or raw almonds and an outbreak of a rare phage type of Salmonella enteritidis infection.**
 Author(s): Chan ES, Aramini J, Ciebin B, Middleton D, Ahmed R, Howes M, Brophy I, Mentis I, Jamieson F, Rodgers F, Nazarovec-White M, Pichette SC, Farrar J, Gutierrez M, Weis WJ, Lior L, Ellis A, Isaacs S.
 Source: Can Commun Dis Rep. 2002 June 15; 28(12): 97-9. English, French. No Abstract Available.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12078384&dopt=Abstract
- Nutritional deficits resulting from an almond-based infant diet.**
 Author(s): Doron D, Hershkop K, Granot E.
 Source: Clinical Nutrition (Edinburgh, Lothian). 2001 June; 20(3): 259-61.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11407873&dopt=Abstract
- Nuts and plasma lipids: an almond-based diet lowers LDL-C while preserving HDL-C.**
 Author(s): Spiller GA, Jenkins DA, Bosello O, Gates JE, Cragen LN, Bruce B.
 Source: Journal of the American College of Nutrition. 1998 June; 17(3): 285-90.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=9627917&dopt=Abstract
- Partial replacement of saturated fatty acids with almonds or walnuts lowers total plasma cholesterol and low-density-lipoprotein cholesterol.**
 Author(s): Abbey M, Noakes M, Belling GB, Nestel PJ.
 Source: The American Journal of Clinical Nutrition. 1994 May; 59(5): 995-9.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=8172107&dopt=Abstract
- Pitfalls and complications in plastic construction of the superior palpebral fold in almond eyes.**
 Author(s): Sayoc BT.
 Source: Philipp J Surg Surg Spec. 1966 January-February; 21(1): 50-2. No Abstract Available.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=5952067&dopt=Abstract

- **Radiological case of the month. Tracheal foreign body: (an almond).**
 Author(s): Young LW, Seibert RW, Seibert JJ.
 Source: Am J Dis Child. 1979 July; 133(7): 749-50. No Abstract Available.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=463826&dopt=Abstract
- **Serum lipid response to the graduated enrichment of a Step I diet with almonds: a randomized feeding trial.**
 Author(s): Sabate J, Haddad E, Tanzman JS, Jambazian P, Rajaram S.
 Source: The American Journal of Clinical Nutrition. 2003 June; 77(6): 1379-84.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12791613&dopt=Abstract
- **The histochemistry of asparagine-linked oligosaccharides of glycoproteins in mammalian and avian tissues as studied by digestion with almond glycopeptidase.**
 Author(s): Murata H, Takahashi N, Yamada K.
 Source: The Histochemical Journal. 1985 February; 17(2): 121-30.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=3926725&dopt=Abstract
- **The isolation by ligand affinity chromatography of a novel form of alpha-L-fucosidase from almond.**
 Author(s): Scudder P, Neville DC, Butters TD, Fleet GW, Dwek RA, Rademacher TW, Jacob GS.
 Source: The Journal of Biological Chemistry. 1990 September 25; 265(27): 16472-7.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=2398059&dopt=Abstract
- **The release of carbohydrate moieties from human fibrinogen by almond glycopeptidase without alteration in fibrinogen clottability.**
 Author(s): Nishibe H, Takahashi N.
 Source: Biochimica Et Biophysica Acta. 1981 October 13; 661(2): 274-9.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=7295738&dopt=Abstract

CHAPTER 2. NUTRITION AND ALMONDS

Overview

In this chapter, we will show you how to find studies dedicated specifically to nutrition and almonds.

Finding Nutrition Studies on Almonds

The National Institutes of Health's Office of Dietary Supplements (ODS) offers a searchable bibliographic database called the IBIDS (International Bibliographic Information on Dietary Supplements; National Institutes of Health, Building 31, Room 1B29, 31 Center Drive, MSC 2086, Bethesda, Maryland 20892-2086, Tel: 301-435-2920, Fax: 301-480-1845, E-mail: ods@nih.gov). The IBIDS contains over 460,000 scientific citations and summaries about dietary supplements and nutrition as well as references to published international, scientific literature on dietary supplements such as vitamins, minerals, and botanicals.⁴ The IBIDS includes references and citations to both human and animal research studies.

As a service of the ODS, access to the IBIDS database is available free of charge at the following Web address: <http://ods.od.nih.gov/databases/ibids.html>. After entering the search area, you have three choices: (1) IBIDS Consumer Database, (2) Full IBIDS Database, or (3) Peer Reviewed Citations Only.

Now that you have selected a database, click on the "Advanced" tab. An advanced search allows you to retrieve up to 100 fully explained references in a comprehensive format. Type "almonds" (or synonyms) into the search box, and click "Go." To narrow the search, you can also select the "Title" field.

⁴ Adapted from <http://ods.od.nih.gov>. IBIDS is produced by the Office of Dietary Supplements (ODS) at the National Institutes of Health to assist the public, healthcare providers, educators, and researchers in locating credible, scientific information on dietary supplements. IBIDS was developed and will be maintained through an interagency partnership with the Food and Nutrition Information Center of the National Agricultural Library, U.S. Department of Agriculture.

The following information is typical of that found when using the "Full IBIDS Database" to search for "almonds" (or a synonym):

- **A sandwich enzyme-linked immunosorbent assay for the detection of almonds in foods.**
Source: Hlywka, J.J. Hefle, S.L. Taylor, S.L. J-food-prot. Des Moines, Iowa : International Association of Milk, Food and Environmental Sanitarians. February 2000. volume 63 (2) page 252-257. 0362-028X
- **Almond hulls in swine diet reduce body fat.**
Source: Homedes, J.M. Roura, E. Keim, N.L. Brown, D.L. Calif-Agric. Oakland, Calif. : Division of Agriculture and Natural Resources, University of California. May/June 1993. volume 47 (3) page 27-28. 0008-0845
- **Almond rates as a nut above all the rest.**
Source: Sch-Foodserv-J. Denver, Colo. : American School Food Service Association. Sept 1987. volume 41 (8) page 56-57. ill. 0160-6271
- **Almonds and almond oil have similar effects on plasma lipids and LDL oxidation in healthy men and women.**
Author(s): Department of Nutrition, University of California-Davis, Davis, CA 95616, USA.
Source: Hyson, Dianne A Schneeman, Barbara O Davis, Paul A J-Nutr. 2002 April; 132(4): 703-7 0022-3166
- **Almonds: a new ingredient for energy and health bars.**
Source: Brown, G. Cereal-foods-world. St. Paul, Minn., American Association of Cereal Chemists. October 1998. volume 43 (10) page 761-762. 0146-6283
- **Date bars fortified with almonds, sesame seeds, oat flakes and skim milk powder.**
Author(s): Kuwait Institute for Scientific Research, Biotechnology Department, Safat.
Source: Al Hooti, S Sidhu, J S Al Otaibi, J Al Ameer, H Qabazard, H Plant-Foods-Hum-Nutr. 1997; 51(2): 125-35 0921-9668
- **Detection and stability of the major almond allergen in foods.**
Source: Roux, K.H. Teuber, S.S. Robotham, J.M. Sathe, S.K. J-agric-food-chem. Washington, D.C. : American Chemical Society. May 2001. volume 49 (5) page 2131-2136. 0021-8561
- **Development of partially defatted almonds: laboratory evaluations.**
Source: Pominski, J. Pearce, H.M. Jr. Ritter, R.E. J-Food-Sci. Chicago, Ill. : Institute of Food Technologists. May/June 1985. volume 50 (3) page 716-718. 0022-1947
- **Dose response of almonds on coronary heart disease risk factors: blood lipids, oxidized low-density lipoproteins, lipoprotein(a), homocysteine, and pulmonary nitric oxide: a randomized, controlled, crossover trial.**
Author(s): Clinical Nutrition and Risk Factor Modification Center, St Michael's Hospital, Toronto, Ontario, Canada. cyril.kendall@utoronto.ca
Source: Jenkins, D J Kendall, C W Marchie, A Parker, T L Connelly, P W Qian, W Haight, J S Faulkner, D Vidgen, E Lapsley, K G Spiller, G A Circulation. 2002 September 10; 106(11): 1327-32 1524-4539
- **Effect of a diet high in monounsaturated fat from almonds on plasma cholesterol and lipoproteins.**
Author(s): Health Research and Studies Center, Inc., Los Altos, California 94023-0338.
Source: Spiller, G A Jenkins, D J Cragen, L N Gates, J E Bosello, O Berra, K Rudd, C Stevenson, M Superko, R J-Am-Coll-Nutr. 1992 April; 11(2): 126-30 0731-5724

- **Effect of diets enriched in almonds on insulin action and serum lipids in adults with normal glucose tolerance or type 2 diabetes.**
 Author(s): Pennington Biomedical Research Center, Louisiana State University, Baton Rouge 70808, USA. lovejoy@pbrc.edu
 Source: Lovejoy, J C Most, M M Lefevre, M Greenway, F L Rood, J C Am-J-Clin-Nutr. 2002 November; 76(5): 1000-6 0002-9165
- **Effect on body weight of a free 76 Kilojoule (320 calorie) daily supplement of almonds for six months.**
 Author(s): Center for Health Research, School of Public Health, Loma Linda University, California 92350, USA. gfraser@sph.llu.edu
 Source: Fraser, G E Bennett, H W Jaceldo, K B Sabate, J J-Am-Coll-Nutr. 2002 June; 21(3): 275-83 0731-5724
- **Effects of roasting, blanching, autoclaving, and microwave heating on antigenicity of almond (*Prunus dulcis* L.) proteins.**
 Author(s): Department of Nutrition, Food and Exercise Sciences, and Department of Biological Sciences, Florida State University, Tallahassee, Florida 32306, USA.
 Source: Venkatachalam, M Teuber, S S Roux, K H Sathe, S K J-Agric-Food-Chem. 2002 June 5; 50(12): 3544-8 0021-8561
- **Effects of supercritical carbon dioxide (SC-CO₂) oil extraction on the cell wall composition of almond fruits.**
 Author(s): Departament de Quimica, Universitat de les Illes Balears, Ctra. Valldemossa km 7.5, 07071 Palma de Mallorca (Illes Balears), Spain. dqualm4@ps.uib.es
 Source: Femenia, A Garcia Marin, M Simal, S Rossello, C Blasco, M J-Agric-Food-Chem. 2001 December; 49(12): 5828-34 0021-8561
- **Identification and characterisation of the IgE-binding proteins 2S albumin and conglutin gamma in almond (*Prunus dulcis*) seeds.**
 Author(s): Istituto di Ricerca sulle Biotecnologie Agroalimentari, CNR, Lecce, Italy. palmiro.poltronieri@irba.le.cnr.it
 Source: Poltronieri, P Cappello, M S Dohmae, N Conti, A Fortunato, D Pastorello, E A Ortolani, C Zacheo, G Int-Arch-Allergy-Immunol. 2002 June; 128(2): 97-104 1018-2438
- **Identification and quantification of flavonol glycosides in almond seedcoats using MALDI-TOF MS.**
 Author(s): Department of Agricultural, Food, and Nutritional Science, University of Alberta, Edmonton, Alberta T6G 2P5, Canada.
 Source: Frison Norrie, Suzanne Sporns, Peter J-Agric-Food-Chem. 2002 May 8; 50(10): 2782-7 0021-8561
- **Lipid analyses of fumigated vs irradiated raw and roasted almonds.**
 Source: Uthman, R.S. Toma, R.B. Garcia, R. Medora, N.P. Cunningham, S. J-sci-food-agric. Sussex : John Wiley & Sons Limited. October 1998. volume 78 (2) page 261-266. 0022-5142
- **Natural or raw almonds and an outbreak of a rare phage type of *Salmonella enteritidis* infection.**
 Author(s): Field Epidemiology Training Program, Health Canada, Ottawa, Ontario, Canada.
 Source: Chan, E S Aramini, J Ciebin, B Middleton, D Ahmed, R Howes, M Brophy, I Mentis, I Jamieson, F Rodgers, F Nazarowec White, M Pichette, S C Farrar, J Gutierrez, M Weis, W J Lior, L Ellis, A Isaacs, S Can-Commun-Dis-Repag 2002 June 15; 28(12): 97-9 1188-4169

- **Nuts and plasma lipids: an almond-based diet lowers LDL-C while preserving HDL-C.**
 Author(s): The University of Toronto, Toronto, Canada.
 Source: Spiller, G.A. Jenkins, D.A.J. Bosello, O. Gates, J.E. Cragen, L.N. Bruce, B. Journal-of-the-American-College-of-Nutrition (USA). (June 1998). volume 17(3) page 285-290.
 diet almonds olive oil blood lipids lipoproteins fatty acids men women 0731-5724
- **Partial replacement of saturated fatty acids with almonds or walnuts lowers total plasma cholesterol and low-density-lipoprotein cholesterol.**
 Author(s): Commonwealth Scientific and Industrial Research Organisation (CSIRO), Division of Human Nutrition, Adelaide, Australia.
 Source: Abbey, M Noakes, M Belling, G B Nestel, P J Am-J-Clin-Nutr. 1994 May; 59(5): 995-9 0002-9165
- **Postharvest technology and utilization of almonds.**
 Source: Schirra, M. Hortic-rev. New York, NY : John Wiley & Sons, Inc. Press. 1997. volume 20 page 267-311. 0163-7851
- **Production and characterization of rabbit polyclonal antibodies to almond (*Prunus dulcis* L.) major storage protein.**
 Author(s): Department of Nutrition, College of Human Sciences, Florida State University, Tallahassee, Florida 32306-1493, USA.
 Source: Acosta, M R Roux, K H Teuber, S S Sathe, S K J-Agric-Food-Chem. 1999 October; 47(10): 4053-9 0021-8561
- **Relationship between cyanogenic compounds in kernels, leaves, and roots of sweet and bitter kernelled almonds.**
 Author(s): Departamento de Mejora y Patologia Vegetal, CEBAS-CSIC, P.O. Box 4195, 30080 Murcia, Spain. fdicenta@cebas.csic.es
 Source: Dicenta, F Martinez Gomez, P Grane, N Martin, M L Leon, A Canovas, J A Berenguer, V J-Agric-Food-Chem. 2002 Mar 27; 50(7): 2149-52 0021-8561
- **Shockolate absorbers: with or without almonds.**
 Source: Johnston, B.A. HerbalGram. Austin, TX : American Botanical Council and the Herb Research Foundation. Fall 1997. (41) page 14. 0899-5648
- **Whole almonds and almond fractions reduce aberrant crypt foci in a rat model of colon carcinogenesis.**
 Author(s): MEDSPON TB150, Department of Nutrition, University of California, Davis, Davis, CA 95616, USA. padavis@ucdavis.edu
 Source: Davis, P A Iwahashi, C K Cancer-Lett. 2001 April 10; 165(1): 27-33 0304-3835

Federal Resources on Nutrition

In addition to the IBIDS, the United States Department of Health and Human Services (HHS) and the United States Department of Agriculture (USDA) provide many sources of information on general nutrition and health. Recommended resources include:

- healthfinder®, HHS's gateway to health information, including diet and nutrition: <http://www.healthfinder.gov/scripts/SearchContext.asp?topic=238&page=0>
- The United States Department of Agriculture's Web site dedicated to nutrition information: www.nutrition.gov

- The Food and Drug Administration's Web site for federal food safety information: **www.foodsafety.gov**
- The National Action Plan on Overweight and Obesity sponsored by the United States Surgeon General: **<http://www.surgeongeneral.gov/topics/obesity/>**
- The Center for Food Safety and Applied Nutrition has an Internet site sponsored by the Food and Drug Administration and the Department of Health and Human Services: **<http://vm.cfsan.fda.gov/>**
- Center for Nutrition Policy and Promotion sponsored by the United States Department of Agriculture: **<http://www.usda.gov/cnpp/>**
- Food and Nutrition Information Center, National Agricultural Library sponsored by the United States Department of Agriculture: **<http://www.nal.usda.gov/fnic/>**
- Food and Nutrition Service sponsored by the United States Department of Agriculture: **<http://www.fns.usda.gov/fns/>**

Additional Web Resources

A number of additional Web sites offer encyclopedic information covering food and nutrition. The following is a representative sample:

- AOL: **<http://search.aol.com/cat.adp?id=174&layer=&from=subcats>**
- Family Village: **http://www.familyvillage.wisc.edu/med_nutrition.html**
- Google: **<http://directory.google.com/Top/Health/Nutrition/>**
- Healthnotes: **<http://www.healthnotes.com/>**
- Open Directory Project: **<http://dmoz.org/Health/Nutrition/>**
- Yahoo.com: **<http://dir.yahoo.com/Health/Nutrition/>**
- WebMD®Health: **<http://my.webmd.com/nutrition>**
- WholeHealthMD.com: **<http://www.wholehealthmd.com/reflib/0,1529,00.html>**

The following is a specific Web list relating to almonds; please note that any particular subject below may indicate either a therapeutic use, or a contraindication (potential danger), and does not reflect an official recommendation:

- **Vitamins**

- **Riboflavin**

- Source: Integrative Medicine Communications; www.drkoop.com

- **Vitamin B2**

- Source: Prima Communications, Inc. www.personalhealthzone.com

- **Vitamin B2 (riboflavin)**

- Source: Integrative Medicine Communications; www.drkoop.com

Vitamin B3

Source: Prima Communications, Inc. www.personalhealthzone.com

Vitamin E

Alternative names: Alpha-Tocopherol, Beta-Tocopherol, D-Alpha-Tocopherol, Delta-Tocopherol, Gamma-Tocopherol

Source: Integrative Medicine Communications; www.drkoop.com

- **Minerals**

Alpha-tocopherol

Source: Integrative Medicine Communications; www.drkoop.com

Beta-tocopherol

Source: Integrative Medicine Communications; www.drkoop.com

Calcium

Source: Integrative Medicine Communications; www.drkoop.com

Copper

Source: Integrative Medicine Communications; www.drkoop.com

D-alpha-tocopherol

Source: Integrative Medicine Communications; www.drkoop.com

Delta-tocopherol

Source: Integrative Medicine Communications; www.drkoop.com

Gamma-tocopherol

Source: Integrative Medicine Communications; www.drkoop.com

Magnesium

Source: Integrative Medicine Communications; www.drkoop.com

Magnesium

Source: Prima Communications, Inc. www.personalhealthzone.com

Manganese

Source: Integrative Medicine Communications; www.drkoop.com

- **Food and Diet**

Almond Butter

Source: Healthnotes, Inc.; www.healthnotes.com

Almond Milk

Source: Healthnotes, Inc.; www.healthnotes.com

Almonds

Source: Healthnotes, Inc.; www.healthnotes.com

Almonds

Source: WholeHealthMD.com, LLC.; www.wholehealthmd.com

Hyperlink:

http://www.wholehealthmd.com/refshelf/foods_view/0,1523,113,00.html

Apples

Source: WholeHealthMD.com, LLC.; www.wholehealthmd.com

Hyperlink:

http://www.wholehealthmd.com/refshelf/foods_view/0,1523,44,00.html

Beverages

Source: Healthnotes, Inc.; www.healthnotes.com

Brazil Nuts

Source: Healthnotes, Inc.; www.healthnotes.com

Chèvre

Source: Healthnotes, Inc.; www.healthnotes.com

Dairy Substitutes

Source: Healthnotes, Inc.; www.healthnotes.com

Dairy-free Diet

Source: Healthnotes, Inc.; www.healthnotes.com

Dry Jack

Source: Healthnotes, Inc.; www.healthnotes.com

Feingold Diet

Source: Healthnotes, Inc.; www.healthnotes.com

Figs

Source: WholeHealthMD.com, LLC.; www.wholehealthmd.com

Hyperlink:

http://www.wholehealthmd.com/refshelf/foods_view/0,1523,51,00.html

Flaxseeds

Source: Healthnotes, Inc.; www.healthnotes.com

Hazelnuts

Source: Healthnotes, Inc.; www.healthnotes.com

Low-allergen Diet

Source: Healthnotes, Inc.; www.healthnotes.com

Low-oxalate Diet

Source: Healthnotes, Inc.; www.healthnotes.com

Macadamia Nuts

Source: Healthnotes, Inc.; www.healthnotes.com

Nut Butters

Source: Healthnotes, Inc.; www.healthnotes.com

Nuts

Source: WholeHealthMD.com, LLC.; www.wholehealthmd.com

Hyperlink:

http://www.wholehealthmd.com/refshelf/foods_view/0,1523,84,00.html

Nuts and Seeds

Source: Healthnotes, Inc.; www.healthnotes.com

Olives

Source: WholeHealthMD.com, LLC.; www.wholehealthmd.com

Hyperlink:

http://www.wholehealthmd.com/refshelf/foods_view/0,1523,318,00.html

Peaches

Source: Healthnotes, Inc.; www.healthnotes.com

Pears

Source: Healthnotes, Inc.; www.healthnotes.com

Pecans

Source: Healthnotes, Inc.; www.healthnotes.com

Pine Nuts

Source: Healthnotes, Inc.; www.healthnotes.com

Pistachios

Source: Healthnotes, Inc.; www.healthnotes.com

Protein Powders

Source: Healthnotes, Inc.; www.healthnotes.com

Rice Cakes

Source: Healthnotes, Inc.; www.healthnotes.com

Soy Milk

Source: WholeHealthMD.com, LLC.; www.wholehealthmd.com

Hyperlink:

http://www.wholehealthmd.com/refshelf/foods_view/0,1523,200,00.html

Soy-free Diet

Source: Healthnotes, Inc.; www.healthnotes.com

Sprouted-grain Bread

Source: Healthnotes, Inc.; www.healthnotes.com

Teff

Source: Healthnotes, Inc.; www.healthnotes.com

Tofu

Source: Healthnotes, Inc.; www.healthnotes.com

Vegetarian Diet

Source: Healthnotes, Inc.; www.healthnotes.com

Walnuts

Source: Healthnotes, Inc.; www.healthnotes.com

Wheat-free Diet

Source: Healthnotes, Inc.; www.healthnotes.com

CHAPTER 3. ALTERNATIVE MEDICINE AND ALMONDS

Overview

In this chapter, we will begin by introducing you to official information sources on complementary and alternative medicine (CAM) relating to almonds. At the conclusion of this chapter, we will provide additional sources.

National Center for Complementary and Alternative Medicine

The National Center for Complementary and Alternative Medicine (NCCAM) of the National Institutes of Health (<http://nccam.nih.gov/>) has created a link to the National Library of Medicine's databases to facilitate research for articles that specifically relate to almonds and complementary medicine. To search the database, go to the following Web site: <http://www.nlm.nih.gov/nccam/camonpubmed.html>. Select "CAM on PubMed." Enter "almonds" (or synonyms) into the search box. Click "Go." The following references provide information on particular aspects of complementary and alternative medicine that are related to almonds:

- **A new azoxyalkene from a strain of an actinomadura-like fungus.**
 Author(s): Bianchi G, Dallavalle S, Merlini L, Nasini G, Quaroni S.
 Source: *Planta Medica*. 2003 June; 69(6): 574-6.
http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12865985&dopt=Abstract
- **A pharmacologic and toxicological study of amygdalin.**
 Author(s): Moertel CG, Ames MM, Kovach JS, Moyer TP, Rubin JR, Tinker JH.
 Source: *Jama : the Journal of the American Medical Association*. 1981 February 13; 245(6): 591-4.
http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=7005480&dopt=Abstract
- **Anti-tumor promoting effect of glycosides from *Prunus persica* seeds.**
 Author(s): Fukuda T, Ito H, Mukainaka T, Tokuda H, Nishino H, Yoshida T.

Source: Biological & Pharmaceutical Bulletin. 2003 February; 26(2): 271-3.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12576693&dopt=Abstract

- **Chromatographic determination of cyanoglycosides prunasin and amygdalin in plant extracts using a porous graphitic carbon column.**
 Author(s): Berenguer-Navarro V, Giner-Galvan RM, Grane-Teruel N, Arrazola-Paternina G.
 Source: Journal of Agricultural and Food Chemistry. 2002 November 20; 50(24): 6960-3.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12428943&dopt=Abstract
- **Commentary on recent clinical advances: almonds, monounsaturated fats, magnesium and hypolipidaemic diets.**
 Author(s): Durlach J.
 Source: Magnes Res. 1992 December; 5(4): 315. No Abstract Available.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=1296768&dopt=Abstract
- **Demonstration of a new glycopeptidase, from jack-bean meal, acting on aspartylglucosylamine linkages.**
 Author(s): Sugiyama K, Ishihara H, Tejima S, Takahashi N.
 Source: Biochemical and Biophysical Research Communications. 1983 April 15; 112(1): 155-60.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=6838602&dopt=Abstract
- **Dependence of aflatoxin in almonds on the type and amount of insect damage.**
 Author(s): Schatzki TF, Ong MS.
 Source: Journal of Agricultural and Food Chemistry. 2001 September; 49(9): 4513-9.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11559163&dopt=Abstract
- **Diet and serum lipids in vegan vegetarians: a model for risk reduction.**
 Author(s): Resnicow K, Barone J, Engle A, Miller S, Haley NJ, Fleming D, Wynder E.
 Source: Journal of the American Dietetic Association. 1991 April; 91(4): 447-53. Erratum In: J Am Diet Assoc 1991 June; 91(6): 655.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=1849932&dopt=Abstract
- **Dose response of almonds on coronary heart disease risk factors: blood lipids, oxidized low-density lipoproteins, lipoprotein(a), homocysteine, and pulmonary nitric oxide: a randomized, controlled, crossover trial.**
 Author(s): Jenkins DJ, Kendall CW, Marchie A, Parker TL, Connelly PW, Qian W, Haight JS, Faulkner D, Vidgen E, Lapsley KG, Spiller GA.
 Source: Circulation. 2002 September 10; 106(11): 1327-32.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12221048&dopt=Abstract

- **Dried plums improve indices of bone formation in postmenopausal women.**
 Author(s): Arjmandi BH, Khalil DA, Lucas EA, Georgis A, Stoecker BJ, Hardin C, Payton ME, Wild RA.
 Source: Journal of Women's Health & Gender-Based Medicine. 2002 January-February; 11(1): 61-8.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11860726&dopt=Abstract
- **Effect of a diet high in monounsaturated fat from almonds on plasma cholesterol and lipoproteins.**
 Author(s): Spiller GA, Jenkins DJ, Cragen LN, Gates JE, Bosello O, Berra K, Rudd C, Stevenson M, Superko R.
 Source: Journal of the American College of Nutrition. 1992 April; 11(2): 126-30.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=1315812&dopt=Abstract
- **Effect of an Indo-Mediterranean diet on progression of coronary artery disease in high risk patients (Indo-Mediterranean Diet Heart Study): a randomised single-blind trial.**
 Author(s): Singh RB, Dubnov G, Niaz MA, Ghosh S, Singh R, Rastogi SS, Manor O, Pella D, Berry EM.
 Source: Lancet. 2002 November 9; 360(9344): 1455-61.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12433513&dopt=Abstract
- **Effect of blackcurrant-, cranberry- and plum juice consumption on risk factors associated with kidney stone formation.**
 Author(s): Kessler T, Jansen B, Hesse A.
 Source: European Journal of Clinical Nutrition. 2002 October; 56(10): 1020-3.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12373623&dopt=Abstract
- **Effect of diets enriched in almonds on insulin action and serum lipids in adults with normal glucose tolerance or type 2 diabetes.**
 Author(s): Lovejoy JC, Most MM, Lefevre M, Greenway FL, Rood JC.
 Source: The American Journal of Clinical Nutrition. 2002 November; 76(5): 1000-6.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12399271&dopt=Abstract
- **Effects of a dietary portfolio of cholesterol-lowering foods vs lovastatin on serum lipids and C-reactive protein.**
 Author(s): Jenkins DJ, Kendall CW, Marchie A, Faulkner DA, Wong JM, de Souza R, Emam A, Parker TL, Vidgen E, Lapsley KG, Trautwein EA, Josse RG, Leiter LA, Connelly PW.
 Source: Jama : the Journal of the American Medical Association. 2003 July 23; 290(4): 502-10.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12876093&dopt=Abstract

- **Effects of prune consumption on the ratio of 2-hydroxyestrone to 16 α -hydroxyestrone.**
 Author(s): Kasim-Karakas SE, Almario RU, Gregory L, Todd H, Wong R, Lasley BL.
 Source: The American Journal of Clinical Nutrition. 2002 December; 76(6): 1422-7.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12450912&dopt=Abstract
- **Green peach aphid (Homoptera: Aphididae) action thresholds for controlling the spread of potato leafroll virus in Idaho.**
 Author(s): Mowry TM.
 Source: Journal of Economic Entomology. 2001 December; 94(6): 1332-9.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11777033&dopt=Abstract
- **Herbivore-induced volatiles: the emission of acyclic homoterpenes from leaves of *Phaseolus lunatus* and *Zea mays* can be triggered by a beta-glucosidase and jasmonic acid.**
 Author(s): Hopke J, Donath J, Blechert S, Boland W.
 Source: Febs Letters. 1994 September 26; 352(2): 146-50.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=7925964&dopt=Abstract
- **Identification and quantification of flavonol glycosides in almond seedcoats using MALDI-TOF MS.**
 Author(s): Frison-Norrie S, Sporns P.
 Source: Journal of Agricultural and Food Chemistry. 2002 May 8; 50(10): 2782-7.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11982399&dopt=Abstract
- **Identification of components of *Prunus africana* extract that inhibit lipid peroxidation.**
 Author(s): Hass MA, Nowak DM, Leonova E, Levin RM, Longhurst PA.
 Source: Phytomedicine : International Journal of Phytotherapy and Phytopharmacology. 1999 November; 6(5): 379-88.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11962548&dopt=Abstract
- **In vitro antioxidant activity of some selected *Prunus* species in Korea.**
 Author(s): Jung HA, Kim AR, Chung HY, Choi JS.
 Source: Arch Pharm Res. 2002 December; 25(6): 865-72.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12510840&dopt=Abstract
- **Laetrile toxicity studies in dogs.**
 Author(s): Schmidt ES, Newton GW, Sanders SM, Lewis JP, Conn EE.
 Source: Jama : the Journal of the American Medical Association. 1978 March 6; 239(10): 943-7.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=203726&dopt=Abstract

- **Microbial degradation of amygdalin of bitter apricot seeds (*Prunus armeniaca*).**
 Author(s): Nout MJ, Tuncel G, Brimer L.
 Source: International Journal of Food Microbiology. 1995 January; 24(3): 407-12.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=7710917&dopt=Abstract
- **New prenylated benzoic acid and other constituents from almond hulls (*Prunus amygdalus* Batsch).**
 Author(s): Sang S, Lapsley K, Rosen RT, Ho CT.
 Source: Journal of Agricultural and Food Chemistry. 2002 January 30; 50(3): 607-9.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11804537&dopt=Abstract
- **Nondestructive FTIR monitoring of leaf senescence and elicitin-induced changes in plant leaves.**
 Author(s): Ivanova DG, Singh BR.
 Source: Biopolymers. 2003; 72(2): 79-85.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12583010&dopt=Abstract
- **Oral exposure to butter, but not fat replacers elevates postprandial triacylglycerol concentration in humans.**
 Author(s): Mattes RD.
 Source: The Journal of Nutrition. 2001 May; 131(5): 1491-6.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11340105&dopt=Abstract
- **Performance of *Myzus persicae* (Hemiptera: Aphididae) clones on different host-plants and their host preference.**
 Author(s): Nikolakakis NN, Margaritopoulos JT, Tsitsipis JA.
 Source: Bulletin of Entomological Research. 2003 June; 93(3): 235-42.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12762865&dopt=Abstract
- **Pharmacology of amygdalin (laetrile) in cancer patients.**
 Author(s): Ames MM, Moyer TP, Kovach JS, Moertel CG, Rubin J.
 Source: Cancer Chemotherapy and Pharmacology. 1981; 6(1): 51-7.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=7273266&dopt=Abstract
- **Phytotherapy for benign prostatic hyperplasia.**
 Author(s): Gerber GS.
 Source: Curr Urol Rep. 2002 August; 3(4): 285-91. Review.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12149159&dopt=Abstract
- **Production and characterization of rabbit polyclonal antibodies to almond (*Prunus dulcis* L.) major storage protein.**
 Author(s): Acosta MR, Roux KH, Teuber SS, Sathe SK.

Source: Journal of Agricultural and Food Chemistry. 1999 October; 47(10): 4053-9.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=10552764&dopt=Abstract

- **Pru p 3 (LTP) content in peach extracts.**
 Author(s): Carnes J, Fernandez-Caldas E, Gallego MT, Ferrer A, Cuesta-Herranz J.
 Source: Allergy. 2002 November; 57(11): 1071-5.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12359007&dopt=Abstract
- **Quantitative determination of flavonoids in the flowers and leaves of *Prunus spinosa* L.**
 Author(s): Olszewska M, Glowacki R, Wolbis M, Bald E.
 Source: Acta Pol Pharm. 2001 May-June; 58(3): 199-203.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11712737&dopt=Abstract
- **Radiation preservation of foods of plant origin. Part VI. Mushrooms, tomatoes, minor fruits and vegetables, dried fruits, and nuts.**
 Author(s): Thomas P.
 Source: Critical Reviews in Food Science and Nutrition. 1988; 26(4): 313-58. Review.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=3280249&dopt=Abstract
- **Relationship between cyanogenic compounds in kernels, leaves, and roots of sweet and bitter kernelled almonds.**
 Author(s): Dicenta F, Martinez-Gomez P, Grane N, Martin ML, Leon A, Canovas JA, Berenguer V.
 Source: Journal of Agricultural and Food Chemistry. 2002 March 27; 50(7): 2149-52.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11902971&dopt=Abstract
- **Respiratory and allergic diseases: from upper respiratory tract infections to asthma.**
 Author(s): Jaber R.
 Source: Primary Care. 2002 June; 29(2): 231-61. Review.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12391710&dopt=Abstract
- **Sex ratio in the aphid parasitoid *Aphidius colemani* (Hymenoptera: Braconidae) in relation to host size.**
 Author(s): Jarosik V, Holy I, Lapchin L, Havelka J.
 Source: Bulletin of Entomological Research. 2003 June; 93(3): 255-8.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12762867&dopt=Abstract
- **Sphingolipid and other constituents from almond nuts (*Prunus amygdalus* Batsch).**
 Author(s): Sang S, Kikuzaki H, Lapsley K, Rosen RT, Nakatani N, Ho CT.

Source: Journal of Agricultural and Food Chemistry. 2002 July 31; 50(16): 4709-12.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12137501&dopt=Abstract

- **Surveys of microfungi in a former industrial area in Duisburg-Nord.**
 Author(s): Feige GB, Ale-Agha N, Dachowski M, Kricke R.
 Source: Meded Rijksuniv Gent Fak Landbouwkde Toegep Biol Wet. 2002; 67(2): 227-39.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12701427&dopt=Abstract
- **The anaphylaxis campaign: youth workshop programme.**
 Author(s): Percival J.
 Source: Nurs Times. 2003 April 29-May 5; 99(17): 44-5.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12747182&dopt=Abstract
- **The Garden of Eden--plant based diets, the genetic drive to conserve cholesterol and its implications for heart disease in the 21st century.**
 Author(s): Jenkins DJ, Kendall CW, Marchie A, Jenkins AL, Connelly PW, Jones PJ, Vuksan V.
 Source: Comparative Biochemistry and Physiology. Part A, Molecular & Integrative Physiology. 2003 September; 136(1): 141-51.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=14527636&dopt=Abstract
- **The genetic diversity of Apulian apricot genotypes (*Prunus armeniaca* L.) assessed using AFLP markers.**
 Author(s): Riccardi L, Giorgio V, De Giovanni C, Lotti C, Gallotta A, Fanizza G.
 Source: Cellular & Molecular Biology Letters. 2002; 7(2A): 431-6.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12378246&dopt=Abstract
- **Triterpenes and sterols in the flowers and leaves of *Prunus spinosa* L. (Rosaceae).**
 Author(s): Wolbis M, Olszewska M, Wesolowski WJ.
 Source: Acta Pol Pharm. 2001 November-December; 58(6): 459-62.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12197619&dopt=Abstract
- **Type 2 diabetes and the vegetarian diet.**
 Author(s): Jenkins DJ, Kendall CW, Marchie A, Jenkins AL, Augustin LS, Ludwig DS, Barnard ND, Anderson JW.
 Source: The American Journal of Clinical Nutrition. 2003 September; 78(3 Suppl): 610S-616S. Review.
http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12936955&dopt=Abstract
- **Volatile N-nitrosamine inhibition after intake Korean green tea and Maesil (*Prunus mume* SIEB. et ZACC.) extracts with an amine-rich diet in subjects ingesting nitrate.**
 Author(s): Choi SY, Chung MJ, Sung NJ.

Source: Food and Chemical Toxicology : an International Journal Published for the British Industrial Biological Research Association. 2002 July; 40(7): 949-57.

http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=12065217&dopt=Abstract

- **Whole almonds and almond fractions reduce aberrant crypt foci in a rat model of colon carcinogenesis.**

Author(s): Davis PA, Iwahashi CK.

Source: Cancer Letters. 2001 April 10; 165(1): 27-33.

http://www.ncbi.nlm.nih.gov:80/entrez/query.fcgi?cmd=Retrieve&db=PubMed&list_uids=11248415&dopt=Abstract

Additional Web Resources

A number of additional Web sites offer encyclopedic information covering CAM and related topics. The following is a representative sample:

- Alternative Medicine Foundation, Inc.: <http://www.herbmed.org/>
- AOL: <http://search.aol.com/cat.adp?id=169&layer=&from=subcats>
- Chinese Medicine: <http://www.newcenturynutrition.com/>
- drkoop.com®: <http://www.drkoop.com/InteractiveMedicine/IndexC.html>
- Family Village: http://www.familyvillage.wisc.edu/med_altn.htm
- Google: <http://directory.google.com/Top/Health/Alternative/>
- Healthnotes: <http://www.healthnotes.com/>
- MedWebPlus: http://medwebplus.com/subject/Alternative_and_Complementary_Medicine
- Open Directory Project: <http://dmoz.org/Health/Alternative/>
- HealthGate: <http://www.tnp.com/>
- WebMD® Health: http://my.webmd.com/drugs_and_herbs
- WholeHealthMD.com: <http://www.wholehealthmd.com/reflib/0,1529,00.html>
- Yahoo.com: http://dir.yahoo.com/Health/Alternative_Medicine/

The following is a specific Web list relating to almonds; please note that any particular subject below may indicate either a therapeutic use, or a contraindication (potential danger), and does not reflect an official recommendation:

- **General Overview**

Anemia

Source: Integrative Medicine Communications; www.drkoop.com

Attention Deficit Hyperactivity Disorder

Source: Integrative Medicine Communications; www.drkoop.com

Bone Loss

Source: Integrative Medicine Communications; www.drkoop.com

Cough

Source: Integrative Medicine Communications; www.drkoop.com

Diabetes Mellitus

Source: Integrative Medicine Communications; www.drkoop.com

Food Allergy

Source: Integrative Medicine Communications; www.drkoop.com

Heart Attack

Source: Healthnotes, Inc.; www.healthnotes.com

Herpes

Alternative names: Genital Herpes, Cold Sores

Source: Prima Communications, Inc. www.personalhealthzone.com

High Cholesterol

Source: Healthnotes, Inc.; www.healthnotes.com

High Cholesterol

Source: Integrative Medicine Communications; www.drkoop.com

Hypercholesterolemia

Source: Integrative Medicine Communications; www.drkoop.com

Hypoparathyroidism

Source: Integrative Medicine Communications; www.drkoop.com

Infantile Colic

Source: Integrative Medicine Communications; www.drkoop.com

Insect Bites and Stings

Source: Integrative Medicine Communications; www.drkoop.com

Kidney Stones

Source: Healthnotes, Inc.; www.healthnotes.com

Menopause

Source: Integrative Medicine Communications; www.drkoop.com

Osteoporosis

Source: Integrative Medicine Communications; www.drkoop.com

Pertussis

Source: Integrative Medicine Communications; www.drkoop.com

Whooping Cough

Source: Integrative Medicine Communications; www.drkoop.com

- **Alternative Therapy**

Aromatherapy

Source: Integrative Medicine Communications; www.drkoop.com

Aromatherapy

Source: WholeHealthMD.com, LLC.; www.wholehealthmd.com

Hyperlink:

http://www.wholehealthmd.com/refshelf/substances_view/0,1525,664,00.html

- **Herbs and Supplements**

Antioxidants

Source: WholeHealthMD.com, LLC.; www.wholehealthmd.com

Hyperlink:

http://www.wholehealthmd.com/refshelf/substances_view/0,1525,10004,00.html

Chamomile

Source: Prima Communications, Inc. www.personalhealthzone.com

Chamomile

Source: WholeHealthMD.com, LLC.; www.wholehealthmd.com

Hyperlink:

http://www.wholehealthmd.com/refshelf/substances_view/0,1525,766,00.html

Cinnamomum

Alternative names: Cinnamon; *Cinnamomum zeylanicum*

Source: Alternative Medicine Foundation, Inc.; www.amfoundation.org

Ginger

Source: WholeHealthMD.com, LLC.; www.wholehealthmd.com

Hyperlink:

http://www.wholehealthmd.com/refshelf/substances_view/0,1525,787,00.html

Lavender

Source: WholeHealthMD.com, LLC.; www.wholehealthmd.com

Hyperlink:

http://www.wholehealthmd.com/refshelf/substances_view/0,1525,799,00.html

Lysine

Source: WholeHealthMD.com, LLC.; www.wholehealthmd.com

Hyperlink:

http://www.wholehealthmd.com/refshelf/substances_view/0,1525,862,00.html

Matricaria

Alternative names: Chamomile; *Matricaria chamomilla*

Source: Alternative Medicine Foundation, Inc.; www.amfoundation.org

Melaleuca

Alternative names: Tea Tree Oil; *Melaleuca alternifolia*

Source: Alternative Medicine Foundation, Inc.; www.amfoundation.org

Peppermint

Source: WholeHealthMD.com, LLC.; www.wholehealthmd.com

Hyperlink:

http://www.wholehealthmd.com/refshelf/substances_view/0,1525,812,00.html

Phenylalanine

Source: Integrative Medicine Communications; www.drkoop.com

Pimpinella

Alternative names: Anise; Pimpinella anisum (L)

Source: Alternative Medicine Foundation, Inc.; www.amfoundation.org

Piper Nigrum

Alternative names: Black Pepper

Source: Alternative Medicine Foundation, Inc.; www.amfoundation.org

Thymus

Alternative names: Thyme; Thymus vulgaris

Source: Alternative Medicine Foundation, Inc.; www.amfoundation.org

Tyrosine

Source: Integrative Medicine Communications; www.drkoop.com

General References

A good place to find general background information on CAM is the National Library of Medicine. It has prepared within the MEDLINEplus system an information topic page dedicated to complementary and alternative medicine. To access this page, go to the MEDLINEplus site at <http://www.nlm.nih.gov/medlineplus/alternativemedicine.html>. This Web site provides a general overview of various topics and can lead to a number of general sources.

CHAPTER 4. DISSERTATIONS ON ALMONDS

Overview

In this chapter, we will give you a bibliography on recent dissertations relating to almonds. We will also provide you with information on how to use the Internet to stay current on dissertations. **IMPORTANT NOTE:** When following the search strategy described below, you may discover non-medical dissertations that use the generic term “almonds” (or a synonym) in their titles. To accurately reflect the results that you might find while conducting research on almonds, we have not necessarily excluded non-medical dissertations in this bibliography.

Dissertations on Almonds

ProQuest Digital Dissertations, the largest archive of academic dissertations available, is located at the following Web address: <http://wwwlib.umi.com/dissertations>. From this archive, we have compiled the following list covering dissertations devoted to almonds. You will see that the information provided includes the dissertation’s title, its author, and the institution with which the author is associated. The following covers recent dissertations found when using this search procedure:

- **Biological Effects of Dietary Antioxidants from Almonds and Cocoa** by Gonsalves, Jana L.; Phd from University of California, Davis, 2002, 121 pages
<http://wwwlib.umi.com/dissertations/fullcit/3065249>
- **The Effects of a Hypocaloric Diet Enriched in Oleic Acid Using Almonds Versus Complex Carbohydrates on Metabolic and Anthropometric Parameters during Weight Reduction** by Wien, Michelle Ann; Drph from Loma Linda University, 2002, 140 pages
<http://wwwlib.umi.com/dissertations/fullcit/3052263>

Keeping Current

Ask the medical librarian at your library if it has full and unlimited access to the *ProQuest Digital Dissertations* database. From the library, you should be able to do more complete searches via <http://wwwlib.umi.com/dissertations>.

CHAPTER 5. PATENTS ON ALMONDS

Overview

Patents can be physical innovations (e.g. chemicals, pharmaceuticals, medical equipment) or processes (e.g. treatments or diagnostic procedures). The United States Patent and Trademark Office defines a patent as a grant of a property right to the inventor, issued by the Patent and Trademark Office.⁵ Patents, therefore, are intellectual property. For the United States, the term of a new patent is 20 years from the date when the patent application was filed. If the inventor wishes to receive economic benefits, it is likely that the invention will become commercially available within 20 years of the initial filing. It is important to understand, therefore, that an inventor's patent does not indicate that a product or service is or will be commercially available. The patent implies only that the inventor has "the right to exclude others from making, using, offering for sale, or selling" the invention in the United States. While this relates to U.S. patents, similar rules govern foreign patents.

In this chapter, we show you how to locate information on patents and their inventors. If you find a patent that is particularly interesting to you, contact the inventor or the assignee for further information. **IMPORTANT NOTE:** When following the search strategy described below, you may discover non-medical patents that use the generic term "almonds" (or a synonym) in their titles. To accurately reflect the results that you might find while conducting research on almonds, we have not necessarily excluded non-medical patents in this bibliography.

Patents on Almonds

By performing a patent search focusing on almonds, you can obtain information such as the title of the invention, the names of the inventor(s), the assignee(s) or the company that owns or controls the patent, a short abstract that summarizes the patent, and a few excerpts from the description of the patent. The abstract of a patent tends to be more technical in nature, while the description is often written for the public. Full patent descriptions contain much more information than is presented here (e.g. claims, references, figures, diagrams, etc.). We

⁵Adapted from the United States Patent and Trademark Office:
<http://www.uspto.gov/web/offices/pac/doc/general/whatis.htm>.

will tell you how to obtain this information later in the chapter. The following is an example of the type of information that you can expect to obtain from a patent search on almonds:

- **Agitating and kneading tool**

Inventor(s): Klawuhn; Manfred (Frankfurt, DE), Kullen; Albrecht (Worthsee-Steinebach, DE), Franke; Wolfgang (Langen, DE), Hickel; Sigrun (Waldems, DE)

Assignee(s): Braun Aktiengesellschaft (Kronberg, DE)

Patent Number: 4,842,416

Date filed: March 23, 1987

Abstract: The present invention relates to an agitating and kneading tool (4) for being inserted into the center of a mixing bowl (2) of an electrically driven household appliance (16). The agitating and kneading tool (4) is conventionally composed of a hub (15) to which two differently shaped types of single tools (3, 10 and 1, 8) are fitted and which are drivable by a drive shaft (9) which preferably extends through the container bottom. It is suggested to furnish the hub (15) with a larger diameter in its lower area than in its upper area, in particular, to give it a conical shape. In its lower area, the hub (15) disposes of one or more single tools (1, 8) in the form of laterally projecting agitating arms, the said tools extending closely adjacent to the bottom in parallel to said. In the upper area of the hub (15), there is provision of one or more single tools in the form of kneading blades (3, 10). The agitating and kneading tool (4) according to this invention is preferably destined for use in household appliances (10), in which especially doughy masses must be kneaded, while, simultaneously, ingredients such as almonds, raisins etc. must be admixed.

Excerpt(s): The present invention relates to an agitating and kneading tool for being inserted into electrically driven household and kitchen appliances. Agitating and kneading tools which are inserted into the centre of a container of a kitchen machine are known in various designs. In general, the centre of a mixing bowl accommodates a drivable swivel carrying one or more single tools which may even be of different shape in individual cases. The swivel is driven in many embodiments in dependence on an electric motor via a drive shaft which extends sealedly through the bottom of the mixing bowl. It is likewise known to have the swivel's drive descend from above. Such agitating and kneading tools are used for mixing and kneading viscous up to pasty or also granular matter and/or mixtures of such goods. It is a special feature that occasionally goods of quite different consistency must be treated with the same kneading tool, what means that the capacity of the tool's drive must be rated to conform to the most viscous matter that is possibly to be treated, or that the drive must be provided with corresponding safety devices in order to avoid overload or damages which might occur when treating doughs more viscous than expected. However, such safety devices are costly and inhere additional susceptibility to fail conditions.

Web site: http://www.delphion.com/details?pn=US04842416__

- **Air cleaning machine and method**

Inventor(s): Garabedian; Michael J. (Fresno, CA), Emerzian; Michael R. (Fresno, CA)

Assignee(s): Garabedian Brothers, Inc. (Fresno, CA)

Patent Number: 5,579,920

Date filed: December 15, 1995

Abstract: An air cleaning machine (2) separates a flowable product (28) into first and second components (60, 61) using an air leg (4) having upper and lower ends (6, 8). A vacuum source (10) is coupled to the upper end of the air leg to create a vacuum air flow (62) up through the air leg and into the vacuum chamber (12). The product, such as raisins, almonds or dates, is introduced into the air leg through a product entrance (42) and onto a downwardly sloping screen (44) by a product delivery unit (24). An air knife (50) directs a sharp stream of air (56) upwardly into the air leg and through the product as the product enters the air leg but before the product contacts the screen. The combination of the stream of air from the air knife and the vacuum air flow created by the vacuum source separates the first and second components of the product so that the first component moves upwardly through the air leg and into the vacuum chamber while the second component passes downwardly out through the lower end of the air leg.

Excerpt(s): Many products, especially agricultural products such as raisins, dates and almonds, require cleaning. Cleaning often includes separating the heavier components from the lighter components. Since the desired product is commonly heavier than the material to be separated from the product, called debris, this separation is commonly done using airflow. The simplest way of doing this is with a system called a blower. A relatively high volume blower is used to create an air flow through which the product to be cleaned is poured, like a waterfall. The cleaned product, being heavier, passes generally straight down through the air flow into a waiting container, onto a conveyer belt, etc. The lighter debris is carried away by the air flow and is typically collected in a debris collection hopper. A second way of cleaning product uses an air leg. The product to be cleaned introduced into the lower portion of the vertically extending air leg, the air leg having a blower at its lower end. The blower provides a high volume air flow up through the air leg which passes through the product to be cleaned. The product is supported within the air leg on an angled screen so that the product continues down along the screen and exits the air leg while the lighter debris is separated out from the product and passes up through the air leg where the debris is collected, such as in a debris box.

Web site: http://www.delphion.com/details?pn=US05579920__

- **Air separator apparatus**

Inventor(s): Pack; Marvin L. (Linden, CA), Ramacher; Barry (Stockton, CA)

Assignee(s): Ramacher Manufacturing Company (Linden, CA)

Patent Number: 3,962,072

Date filed: January 3, 1975

Abstract: A harvester pick-up particularly for retrieving fallen nuts and fruits, such as almonds, oranges and the like, from the ground includes a mobile frame preferably self-propelled or tractor drawn and having a primary rotary brush generally in contact with

the ground and mounted on the frame for rotation transversely at the leading end thereof. Also disposed on the frame is a power driven secondary brush parallel to and behind the primary brush and arranged so that the tines on the brushes interdigitate or interrelate and operate in such a direction that they pick up materials from the ground between them and toss the picked-up materials onto a reflecting panel from which the materials are deposited onto a primary conveyor belt leading rearwardly. A stream of air is impelled to flow along the primary conveyor and assists in lifting lighter waste materials therefrom. The air current is induced by a fan which takes some of the lighter waste materials and discharges them ultimately to the atmosphere, whereas the primary conveyor takes the intermixed heavier materials, including the nuts or fruit, on an incline and discharges such mixed materials into a generally vertically extending separator column on the frame. An upwardly traveling draft of air, induced by the fan, flows through the separator column and produces a further separation of the lighter, irregularly shaped materials from the heavier, uniformly shaped materials. The heavier materials descend through the relatively wide separator column and are converged by rollers to fall onto a relatively narrow secondary conveyor belt. The nuts, or fruit, on the secondary conveyor are lifted and discharged at the rear of the machine.

Excerpt(s): In the harvesting or gleaning of various articles from the ground, such as fresh fruits, almonds, walnuts and the like, the material picked up includes not only the nuts or fruits themselves, which are desired, but also includes a large amount of miscellaneous debris such as leaves, twigs, rocks, clods and the like and furthermore usually includes some dust intermixed with or on the desired material. Although many different kinds of fruit, or nut, pick-up devices have been made and utilized for years, it is still a problem to pick up the desired materials with a minimum amount of contaminants and then to handle the picked up materials in a machine in such a fashion that the desired constituents are segregated and ultimately discharged for further handling while the undesired constituents, such as leaves, twigs, dust and the like are rather promptly separated from the desired materials and are discharged either to the ground or to the atmosphere or at least are taken out of the path of treatment. It is therefore an object of the invention to provide an improved harvester pick-up which is quite effective to retrieve the wanted materials from the ground with a relatively small amount of deleterious material and to rid itself of the deleterious material fairly promptly in the handling operation so that the ultimate and final parts of the harvesting operation are concentrated on the desired materials. A further object of the invention is to provide a harvester pick-up which is simply and compactly made in order to handle a relatively large volume of materials without occupying a great deal of space in the orchard or other pick-up area, and without leaving residual amounts of material at the end of each row being harvested.

Web site: http://www.delphion.com/details?pn=US03962072__

- **Almond milk preparation process and products obtained**

Inventor(s): Berger; Jacques (Quartier de l'Infernet, Oraison 04700, FR), Berger; Martine (Quartier de l'Infernet, Oraison 04700, FR), Bravay; Guilaine (Quartier de l'Infernet, Oraison 04700, FR)

Assignee(s): none reported

Patent Number: 5,656,321

Date filed: March 4, 1996

Abstract: A process for preparing almond milk, as well as to products obtained thereby. The process of the invention includes heating, at 90.degree. C., an aqueous dispersion of partially de-oiled almond powder, proportioned at 8%.+-.1% and mixed with about 0.1% of a stabilizing hydrocolloid, for a lapse of time that is sufficient to allow the compounds to solubilize, then proceeding successively with a grinding in aqueous phase, a centrifugal clarification adapted to remove the particles that are large enough to be detected by the tongue or the roof of the mouth, a sterilization by "UHT" (ultra-high temperature) treatment, a homogenization at 180,000 hPa during cooling and, finally, with an aseptic packaging of the product obtained. The product of the invention can be used as a substitute for animal milk, and in particular cow's milk, to serve as a basis for creating a line of new products for human consumption, and making it possible to achieve an improved nutrition.

Excerpt(s): The instant application is based upon International Application No. PCT/FR94/01011, filed on Aug. 17, 1994, the disclosure of which is hereby expressly incorporated by reference thereto in its entirety. The present invention relates to a process for preparing almond milk, as well as to by-products thereof. Moreover, the invention is related to a product, made from a vegetable raw material, that can be used as a substitute for animal milk and, in particular, cow's milk, to serve as a basis for creating a line of new products intended for human diet, and make it possible to achieve a greatly improved nutrition.

Web site: http://www.delphion.com/details?pn=US05656321__

- **Almond N-glycosidase gene**

Inventor(s): Izu; Hiroyuki (Kyoto, JP), Mitta; Masanori (Kyoto-fu, JP), Kato; Ikunoshin (Uji, JP)

Assignee(s): Takara Shuzo Co., Ltd. (Kyoto-fu, JP)

Patent Number: 5,710,016

Date filed: April 7, 1995

Abstract: An almond N-glycosidase gene and genes associated therewith are described. Vectors integrated such genes therein, recombinant microorganisms transformed with said vectors, and a process for preparing the almond N-glycosidase using said recombinant microorganisms are also described.

Excerpt(s): The present invention relates to an almond N-glycosidase gene and genes associated therewith, which are useful in sugar chain technology such as analyses of structures and functions of sugar chains and glycoproteins. The present invention also relates to vectors in which such genes are integrated, recombinant microorganisms transformed with said vectors, and a process for preparing the almond N-glycosidase using the recombinant microorganisms. Almond N-glycosidase (EC 3.5.1.52) was found by Takahashi et al. at the first time as an enzyme which hydrolyses a.beta.-aspartyl glycosylamin bond of an asparagine-linked type (N-linked type) sugar chain of a glycopeptide (Takahashi et al., Biochemical and Biophysical Research Communications, 76: 1194-1201 (1977)!. This enzyme liberates only asparagine-linked type sugar chains with their roots from various glycoproteins (glycopeptides) existing in biological tissues, cell membranes and so on. In addition, this enzyme has a broad substrate specificity for structures of sugar chains, so that it can liberate any of high mannose type, mixed type and complex type sugar chains. Because of these properties, this enzyme is widely used and very effective in cutting sugar chains out of glycoproteins (glycopeptides) to

determine structures of sugar chains, analyses of changes of bioactivities of glycoproteins by removing sugar chains therefrom, or identification of existence of sugar chains in glycoproteins (glycopeptides) and determination of molecular weights of the protein portions from changes of molecular weights thereof by the action of this enzyme. Firstly, an almond N-glycosidase was partially purified by Takahashi et al., and existence of three types of almond N-glycosidases each of which had different substrate specificity were reported ›Biochimica et Biophysica Acta), 657: 457-467 (1981)!. Then, this enzyme was partially purified by Tarentino, and existence of three types of almond N-glycosidases were reported like the report of Takahashi et al. ›Journal of Biological Chemistry, 257: 10776-10780 (1982)!. However, unlike the report of Takahashi et al., it was reported that no difference in the substrate specificity was found in these three types of almond N-glycosidases.

Web site: http://www.delphion.com/details?pn=US05710016__

- **Almond nut paste for beverages and desserts**

Inventor(s): Matsunobu; Akira (Hyogo, JP), Yamada; Tetsuo (Hyogo, JP), Horishita; Sumio (Hyogo, JP)

Assignee(s): Ton Company Ltd. (JP)

Patent Number: 4,639,374

Date filed: May 8, 1984

Abstract: An almond nut paste for use in a beverage or dessert comprises an intimate mixture consisting essentially of a paste of unskinned, dry-roasted or oil-roasted almond nuts with or without a minor amount of other starch-poor nuts such as hazel nuts, pistachio nuts or macadamia nuts, substantially all of said nuts having a maximum particle size of not more than 105 microns, having more than 80% by weight of particles of a size not more than 25 microns and having more than 95% by weight of particles of a size not more than 46 microns, and two kinds of nonionic surfactants including a hydrophilic surfactant and a lipophilic surfactant, a thickener and a sugar. Methods of manufacturing beverages, sours, desserts, and syrups from the nut paste are also disclosed.

Excerpt(s): This invention relates to a new use of almond nuts, particularly to an almond nut paste which is suitable for beverages and desserts, and applications thereof. There are hundreds of nuts in the world. Most of them, except peanut, garbanzo and beans, are the nuts of woody plants, and they are mostly nutritious, as they are rich in proteins and fats. They are usually eaten as table luxuries or cocktail snacks after being shelled, roasted in heated air or in heated oil, and then salted. Another use of nuts is in an application for nut butters and spreads, but this use is limited to use as a spread for breads, and toppings or fillings for cakes; therefore, there is a lack in versatile use for nuts.

Web site: http://www.delphion.com/details?pn=US04639374__

- **Almond shell additive and method of inhibiting sticking in wells**

Inventor(s): Ruby; Earl Campbell (4918 Schuyler Dr., Carmichael, CA 95608), Mayeux; Herman Joseph (112 W. Betty St., Rayne, LA 70578)

Assignee(s): none reported

Patent Number: 5,861,362

Date filed: June 29, 1993

Abstract: An almond shell additive for a well working fluid is provided, wherein the almond shells are ground to certain particle size ranges to prevent, inhibit or remedy the occurrence of downhole equipment sticking. Also provided are wellworking fluids containing the almond shell additive and well working processes utilizing such compositions. The additive is also useful to reduce wall cake thickness and permeability, enhance well cake toughness, seal off depleted sands and micro fractures, reduce or prevent seepage loss, control dynamic spurt loss, and reduces drag and torque.

Excerpt(s): This invention relates to compositions for use in well-working operations such as drilling, workover and completion, packing and the like, well-working processes utilizing such compositions, and an additive to prevent, inhibit or alleviate differential or mechanical sticking of downhole equipment in well boreholes. In the drilling of oil wells, gas wells, injection wells and other boreholes, various strata are bypassed in achieving the desired depth. Each of these subsurface strata has associated with it physical parameters, e.g., porosity, liquid content, hardness, pressure, etc., which make the drilling art an ongoing challenge. Drilling through a stratum produces an amount of rubble and frictional heat; each of which must be removed if efficient drilling is to be maintained. In rotary drilling operations, a string of drill pipe having a drill bit mounted on the lower end thereof is rotated to cause the bit to make the hole. Heat and rock chips are removed by the use of a liquid known as drilling fluid or mud. Typically, drilling fluid is circulated down through the drill string, out through orifices in the drill bit where it picks up rock chips and heat and returns up the annular space between the drill string and the borehole wall to the surface. There it is sieved, reconstituted and directed back down into the drill string. The rotation of the drill string and circulation of the drilling fluid are substantially continuous while drilling, being interrupted for essential operations such as adding an additional section of drill pipe to the top of the drill string or when the entire string is disassembled and pulled from the well bore (called "tripping"). Periodically during interruptions in the drilling operation and also at its conclusion, downhole tools such as logging tools are inserted into the bore and subsequently recovered, and casing is inserted into the bore and set. The flow properties of the drilling fluid play a vital role in the success of the drilling operation. These properties are primarily responsible for the removal of drill cuttings but influence drilling progress in many other ways. Unsatisfactory performance can lead to such serious problems as bridging the hole, filling the bottom of the hole with drill cuttings, reduced penetration rates, hole enlargement, stuck pipe, loss of circulation, and even a blowout.

Web site: http://www.delphion.com/details?pn=US05861362__

- **Almond test body**

Inventor(s): Gilreath; Melvin C. (Hampton, VA), Wood; Richard M. (Virginia Beach, VA), Dominek; Allen K. (Columbus, OH)

Assignee(s): The United States of America as represented by the Administrator of the (Washington, DC)

Patent Number: 4,809,003

Date filed: May 23, 1988

Abstract: An almond shaped radar cross-section test body for use in microwave anechoic chambers, which exhibits a large dynamic scattered field over large angular regions.

Excerpt(s): The invention relates to the field of measuring and testing and more particularly to a radar cross-section test body. There are two applications for this invention. One is as a test body to examine the measurement performance of a microwave anechoic chamber and the other is to support components so that their radar cross-section can be measured. A microwave anechoic chamber should have the capability to measure the scattered fields from an object over a very large dynamic range, especially for very low fields. The chamber should be evaluated before any measurements can be trusted. In the past, a spherical test body has been used, which has good bistatic scattering characteristics, but the return is very large. Hence, some other means is required to test the performance for low level signals. Another canonical shape, the ogive, has a very low backscattered return for very near axial incidence. However, another canonical shape is desired that has a very low return over a very broad angular region, to truly verify the performance of the chamber. The almond test body has the desirable characteristic of producing a large dynamic scattered field over large angular regions.

Web site: http://www.delphion.com/details?pn=US04809003__

- **Anion exchange resin compositions containing almond paste for taste improvement**

Inventor(s): Colliopoulos; John A. (Cincinnati, OH), Andre; James R. (Cincinnati, OH)

Assignee(s): The Procter & Gamble Company (Cincinnati, OH)

Patent Number: 5,500,190

Date filed: September 23, 1993

Abstract: The present invention relates to marzipan-like compositions comprising an anion exchange resin, almond paste, and preferably psyllium fiber, in unit dose form. This invention also relates to the use of these compositions in a method for treating hypercholesterolemia. The compositions are a convenient, portable, highly palatable, and well tolerated dosage form for administering anion exchange resin.

Excerpt(s): This invention relates to novel marzipan-like compositions in unit dosage form containing an anion exchange resin. These compositions comprise almond paste and an anion exchange resin (e.g. cholestyramine, colestipol). An optional, preferred ingredient is psyllium. Although effective in reducing serum cholesterol, anion exchange resins such as cholestyramine and colestipol have an unpleasant taste and mouthfeel. The present invention compositions greatly improve the aesthetics of these anion exchange resins. These compositions have excellent texture, mouthfeel and palatability, and are well tolerated by the intestinal tract. High blood cholesterol levels

are associated with life threatening cardiac diseases. Cholestyramine and colestipol are drugs used in treating hypercholesterolemia. These drugs are known as basic anion exchange resins. They help to lower blood cholesterol levels apparently by binding to bile acids in the intestine. It is believed that this in turn causes an increase in hepatic metabolism of cholesterol to replenish the bile acids lost to complexation with the anion exchange resins.

Web site: http://www.delphion.com/details?pn=US05500190__

- **Apparatus for plasticizing nuts and the like**

Inventor(s): Lukenbill; Harry N. (Louisville, KY), Brown; Jerry L. (Louisville, KY)

Assignee(s): Carrier Vibrating Equipment, Inc. (Louisville, KY)

Patent Number: 4,829,892

Date filed: March 1, 1988

Abstract: A method for plasticizing nuts, such as almonds and the like, includes the steps of heating a mass or bulk of nuts in a dry atmosphere to a uniform temperature as they are being conveyed, and moisturizing the nuts to a preselected moisture content as they are being conveyed. The method further includes at least partially or semi-fluidizing the mass of nuts as they are being heated and moisturized. The method also includes heating the moisturized nuts to dry the skins of the nuts. An apparatus for plasticizing nuts, such as almonds and the like, includes a vibrating housing along which the nuts are conveyed in mass from one end to the other end thereof. The housing includes a perforated deck plate over which the mass of nuts move and defining an air chamber below the deck plate. The air chamber is divided into three plenums along the length of the housing. The first and third plenums located at the opposite ends of the housing are each supplied with heated air which passes through the perforated deck to heat the mass of nuts. The second or middle one of the plenums is supplied with steam to moisturize the nuts.

Excerpt(s): The present invention relates to plasticizing nuts, such as almonds and the like. It is a practice in the food art to slice or sliver nuts such as almonds and the like. In order to slice or sliver nuts so they will not crack or break up, the nuts must be first plasticized. Nuts, such as almonds, are typically plasticized by a batch process wherein a batch of nuts is deposited in a vat of boiling water. This process has a number of drawbacks. Some of the drawbacks are that it is slow, it is difficult to control the moisture content of the nuts, and it tends to remove the skins of the nuts. Therefore, this known process adds to the cost of processing the nuts, not only because it is slow, but also because it can easily damage some of the nuts which then must be discarded or lowers the commercial value of the nuts.

Web site: http://www.delphion.com/details?pn=US04829892__

- **Apparatus particularly for the automatic harvesting of fruit**

Inventor(s): Santarelli; Mario (Livorno, IT)

Assignee(s): Harvester Center Italiana S.r.l. (Piazzetta Guastalla, IT)

Patent Number: 4,128,986

Date filed: February 25, 1977

Abstract: Apparatus for automatic harvesting of fruit such as olives, nuts, almonds and/or the like, including a vibrating device provided with a pair of driven wheels with eccentric masses and driving pulleys adapted to rotate independently the wheels. The pulleys are actuated by means of a pair of substantially vertically opposed hydraulic motors fixed to the frame of the apparatus. The pulleys cooperate operatively with said driven wheels to produce vibrations of a frequency variable through an angle of substantially 360.degree. Fixing articulated means for the jaw members act to tighten and shake the trunk of a tree and provide an autocentering couple. A catching member is associated to the jaws.

Excerpt(s): The present invention relates to an apparatus for the automatic harvesting of fruit such as olives, nuts, almonds and/or the like. Today, due to obvious economical reasons, the harvesting of fruit, and particularly of olives, is carried out mechanically by means of apparatuses which, based on the tree shaking method, may generally classified into two principal types. The first and more conventional one comprises a device which shakes the branches to detach the fruit therefrom, by means of unidirectional reciprocating movements. This shaking method may often cause damages to the tree and moreover it is not able to provide a high harvesting efficiency. The second type of apparatus comprises a vibrating device which, after catching the tree or branches thereof, by means of jaw members, transmits the power of a motor to the tree by means of repeated vibrations having a high-value fixed frequency (for example, 4000 cycles per minute). In this manner very small shock waves are successively produced which generate a high frequency pulsation the direction of which changes continuously through a 360.degree. arc, said vibration increasing from the largest branches to the smallest ones. Therefore, the fruit detaches due to composite effects caused by resonance and by such residual torsional couples which concentrate prevalingly onto the fruit stem, the possibility of damaging the tree being in this manner greatly reduced.

Web site: http://www.delphion.com/details?pn=US04128986__

- **Briquets for smoke seasoning food products**

Inventor(s): McLeod; H. C. (1407 South Cir., Mt. Prospect, IL 60056)

Assignee(s): none reported

Patent Number: 4,874,396

Date filed: July 18, 1988

Abstract: The disclosed briquets comprise solid carrier means and a seasoning liquid impregnated into the carrier means; with the carrier means being both wet in appearance and to the touch and forming between 70-90% of the weight of the briquets and the seasoning liquid forming between 10-30% of the weight of the briquets. The carrier means are dried and absorbant, and may be 1-3 inch blocks of hard wood (oak) or crushed shells of fruitwood nuts including pecans, black walnuts, pistachios, almonds, and/or chestnuts. The seasoning liquid is noncombustible and includes: wine, soy sauce, molasses, whiskey, liquid smoke, real lemon extract, vinegar, and/or water; and bay leaves, onion powder, garlic powder, and/or Jamacian all spice. The liquid and solid components of the seasoning liquid are blended together in a ratio by weight of between 0.1-3% solid to 99.9-97% liquid materials. The briquets may be placed directly on or proximate to hot cooking coals, effective to generate fumes and/or smoke for seasoning food products as the same are being cooked.

Excerpt(s): This invention relates to means that when burned provide for smoke seasoning food products or the like. It is common to cook or barbecue food products by a radiantly-hot open flame, of charcoal or of artificial coals heated by gas or electricity, such as on an open grill or in an enclosed oven. Food products cooked in this manner generally have a distinctive and appealing taste. The food products may further be seasoned by marinating them in a spiced sauce before cooking, and/or by spreading a seasoning directly on them, before or during cooking. Both of these seasoning methods require special efforts and/or prior preparation, including possible repeated applications as the food products are being cooked. A basic object of the present invention is to provide treated briquets that may be placed directly on or proximate to the burning charcoal or heated coals, effective then upon being heated and/or burned to generate smoke and/or fumes for penetrating and seasoning the food products simultaneously as the radiant cooking thereof is taking place.

Web site: http://www.delphion.com/details?pn=US04874396__

- **Container with dispensing element**

Inventor(s): Ostergaard; Steen (Gentofte, DK)

Assignee(s): Stig Ravn A/S (Farum, DK)

Patent Number: 4,376,499

Date filed: August 27, 1981

Abstract: A container which includes a dispensing element for dispensing granular materials e.g., peanuts or almonds, wherein the container includes a dispensing opening in its side wall adjacent its lower end, wherein, an outwardly projecting curved roof part is arranged along the upper part of the dispensing opening and an inwardly projecting bottom part is provided along the lower part of the dispensing opening, and wherein the dispensing element is pivotally supported between the roof part and the bottom part and the upper surface of the dispensing element extends generally from the rear part of the bottom part to the front part of the roof part, the dispensing element including a handle for pivoting the dispensing element from a generally horizontal position to a downwardly and outwardly tilting position, the dispensing element being, moreover, provided with a skirt which in all positions of the dispensing element overlaps the bottom of the container.

Excerpt(s): When serving so-called "snacks", e.g. salted almonds, peanuts and the like granular materials, it is usual to serve such snacks in bowls so that persons may serve themselves. However, this is an unhygienic form for serving, and accordingly it is an object of the present invention to provide a dispenser for containing and dispensing granular material, e.g., peanuts or almonds, and by means of which the persons may serve themselves in such a way that a portion only of the contents of the container may be removed and without manual touching the material in the container. According to the present invention this object is achieved by a dispenser which includes a container and a dispensing element for delivering granular materials, e.g. peanuts or almonds, and which according to the present invention is characterized by the container including a dispensing opening in its side wall adjacent its lower end, an outwardly projecting curved roof part arranged along the upper part of the dispensing opening and an inwardly projecting bottom part provided along the lower part of the dispensing opening, the dispensing element being pivotally supported between the roof part and the bottom part, the upper surface of the dispensing element extending generally from the rear part of the bottom part and to the front part of the roof part, the dispensing

element including a handle for pivoting the dispensing element from a generally horizontal position, the dispensing element moreover, at the reverse part, being provided with a skirt which in all positions of the dispensing element overlaps the bottom part. By means of this construction the material accommodated in the container can be collected upon the upper surface of the dispensing element and inside the roof part, and such material will, by tilting the dispensing element by means of the handle, slide outwardly through the opening along the upper surface of the dispensing element in such a way that a person can dispense the material into his hand by pivoting the dispensing element. At the same time, the material will not fall below the dispensing element in the container due to the overlap between the skirt of the dispensing element and the bottom part. Accordingly, a person who withdraws a portion of the material cannot touch the material accommodated in the container. An embodiment of the container according to the invention is characterized by the roof part extending into the container, and the dispensing element comprising an edge part upstanding with respect to the upper surface of the dispensing element, the upstanding edge being shaped so as to abut the inwardly projecting roof part in the pivoted position of the dispensing element. By means of this construction an effective closing-off between the amount of material to be dispensed and the amount of material accommodated in the container is achieved during the dispensing of a portion of the material, and simultaneously an appropriate tilting movement of the dispensing element is achieved.

Web site: http://www.delphion.com/details?pn=US04376499__

- **Edible nut and fruit granule product and process**

Inventor(s): Berkoff; William (6143 W. Olympic Blvd., Los Angeles, CA 90048)

Assignee(s): none reported

Patent Number: 4,670,284

Date filed: May 28, 1985

Abstract: Peanuts, almonds, Brazil nuts, hazelnuts and similar hard, dry roastable nuts with raisins or currants or both are maintained stable at granular sizes from 015 to 120 screen sizes. Raisins or currants or both are wetted in a heated liquid having the substantial effect of removing surface sugars and oils. The raisins, currants or both are treated further either by simultaneously wetting in the presence of flaxseeds or by pressing to a damp-dry state. The raisins, currants or both are mixed with a hard, dry roasted nut before granulating into from 015 to 120 screen sizes.

Excerpt(s): The present invention relates to processes for preparing edible food products and to stable and workable food ingredients for food products, and more particularly relates to fruit and nut processing into stable ingredients. In the past, the result of pulverizing hard, dry roastable nuts such as peanuts, almonds, Brazil nuts, hazelnuts and the like has ultimately been a butter of the nut such as, for example, peanut butter. Hereafter in this specification, "hard" and "dry roasted" when used in reference to nuts are intended to mean relatively brittle nuts which when dry roasted will break when initially impacted by a blunt instrument into smaller particles. Sometimes the adjective "crispy" is and may be used herein to describe the brittle characteristic of such hard nuts. It is almost impossible to reduce such hard nuts into a powder without such nuts changing into their butter state. Powders are defined usually at screen sizes of 000 or minus (-000). Miyata, et al., U.S. Pat. No. 4,053,653 describes a method of segregating lupulin-rich products by crushing hops useful in brewing beer in a cold temperature on the order of -20 degrees C. Inoue, et al., U.S. Pat. No. 4,281,027 describes a method of

"extending" cocoa by pulverizing the cocoa shell into a powder and mixing the resultant powder with cocoa butter or powder. While there is no elucidation of the requirement for cold temperature in Miyata, et al., except to indicate that it facilitates crushing, Inoue, et al., performs their pulverization at -50 degrees C. in order to preserve the strong cocoa flavor from loss due to oxidation or other chemical reactions. The resultant powder, however, must be further treated by heating in order to accomplish astringency extraction.

Web site: http://www.delphion.com/details?pn=US04670284__

- **Extraction of products from almond fruit**

Inventor(s): Rabinowitz; Israel N. (Santa Barbara, CA)

Assignee(s): ITD Corporation (Carpinteria, CA)

Patent Number: 5,160,756

Date filed: March 24, 1987

Abstract: A process for driving from almond hulls vegetable fiber acceptable to the human stomach without substantial tannin, almond fruit syrup substantially without tannin, and vegetable tannin from almond hulls, utilizing warm temperature aqueous processes.

Excerpt(s): This invention relates to the extraction of useful products from almond fruit, especially from the almond hull. The chemical composition of almond hulls has been the source of previous comment in the literature. For example, in U.S. Pat. No. 4,482,761 to Chao, the production of inositol and other sugar alcohols, and of sugars. The water extract of almond hulls is disclosed. In this patent, the use of molecular sieves to separate these useful compounds is also disclosed. Sequeira et al, "The carbohydrate composition of Almond Hulls", J. Agri. Food Chem. Vol 18 (1970) pp 950-951 is another discussion of the composition of almond hulls. Almond hulls are a natural product forming a part of the almond fruit itself. They are produced as a by-product of the processes of producing the most-utilized part of the almond fruit, namely the stone.

Web site: http://www.delphion.com/details?pn=US05160756__

- **Food grade processing method and products obtained therefrom**

Inventor(s): Morris; Thomas Mitchel (Hertford, NC), Boyce; Ricky C. (Edenton, NC), Baxley; James R. (Edenton, NC), Parker; Wilbur A. (Edenton, NC)

Assignee(s): Seabrook Enterprises, Inc. (Atlanta, GA)

Patent Number: 5,690,987

Date filed: March 11, 1996

Abstract: A method for producing a high-quality, low oil content, concentrated protein cake from oil seeds, such as peanuts, almonds, soybeans and blends thereof, in which oil seeds having a moisture content of between about 5 and 9 percent by weight are blanched, quickly heated for sterilization to about 71.degree.-99.degree. C., and pressed in a screw press expelling device preheated to about 107.degree.-132.degree. C. The heating of the oil seeds can be done by flash sterilization in a hot oil bath, which can be oil seed oil, including oils obtained as a byproduct of the process. Dry heating is also possible. The process produces an essentially sterile concentrated protein cake having an

oil content of about 10% or less and a protein dispersibility index of about 86% or higher, which makes it suitable for most food grade requirements without roasting. The solid cake material which is at least 50% protein is sufficiently clean for use in products that receive only minimum heat during processing, and can also be roasted to any desired degree of browning to enhance flavor. The protein product cake can be ground to produce a high-quality, low fat protein flour that can be used in a variety of products that require an undenatured protein product. The protein rich cake that results from the process can be re-pressed a second time to remove additional oil without significantly degrading the protein. A high grade oil is also obtained as a byproduct of the process. The oil and protein rich cake are both free of solvents.

Excerpt(s): This invention relates generally to a food processing method and products produced therefrom, and more specifically to a method of processing oil bearing seeds and the oil and protein rich flour obtained thereby. There is no cheaper or more promising source of protein for the human diet than oilseeds. When oil is pressed or extracted from seeds such as cotton, soybean and peanuts, the resulting meal or flour contains approximately 50-60% protein. Most of this potential, however, has remained unrealized. About 57% of the world's peanut production is crushed to produce peanut oil. Although a defatted meal remains after crushing, current processes leave it denatured and generally marketable only as animal feed, or fertilizer which has considerably less value than the peanut oil that is extracted. For the defatted meal to be suitable for human consumption, it is necessary, for most users, that the protein be substantially undenatured. Prior art processes for commercial pressing for oil vary in the severity of treatment of the oilseed, but all generally cause substantial or considerable denaturing of the protein in the defatted meal.

Web site: http://www.delphion.com/details?pn=US05690987__

- **Machine for producing small mounds of an almond fragment/chocolate mass substance**

Inventor(s): Wolf; Lothar (Bad Salzuflen, DE)

Assignee(s): Lothar A. Wolf Spezialmaschinen GmbH (Bad Salzuflen, DE)

Patent Number: 4,650,410

Date filed: October 31, 1985

Abstract: A machine for producing small mounds of a solidifiable substance, especially an almond fragments/chocolate mass mixture, includes a plurality of adjacent troughs which delimit respective substantially coextensive parallel channels, each of which includes a succession of an upstream mixing section, an intermediate sieving section, and a downstream settling section, which opens onto an unloading conveyor. The substance is introduced in a predetermined quantity into the respective mixing sections, at which it is subsequently engaged and advanced by one of a plurality of individual pusher elements of a multiple pusher. The multiple pusher moves, during each cycle of operation, through an advancement movement, during which the metered quantity of the substance is advanced by a predetermined distance through the mixing, sieving or settling channel section, in that order, a lifting stroke during which all of the individual pusher elements are moved opposite to the advancement direction outside the channel, and a lowering stroke, during which the individual pusher elements re-enter the channel.

Excerpt(s): The present invention relates to a machine for making small mounds of solidifiable substances in general, and more particularly to a machine for producing such mounds from an almond fragment/chocolate mass mixture. There are already known machines of the above-type. In one of them, which is disclosed in the published German Patent Application DO-OS No. 29 10 379, there is formed an advancement path by an endless chain conveyor which carries, in a plurality of entraining plates, a number of adjacently disposed containers serving as sieves. At the beginning of the advancement path, there are arranged, in succession, a first chocolate mass metering arrangement, an almond fragment metering arrangement, and a second chocolate mass metering arrangement, so that first a layer of the chocolate mass is introduced into the sieving containers, then a metered amount of almond fragments is admitted into the sieving containers on top of the chocolate layer, and finally another chocolate layer is poured on top of the almond fragments. In this arrangement, an excess amount of chocolate is being used, this excess amount of chocolate being subsequently removed by sieving during passage of the sieving containers through a shaking arrangement. In this manner, it is possible to produce almond fragment/chocolate mass mounds, which contain exactly the desired amounts of the almond fragments and of the chocolate mass, without incurring the risk of breakage or pulverization of the sensitive and brittle almond fragments. However, in view of the multitude of entraining plates which are provided, each carrying a plurality of sieving containers or housings arranged adjacent to one another, a machine of this type has a relatively complicated construction, and its throughput can be increased only to a limited extent, inasmuch as a supportable upper limit of the realizable advancement cycle is reached rather quickly in this advancement system and, for constructional reasons, even the width of the entraining plates arranged between the two chains, and thus the number of the adjacently arranged sieving housings carried by the respective entrainment plate, is limited. What further adds to the relatively complex construction of this known arrangement is the fact that, for all intents and purposes, a separate ejector must be provided for each of the sieving housings.

Web site: http://www.delphion.com/details?pn=US04650410__

- **Method for coating a foodstuff and product thereof**

Inventor(s): Gonze; Michel Henri Andre (Bruxelles, BE), Van Der Schueren; Freddy Maurits Luc (Aalst, BE)

Assignee(s): Cerestar Holding B.V. (LA Sas van Gent, NL)

Patent Number: 5,976,582

Date filed: July 18, 1997

Abstract: The present invention describes a method for precoating of oil containing foodstuff such as chewing gum, nuts, almonds and caramels. The present invention also discloses a composition for the application in the method and foodstuffs coated with this composition. The precoating composition contains thinned hydroxypropylated starch, preferably tapioca starch, which can be used in relatively high concentration necessitating the application of only a limited number of layers.

Excerpt(s): The present invention relates to the precoating or coating of oil-containing centers such as chewing gum, nuts, almonds and caramels. The present invention relates to a method for obtaining a coating or precoating and also to a composition for the application in the said method. Chewing gums consist of a center which contains the actual gum material and a coating. The coating may comprise different components. The

coating serves to protect the gum from influences of the environment i.e. temperature, humidity. The coating consists of different layers of products and includes sucrose, colourants, flavours and other additives the coating also contains polyols such as sorbitol, xylitol and erythritol in so-called sugar-free chewing gums. When centers are used which contain oil or fat it is advisable to seal in the oil or fat with some layers of arabic gum or another film forming substance. Unless this is done the oil or fat may eventually soak through the final coating resulting in unsightly dark patches.

Web site: http://www.delphion.com/details?pn=US05976582__

- **Method for detecting aflatoxin in almonds**

Inventor(s): Schade; John E. (Walnut Creek, CA), King, Jr.; A. Douglas (Martinez, CA)

Assignee(s): The United States of America as represented by the Secretary of (Washington, DC)

Patent Number: 4,535,248

Date filed: August 24, 1984

Abstract: Aflatoxin contamination in almonds is detected by exposing almond kernels to long wave ultraviolet light and detecting the presence of aflatoxin as determined by violet-purple fluorescence. The method is particularly adaptable to automation to detect and sort out aflatoxin contaminated almonds.

Excerpt(s): This invention relates to and has among its objects the provision of a novel method for detecting aflatoxin contamination in almonds. Aflatoxins, a group of highly toxic substances produced by certain species of *Aspergillus*, especially *A. flavus*, have been found to occur in agricultural products such as corn, cottonseed, a variety of oilseeds, and many varieties of nuts. Experimental studies indicate that aflatoxins are acutely toxic to most animal species. The extreme toxicity of aflatoxin is demonstrated by the fact that the LD₅₀ of the B₁ component is less than 30 micrograms for day-old ducklings. Animals which consume sublethal quantities of aflatoxin for several days or weeks develop a subacute toxicity syndrome which commonly includes moderate to severe liver damage. Prolonged administration of the toxin at subacute levels leads to formation of cancerous liver tumors. Data accumulated from feeding tests indicate that the effective dose of the B₁ component of aflatoxin for the induction of liver tumors in rats is approximately 10 mg per day. When this value is compared with similar estimates for other hepatocarcinogens such as dimethylnitrosamine (750 mg/day) and butyrylamine (9,000 mg/day), the relative potency of aflatoxin is readily apparent. Aflatoxins occur at varying concentrations throughout the tissue of contaminated products and can occur at concentrations up to over 1,000,000 parts per billion (ppb) in individual nuts such as peanut kernels. These toxins may remain after the molds that produced them are removed or destroyed. Aflatoxins are fairly resistant to heat and to chemical treatments that do not destroy the nutmeat. conventional food processing, such as roasting nuts, can reduce the aflatoxin level but not sufficiently to solve the problem.

Web site: http://www.delphion.com/details?pn=US04535248__

- **Method for finely dividing almond shells**

Inventor(s): Ayers; Joseph W. (Easton, PA)

Assignee(s): Agrashell, Inc. (Bethlehem, PA)

Patent Number: 4,770,349

Date filed: October 6, 1986

Abstract: Finely divided almond shell flour is used as an extender in plywood- and laminating-adhesives, alone or in combination with other, different, vegetable shell flours.

Excerpt(s): The present invention relates to compositions comprising finely ground almond shells (almond shell flour), alone or in combination with other, different, vegetable shell flours, which compositions are adaptable to use as extenders for aqueous emulsion glues in the formulation of plywood- and laminating-adhesives, and to such adhesives. The formulation of plywood- and laminating-adhesives from aqueous emulsions of synthetic or natural glues using finely ground natural materials as an extender is well known in the prior art. Thus, U.S. Pat. No. 3,017,303, incorporated herein by reference discloses the formulation of such adhesives from emulsions of synthetic phenol-aldehyde or amine-aldehyde resins. The extenders employed in such adhesives include flours produced from nut shells such as walnut (English and black), hickory, palm, and filbert; from pit shells of fruits such as peach, plum, and apricot; and from grain and seed hulls such as oat hulls; and wood flours.

Web site: http://www.delphion.com/details?pn=US04770349__

- **Method of separating almond kernels from almonds with shells**

Inventor(s): Crompton; Alan W. (Marryatville, AU)

Assignee(s): Alf Hannaford & Co. Pty. Limited (Beverley, AU)

Patent Number: 4,347,260

Date filed: June 27, 1980

Abstract: A method and apparatus for separation of almond kernels where there is a mixture of almond kernels with almond kernels held with or within the shells the method comprising introducing the mixture onto two contra rotating rollers which are rotating upwardly through a separation gap and which have their axis inclined to the horizontal so as to cause feeding of the mixture from an entry location to an exit location, the separation gap being selected so that with the alignment caused by the roller action, almond kernels without shells will pass therethrough while almond kernels with shells will pass along to an exit location. The apparatus provides two contra rotating rollers held the selected distance apart to provide for the separation and being adapted to be contra rotating and includes abutments in the surface to provide an occasional tipping action to almond kernels moving along the surface of the rollers.

Excerpt(s): This invention relates to a method of separating almonds into apparatus especially suited for this purpose the separation being especially in relation to separation of almond kernels from almond kernels when within or with their shells. In the commercial separation techniques hitherto used in relation to almonds, it has been a problem of very significant proportion that methods hitherto used have not been effective in separating some types of almonds when these have at least part of their shell still with the kernels and kernels as such. Typically, pneumatic separation has not been

effective because of the very small difference where some of the shell typically almonds having what are termed paper shells in which part of the husk is removed but not all of it are still mixed with kernels.

Web site: http://www.delphion.com/details?pn=US04347260__

- **Ovipositional disruption of the navel orangeworm**

Inventor(s): Barnett; William W. (Clovis, CA), Van Steenwyk; Robert A. (Pleasanton, CA)

Assignee(s): The Regents of The University of California (Berkeley, CA)

Patent Number: 4,605,560

Date filed: December 4, 1984

Abstract: A method for obtaining ovipositional disruption of navel orangeworm. The air of nut orchard area, e.g., almonds, where egg-laying by the moth of the navel orangeworm is expected is permeated, as by spraying, by a composition of matter incorporating as an active ingredient as effective amount of crude almond oil. The composition may be a water emulsion of crude almond oil or may be a water emulsion of a wettable powder formulation containing appreciably equal amounts of crude almond oil and ground almond press cake.

Excerpt(s): This invention relates to ovipositional disruption of the navel orangeworm. The navel orangeworm, *Amyelois transitella* (Walker), is the most serious field insect pest of almonds in California. Growers lost about \$24 million to this insect in 1977, an average of \$87 per bearing acre. Several researchers have tested a variety of substances for attracting female moths to a trap. Rice et al. (1976) reported on egg traps baited with a mixture of wheat bran, glycerine, honey, and water that both attracted female moths and stimulated oviposition. (Rice, R. E., L. L. Sadler, M. L. Hoffman, and R. A. Jones, 1976. Egg traps for the navel orangeworm, *Paramyelois transitella* (Walker). *Environmental Entomology* 5: 697-700.) In an effort to find a substance that could be used to attract navel orangeworm moths to traps, Price et al. (1967) screened about 225 organic compounds and found phenyl propionate the most efficacious. (Price, D. W., J. A. Mazrimas, and F. M. Summers, 1967. Chemical attractants for navel orangeworm moths. *Calif. Agric.* 21(11): 10-11.) Five other compounds that consistently showed a relatively high degree of attractiveness were phenyl isobutyrate, phenyl-2-propanone, phenyl ether, alpha-methylbenzyl alcohol, and ethyl phenylacetate. About 90-95% of the moths attracted to these chemicals were female.

Web site: http://www.delphion.com/details?pn=US04605560__

- **Process and installation for roasting fruits or nuts**

Inventor(s): Cormouls-Houles; Jacky (Toulouse, FR)

Assignee(s): Societe Civile Chenier (Toulouse, FR)

Patent Number: 5,702,751

Date filed: June 17, 1996

Abstract: The invention provides a roasting process for the preparation of fruit or nuts such as almonds, cashew nuts, pecan nuts, peanuts; and the like. This process is characterized by the addition of oil to said fruit or nuts prior to the roasting stage. The

invention also provides an equipment for applying this process, which essentially comprises feeding means (1) for the fruit or nuts to be roasted and conveying means (2) for carrying said fruit towards roasting means (3), said equipment being characterized in that it also includes oil and salt dispensing means (6, 7) at the inlet of the roasting means.

Excerpt(s): The present invention relates to the agro-food industry and more particularly to techniques for the preparation by roasting of fruits or seeds of the type of almonds, cashew nuts, pecans or the like, to render them fit for consumption. Products of this nature are generally used as human food as an accompaniment for aperitive beverages or are part of the composition of certain culinary preparations. For several years now, consumers, alerted particularly by nutritionists, tend to direct their choice toward so-called "light" products, having principally a low fat content but which nevertheless maintain their organoleptic properties. Edible seeds of the type of almonds, cashew nuts, pecan nuts, peanuts or the like, notable for being naturally very rich in fatty and glucidic substances, are thus the more often listed as foodstuffs to be avoided. Moreover, the conventional techniques of preparation of these products consists generally in immersing the seeds in baths of hot oil, which is used several times, and which gives rise to the formation particularly of oxidized triglycerides in a high proportion.

Web site: http://www.delphion.com/details?pn=US05702751__

- **Process for preparing almond paste**

Inventor(s): Allard; Georges-Aloin (St. Etienne, FR), Mange; Christian (Fraisses, FR)

Assignee(s): Cleextral (FR)

Patent Number: 4,839,193

Date filed: May 27, 1987

Abstract: Process for preparing almond paste from whole almonds in a continuous sequence of stages involving cooking-extrusion within a screw conveyor having a plurality of regions with threads of different pitch. The temperatures are controlled at each stage so as to effect not only physical transformations, but also to produce a Maillard reaction for a predetermined part of the process.

Excerpt(s): The present invention relates to a process and apparatus for preparing almond paste from blanched whole almonds mixed with sugar and various additives. It is known that the manufacture of almond paste involves the preparation of a mother almond paste which is a product of the crushing of a certain quantity of blanched sweet almonds associated in particular with saccharose. The various crushing steps and the different treatments require that this mother paste contain a certain percentage of water. The mother almond paste thus contains as its principal components almond and saccharose, and a certain percentage of water.

Web site: http://www.delphion.com/details?pn=US04839193__

- **Process of making a food product and product thereby**

Inventor(s): Wittrock; Harold R. (3836 Stroschen Dr., Cincinnati, OH 45248)

Assignee(s): none reported

Patent Number: 5,863,588

Date filed: December 30, 1996

Abstract: A food product or cereal is formed by a mixture of the ingredients spelt, almonds and pumpkin seeds. The ingredients are separately washed, blanched, dry roasted, and then subjected to a grind between a coarse and a medium grind. Thereafter, the ingredients are mixed together in specific proportions to produce the food product. A broth or brew is generated with the food product by the addition of water brought nearly to a boil. The broth or brew is generated by depositing the food product in a suitable receptacle, adding the water that has been brought nearly to a boil, the combination of food product and broth or brew then stirred. Favorable foods, sweeteners, etc., may be added, to the desire of the person consuming such combination. The combination provides a nutritious food for consumption.

Excerpt(s): This invention is directed to and is related to a novel wholesome food product or cereal that is broth or brewed to provide a flavorable liquid drink, after which the food product or cereal may be immediately, with the broth or brew, or otherwise, consumed. Spelt, one of the ingredients of the food product, has been known for centuries, particularly in Europe, and is a grain among the original grains known to man. It is a hard, reddish-colored whole grain, but is not like wheat. In this invention, it is mixed with seeds and nuts to provide a wholesome food product or cereal that then is first particulated, then water added to form a broth or brew, and thereafter, as a fibrous cereal, with the broth or brew, or afterwards without the broth or brew, consumed. One of the observable benefits that I have personally come by, from a daily or regular intake of the broth or brew and cereal, taken over a goodly period of days, weeks and months, is a higher level of energy and loss of overweightness, among other physical conditions, and which has not physically harmed me but rather has provided and is providing a healthier condition. Also, such consumption satisfied and does satisfy my hunger for a considerable period of time during the same day of such consumption. This in the sense that I do not desire to eat for a considerable length of time throughout the same day on which I consume the broth or brew and cereal. With such consumption, and the lack of hunger for a prolonged period of time during the same day, it stands to reason that my body takes in a lesser amount of calories and fat and which otherwise would be accumulative to the body in a normal manner based on our conventional three-meals-a-day routine. Consequently, loss of weight naturally or logically follows. In any event, the food product or cereal from which the broth or brew is generated does provide a definite basis for a flavorful nutritious broth or brew and edible cereal. Objects of this invention are to provide a novel food product or cereal and a novel drinkable broth or brew.

Web site: http://www.delphion.com/details?pn=US05863588__

- **Skin removal apparatus for almonds**

Inventor(s): George; Kurudamannil A. (Levittown, PA)

Assignee(s): Proctor & Schwartz, Inc. (Horsham, PA)

Patent Number: 4,537,122

Date filed: September 24, 1984

Abstract: The present invention relates to a fluid bed process for the removal of skins from edible nuts.

Excerpt(s): The present invention relates to the removal of skins from edible nuts, and particularly to a process and apparatus for removal of the skins from almonds and other nuts wherein such removal is normally effected only with considerable difficulty. U.S. Pat. No. 2,995,166 is illustrative of one process for removing skins from nuts, wherein the nuts are heated to loosen and crack the skins, followed by the use of air to blow the skins from the nuts. The nuts are trapped between a pair of porous moving belts, and air jets below the lower belt directed at the nuts causes the skin to be removed. The purpose of the upper belt is to hold the nuts on the lower belt against the air jet streams. The process of this patent is primarily for peanuts. It is known to direct air jets downwardly onto a bed of nuts to dislodge the skins, collecting the skins in a cyclone or similar collection device through which the skins and treating air are passed. In the treatment of almonds, this step is preceded by a soaking step wherein the nuts are soaked in water or sodium hydroxide for about 8 hours. Washing removes all but about 5-10% of the skins. Subsequently, the nuts are then dried in a conveyor dryer to remove moisture from the nuts, the air jet apparatus of above being a part of this dryer, for the purpose of removing the remaining 5-10% of the skins.

Web site: http://www.delphion.com/details?pn=US04537122__

- **Trash separator for nut harvester**

Inventor(s): Ramacher; Barry (Stockton, CA)

Assignee(s): Ramacher Manufacturing Company (Linden, CA)

Patent Number: 4,642,977

Date filed: November 1, 1985

Abstract: A nut harvester and separator, particularly for nuts such as pecans, almonds and walnuts, includes a wheeled frame drawn by a tractor over nut and trash windrows on the nut-orchard ground. Power-driven pick-up and lifting reels within a longitudinal plenum on the frame advance the picked-up material well into the plenum. A power-driven suction fan is open to the top of the plenum and draws atmospheric air into the plenum partially through a powered chain conveyor largely defining the bottom wall of the plenum. Atmospheric air is also drawn into the plenum through side inlets in an initial free fall zone of separation providing separation and removal of a large fraction of the light debris which is lifted through the suction fan and discharged to the atmosphere. Heavy, less aerodynamically responsive nuts are left behind to lodge on the conveyor along with the remaining fraction of light debris to form a blanket. The blanket restricts upward flow of air through the rearwardly moving conveyor until the leading edge of the blanket approaches the rearwardly converging downstream, or back, wall of the plenum where the Venturi effect of the wall helps to induce a vigorous updraft in the vicinity of the wall capable of disrupting the leading edge of the blanket where final

separation of the debris takes place and the isolated nuts are discharged into a towed cart or other container.

Excerpt(s): The invention relates to devices for separating nuts from the accompanying leaves and other debris picked up from the ground in an orchard by a nut harvester. Ramacher U.S. Pat. No. 4,364,222. Prior art devices, including most nut harvester-separators commercially available, are often forced to resort to multiple fans to provide sufficient power to induce an updraft capable of lifting a mixture of nuts and heavy trash, such as that encountered in pecan orchards, from a screen conveyor and of separating and removing the lighter and more aerodynamically responsive trash from the nuts which remain on the conveyor and are carried to a discharge.

Web site: http://www.delphion.com/details?pn=US04642977__

- **Use of immature almonds as a skin balm**

Inventor(s): Villa; Cynthia Marian (6788 Alicante Ct., Reno, NV 89523)

Assignee(s): none reported

Patent Number: 6,132,741

Date filed: September 25, 1998

Abstract: Skin is moisturized using the extract of the immature almond. The almond is harvested in the immature state and the immature nut is pulverized to produce a liquidy paste that can be applied to the skin of an individual in need of treatment for dry skin.

Excerpt(s): This invention relates to the production and exploitation of fruits and nuts, particularly this invention relates to the production and exploitation of the drupaceous fruits and nuts, and most particularly this invention relates to the production and the exploitation of the almond nut. It is not a matter of common knowledge, now well understood in industry and commerce, that the sources of the almond nut is a fruit tree. The sweet almond (known variously by the botanical names of *Prunus amygdalus*, *Amygdalus communis*, and *Prunus dulces*) is specifically a stone fruit also known as a drupe, in which the fleshy part, the mesocarp or hull, is derived from the ovary of the flower and surrounds the endocarp or shell, the tegument or thin papery covering of the nut, and finally the stone or nut itself. Almond trees are currently cultivated commercially solely for the value of the edible nut, or in the case of the bitter almond, for the flavoring extracts expressed from the otherwise inedible nut. Almonds are most closely related to other stone fruit, such as peach (*Prunus persica*), apricot (*P. armenisca*) and plum (*P. domestica*, *P. instititia*, et al.), characterized by having inedible stones, in the common understanding, for seeds of the fruit, and an eminently edible mesocarp (which is not referred to as a hull in the case of peaches, plums and the like). The edible mesocarp forming the basis for the commercial exploitation of peaches, plums and the like, are closely related to the hull of the almond. Although the closely related fruits are grown throughout the nation, California is the only place in North America where almonds are grown commercially. In the past 30 years, California's almond yield has quadrupled. More than 400,000 acres in the lush San Joaquin and Sacramento valleys are under cultivation, stretching 400 miles between Bakersfield, Calif. and Red Bluff, Calif.

Web site: http://www.delphion.com/details?pn=US06132741__

- **Use of night-break lighting to increase fruit set in economically important fruit crops**

Inventor(s): Kadmade; Prakash G. (Marlborough, MA), Botticelli; Charles R. (Weston, MA)

Assignee(s): GTE Laboratories Incorporated (Waltham, MA)

Patent Number: 4,506,474

Date filed: May 12, 1980

Abstract: Fruit set in crops can be increased with repeated exposures of the crops with light during the night times. More particularly, light at 660 nm can be administered for periods of 1 to 240 minutes daily, during the night times, from bloom time for the crop (or prior thereto) to early fruit development for the crop, for time spans from 30 to 50 days. Crops include apples (e.g., "Red Delicious"), almonds (e.g., "Nonpareil" and "Merced"), pistachios, soybean, calamondin, grapes, oranges, and cotton. Light can be obtained from a light source selected from the group consisting of fluorescent light source and high intensity discharge-lithium filled metal halide light source having an intensity range 1. μ W/cm.² to 400. μ W/cm.².

Excerpt(s): This invention relates to a method of increasing fruit set in crops, and, in particular, to the use of night-break lighting to increase fruit set in economically important fruit crops. Accordingly, it is a general object of this invention to provide new and improved methods of such character. Some chemical growth regulators, including synthetic auxins, gibberellins, and cytokinins, have been considered to have fruit set improvement potential in various annual garden crops, but are without much success in tree crops. Disadvantageously, various chemical growth regulators for increasing fruit set have been ineffective, and have often produced undesirable side effects, including defoliation, root inhibition, fruit bud, and terminal shoot growth inhibition. Further, chemical regulators tend to leave potentially harmful residues in the soil. As a means of complying with the duty of disclosure set forth at 37 CFR 1.56, the following list is the closest prior art of which applicants are aware. This statement shall not be construed as a representation that a search has been made or that no better art exists.

Web site: http://www.delphion.com/details?pn=US04506474__

Patent Applications on Almonds

As of December 2000, U.S. patent applications are open to public viewing.⁶ Applications are patent requests which have yet to be granted. (The process to achieve a patent can take several years.) The following patent applications have been filed since December 2000 relating to almonds:

⁶ This has been a common practice outside the United States prior to December 2000.

- **ALMOND TREE NAMED 'WINTERS'**

Inventor(s): Kester, Dale E.; (Davis, CA), Gradziel, Thomas M.; (Davis, CA), Asay, Richard N.; (Thayne, WY)

Correspondence: BURNS DOANE SWECKER & MATHIS L L P; POST OFFICE BOX 1404; ALEXANDRIA; VA; 22313-1404; US

Patent Application Number: 20020157144

Date filed: April 20, 2001

Abstract: An improved *Prunus dulcis* variety is provided that is well suited for serving as a pollenizer for the widely-grown 'Nonpareil' variety (non-patented in the United States). Good bloom overlap in combination with good production quality is displayed. The tree exhibits an upright and spreading growth habit. Abundant lateral vegetative growth is produced on current season shoots which makes possible high tree productivity. Desirable fruit and kernel characteristics for shelled and possessed almond production are displayed.

Excerpt(s): Selection 3-1.times.Selection 6-27. 'Peerless'.times.'Harpareil' { 'Harriot'.times.'Nonpareil' }. 'Nonpareil'.times.'Jordanolo' { 'Harriot'.times.'Nonpareil' }.

Web site: <http://appft1.uspto.gov/netahtml/PTO/search-bool.html>

- **Method of producing a wafer product, assembly for implementing the method, and wafer product produced according to the method**

Inventor(s): Draganitsch, Karl; (Donnerskirchen, AT), Fila, Rudolf; (Maria Enzersdorf, AT)

Correspondence: LERNER AND GREENBERG, P.A.; POST OFFICE BOX 2480; HOLLYWOOD; FL; 33022-2480; US

Patent Application Number: 20010012528

Date filed: March 26, 2001

Abstract: Wafer products are produced with two or more wafer sheets and food product in between. The food product, for instance confectionery, meat, fish, cheese, fruit or vegetable product or the like, nuts, or almonds, is applied to a first wafer sheet delivered still hot from the oven. The wafer sheet contains at least 23% sugar or an identical portion of a substance with the same technological properties as sugar, such as trehalose. A second, still-hot wafer sheet is applied to the first layer, the second wafer also containing at least 23% sugar or an identical portion of a substance with the same technological properties as sugar. The two wafer sheets containing the layer of the food product are joined to each other by pressing.

Excerpt(s): This application is a continuation of copending International Application PCT/AT99/00219, filed Sep. 9, 1999, which designated the United States. The present invention relates to a method of producing a wafer product containing a food product using at least two wafer sheets, furthermore a unit for producing such a wafer product, and finally a wafer product produced according to this process. Many wafer products are known which consist of wafer sheets and fillings placed between the wafer sheets, such as confections, meat products, or cheese products. Since the wafer sheets undergo a baking process, they cannot for this reason contain ingredients with vitamins, flavorings, and the like, since these ingredients would be damaged or spoiled by the

baking process. Instead, conventional wafer products consist of several wafer sheets that are combined to form one product after the baking process with fillings consisting of additional food products placed between them.

Web site: <http://appft1.uspto.gov/netahtml/PTO/search-bool.html>

Keeping Current

In order to stay informed about patents and patent applications dealing with almonds, you can access the U.S. Patent Office archive via the Internet at the following Web address: **<http://www.uspto.gov/patft/index.html>**. You will see two broad options: (1) Issued Patent, and (2) Published Applications. To see a list of issued patents, perform the following steps: Under "Issued Patents," click "Quick Search." Then, type "almonds" (or synonyms) into the "Term 1" box. After clicking on the search button, scroll down to see the various patents which have been granted to date on almonds.

You can also use this procedure to view pending patent applications concerning almonds. Simply go back to **<http://www.uspto.gov/patft/index.html>**. Select "Quick Search" under "Published Applications." Then proceed with the steps listed above.

CHAPTER 6. BOOKS ON ALMONDS

Overview

This chapter provides bibliographic book references relating to almonds. In addition to online booksellers such as **www.amazon.com** and **www.bn.com**, excellent sources for book titles on almonds include the Combined Health Information Database and the National Library of Medicine. Your local medical library also may have these titles available for loan.

Book Summaries: Online Booksellers

Commercial Internet-based booksellers, such as Amazon.com and Barnes&Noble.com, offer summaries which have been supplied by each title's publisher. Some summaries also include customer reviews. Your local bookseller may have access to in-house and commercial databases that index all published books (e.g. Books in Print®). **IMPORTANT NOTE:** Online booksellers typically produce search results for medical and non-medical books. When searching for "almonds" at online booksellers' Web sites, you may discover non-medical books that use the generic term "almonds" (or a synonym) in their titles. The following is indicative of the results you might find when searching for "almonds" (sorted alphabetically by title; follow the hyperlink to view more details at Amazon.com):

- **A Sweet Quartet : Sugar, Almonds, Eggs, and Butter: A Baker's Tour, Including 33 Recipes** by Fran Gage (Author) (2003); ISBN: 0865476748;
<http://www.amazon.com/exec/obidos/ASIN/0865476748/icongroupinterna>
- **Almond Cookies & Dragon Well Tea** by Cynthia Chin-Lee, You Shan Tang (Illustrator) (1993); ISBN: 1879965038;
<http://www.amazon.com/exec/obidos/ASIN/1879965038/icongroupinterna>
- **Almonds & Raisins** by Maisie Mosco (1979); ISBN: 0450044424;
<http://www.amazon.com/exec/obidos/ASIN/0450044424/icongroupinterna>
- **Almonds and Raisins**; ISBN: 9992585676;
<http://www.amazon.com/exec/obidos/ASIN/9992585676/icongroupinterna>
- **Almonds and Raisins [LARGE PRINT]**; ISBN: 0860097552;
<http://www.amazon.com/exec/obidos/ASIN/0860097552/icongroupinterna>

- **Almonds and Raisins: Consequences** by Maisie Mosco; ISBN: 1854961586;
<http://www.amazon.com/exec/obidos/ASIN/1854961586/icongroupinterna>
- **Almonds and Raisins: Realities** by Maisie Mosco; ISBN: 1854961578;
<http://www.amazon.com/exec/obidos/ASIN/1854961578/icongroupinterna>
- **Cholesterol Cures: From Almonds and Antioxidants to Garlic, Golf, Wine and Yogurt-325 Quick and Easy Ways to Lower Cholesterol and Live Longer** by Richard Trubo, et al (1996); ISBN: 0875963994;
<http://www.amazon.com/exec/obidos/ASIN/0875963994/icongroupinterna>
- **Cholesterol Cures: More Than 325 Natural Ways to Lower Cholesterol and Live Longer from Almonds and Chocolate to Garlic and Wine** by William P. Castelli (Editor), Prevention Health Books (Editor) (2002); ISBN: 1579544819;
<http://www.amazon.com/exec/obidos/ASIN/1579544819/icongroupinterna>
- **New Almond Cookery** by Nichelle Schmidt, Michelle Schmidt; ISBN: 0671524909;
<http://www.amazon.com/exec/obidos/ASIN/0671524909/icongroupinterna>
- **Puddings from A to Z : almond cream to zucchini** by Frederick H. Brengelman (Illustrator); ISBN: 0938911090;
<http://www.amazon.com/exec/obidos/ASIN/0938911090/icongroupinterna>
- **Raisins and almonds** by Fredelle Bruser Maynard; ISBN: 0773770461;
<http://www.amazon.com/exec/obidos/ASIN/0773770461/icongroupinterna>
- **Raisins and Almonds** by Kerry Greenwood, Deidre Rubenstein (Reader); ISBN: 0786117583;
<http://www.amazon.com/exec/obidos/ASIN/0786117583/icongroupinterna>
- **Secrets of Fat-Free Chinese Cooking: Over 120 Fat-Free and Fat-Free, Traditional Chinese Recipes - From Egg Rolls to Almond Cookies** by Ying Chang, Compentine (1997); ISBN: 0895297353;
<http://www.amazon.com/exec/obidos/ASIN/0895297353/icongroupinterna>
- **The Hangover Pack: Includes Almond Oil and Lavender and Rosemary Essential Oils (Cures for Modern Times)** by Journey Editions (1997); ISBN: 1885203438;
<http://www.amazon.com/exec/obidos/ASIN/1885203438/icongroupinterna>
- **The Headache Pack: Includes Almond, Lavender and Peppermint Essential Oils (Cures for Modern Times)** by Journey Editions; ISBN: 1885203446;
<http://www.amazon.com/exec/obidos/ASIN/1885203446/icongroupinterna>
- **The Insomnia Pack: Includes Almond Oil and Lavender and Peppermint Essential Oils (Cures for Modern Times)** by Journey Editions (1997); ISBN: 188520342X;
<http://www.amazon.com/exec/obidos/ASIN/188520342X/icongroupinterna>
- **The Stress Pack: Includes Almond, Lavender and Cedarwood Essential Oils (Cures for Modern Times)** by Journey Editions; ISBN: 1885203454;
<http://www.amazon.com/exec/obidos/ASIN/1885203454/icongroupinterna>

Chapters on Almonds

In order to find chapters that specifically relate to almonds, an excellent source of abstracts is the Combined Health Information Database. You will need to limit your search to book chapters and almonds using the "Detailed Search" option. Go to the following hyperlink: <http://chid.nih.gov/detail/detail.html>. To find book chapters, use the drop boxes at the

bottom of the search page where "You may refine your search by." Select the dates and language you prefer, and the format option "Book Chapter." Type "almonds" (or synonyms) into the "For these words:" box.

CHAPTER 7. PERIODICALS AND NEWS ON ALMONDS

Overview

In this chapter, we suggest a number of news sources and present various periodicals that cover almonds.

News Services and Press Releases

One of the simplest ways of tracking press releases on almonds is to search the news wires. In the following sample of sources, we will briefly describe how to access each service. These services only post recent news intended for public viewing.

PR Newswire

To access the PR Newswire archive, simply go to <http://www.prnewswire.com/>. Select your country. Type “almonds” (or synonyms) into the search box. You will automatically receive information on relevant news releases posted within the last 30 days. The search results are shown by order of relevance.

Reuters Health

The Reuters’ Medical News and Health eLine databases can be very useful in exploring news archives relating to almonds. While some of the listed articles are free to view, others are available for purchase for a nominal fee. To access this archive, go to <http://www.reutershealth.com/en/index.html> and search by “almonds” (or synonyms). The following was recently listed in this archive for almonds:

- **Receptor reveals the taste of bitter almonds**
Source: Reuters Health eLine
Date: October 14, 2002
- **Almonds lower coronary heart disease risk factors in hyperlipidemic patients**
Source: Reuters Medical News
Date: August 20, 2002

- **Almonds, as part of healthy diet, cut cholesterol**
Source: Reuters Health eLine
Date: August 19, 2002
- **My sweater's not brown-it's 'mocha almond fudge'!**
Source: Reuters Health eLine
Date: June 10, 2002

The NIH

Within MEDLINEplus, the NIH has made an agreement with the New York Times Syndicate, the AP News Service, and Reuters to deliver news that can be browsed by the public. Search news releases at http://www.nlm.nih.gov/medlineplus/alphanews_a.html. MEDLINEplus allows you to browse across an alphabetical index. Or you can search by date at the following Web page: <http://www.nlm.nih.gov/medlineplus/newsbydate.html>. Often, news items are indexed by MEDLINEplus within its search engine.

Business Wire

Business Wire is similar to PR Newswire. To access this archive, simply go to <http://www.businesswire.com/>. You can scan the news by industry category or company name.

Market Wire

Market Wire is more focused on technology than the other wires. To browse the latest press releases by topic, such as alternative medicine, biotechnology, fitness, healthcare, legal, nutrition, and pharmaceuticals, access Market Wire's Medical/Health channel at http://www.marketwire.com/mw/release_index?channel=MedicalHealth. Or simply go to Market Wire's home page at <http://www.marketwire.com/mw/home>, type "almonds" (or synonyms) into the search box, and click on "Search News." As this service is technology oriented, you may wish to use it when searching for press releases covering diagnostic procedures or tests.

Search Engines

Medical news is also available in the news sections of commercial Internet search engines. See the health news page at Yahoo (http://dir.yahoo.com/Health/News_and_Media/), or you can use this Web site's general news search page at <http://news.yahoo.com/>. Type in "almonds" (or synonyms). If you know the name of a company that is relevant to almonds, you can go to any stock trading Web site (such as <http://www.etrade.com/>) and search for the company name there. News items across various news sources are reported on indicated hyperlinks. Google offers a similar service at <http://news.google.com/>.

BBC

Covering news from a more European perspective, the British Broadcasting Corporation (BBC) allows the public free access to their news archive located at <http://www.bbc.co.uk/>. Search by “almonds” (or synonyms).

Newsletter Articles

Use the Combined Health Information Database, and limit your search criteria to “newsletter articles.” Again, you will need to use the “Detailed Search” option. Go directly to the following hyperlink: <http://chid.nih.gov/detail/detail.html>. Go to the bottom of the search page where “You may refine your search by.” Select the dates and language that you prefer. For the format option, select “Newsletter Article.” Type “almonds” (or synonyms) into the “For these words:” box. You should check back periodically with this database as it is updated every three months. The following is a typical result when searching for newsletter articles on almonds:

- **Fat Confusion Cleared Up**

Source: AICR Newsletter. Issue 62, p.5. Winter 1999.

Contact: AICR, 1759 R Street NW, Washington, DC. (202) 328-7744.

Summary: This article explains the differences between the various kinds of fats. According to the author, it is not healthy to eliminate all fats from the diet. However, individuals should reduce the amount of animal fat they consume. Avocados and **almonds** eaten in moderation are not unhealthy, and may improve the ratio of ‘good’ cholesterol in the blood, since both contain monounsaturated fats. Olive or canola oils should be used for cooking, says the author, but it is unhealthy to overindulge in any kind of fat. Trans-fats are to be avoided, especially those found in hydrogenated vegetable oils and mayonnaise, processed cookies, chips, cakes, and crackers, and in deep-fried foods like doughnuts.

Academic Periodicals covering Almonds

Numerous periodicals are currently indexed within the National Library of Medicine’s PubMed database that are known to publish articles relating to almonds. In addition to these sources, you can search for articles covering almonds that have been published by any of the periodicals listed in previous chapters. To find the latest studies published, go to <http://www.ncbi.nlm.nih.gov/pubmed>, type the name of the periodical into the search box, and click “Go.”

If you want complete details about the historical contents of a journal, you can also visit the following Web site: <http://www.ncbi.nlm.nih.gov/entrez/jrbrowser.cgi>. Here, type in the name of the journal or its abbreviation, and you will receive an index of published articles. At <http://locatorplus.gov/>, you can retrieve more indexing information on medical periodicals (e.g. the name of the publisher). Select the button “Search LOCATORplus.” Then type in the name of the journal and select the advanced search option “Journal Title Search.”

APPENDICES

APPENDIX A. PHYSICIAN RESOURCES

Overview

In this chapter, we focus on databases and Internet-based guidelines and information resources created or written for a professional audience.

NIH Guidelines

Commonly referred to as “clinical” or “professional” guidelines, the National Institutes of Health publish physician guidelines for the most common diseases. Publications are available at the following by relevant Institute⁷:

- Office of the Director (OD); guidelines consolidated across agencies available at <http://www.nih.gov/health/consumer/conkey.htm>
- National Institute of General Medical Sciences (NIGMS); fact sheets available at <http://www.nigms.nih.gov/news/facts/>
- National Library of Medicine (NLM); extensive encyclopedia (A.D.A.M., Inc.) with guidelines: <http://www.nlm.nih.gov/medlineplus/healthtopics.html>
- National Cancer Institute (NCI); guidelines available at <http://www.cancer.gov/cancerinfo/list.aspx?viewid=5f35036e-5497-4d86-8c2c-714a9f7c8d25>
- National Eye Institute (NEI); guidelines available at <http://www.nei.nih.gov/order/index.htm>
- National Heart, Lung, and Blood Institute (NHLBI); guidelines available at <http://www.nhlbi.nih.gov/guidelines/index.htm>
- National Human Genome Research Institute (NHGRI); research available at <http://www.genome.gov/page.cfm?pageID=10000375>
- National Institute on Aging (NIA); guidelines available at <http://www.nia.nih.gov/health/>

⁷ These publications are typically written by one or more of the various NIH Institutes.

- National Institute on Alcohol Abuse and Alcoholism (NIAAA); guidelines available at <http://www.niaaa.nih.gov/publications/publications.htm>
- National Institute of Allergy and Infectious Diseases (NIAID); guidelines available at <http://www.niaid.nih.gov/publications/>
- National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS); fact sheets and guidelines available at <http://www.niams.nih.gov/hi/index.htm>
- National Institute of Child Health and Human Development (NICHD); guidelines available at <http://www.nichd.nih.gov/publications/pubskey.cfm>
- National Institute on Deafness and Other Communication Disorders (NIDCD); fact sheets and guidelines at <http://www.nidcd.nih.gov/health/>
- National Institute of Dental and Craniofacial Research (NIDCR); guidelines available at <http://www.nidr.nih.gov/health/>
- National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK); guidelines available at <http://www.niddk.nih.gov/health/health.htm>
- National Institute on Drug Abuse (NIDA); guidelines available at <http://www.nida.nih.gov/DrugAbuse.html>
- National Institute of Environmental Health Sciences (NIEHS); environmental health information available at <http://www.niehs.nih.gov/external/facts.htm>
- National Institute of Mental Health (NIMH); guidelines available at <http://www.nimh.nih.gov/practitioners/index.cfm>
- National Institute of Neurological Disorders and Stroke (NINDS); neurological disorder information pages available at http://www.ninds.nih.gov/health_and_medical/disorder_index.htm
- National Institute of Nursing Research (NINR); publications on selected illnesses at <http://www.nih.gov/ninr/news-info/publications.html>
- National Institute of Biomedical Imaging and Bioengineering; general information at http://grants.nih.gov/grants/becon/becon_info.htm
- Center for Information Technology (CIT); referrals to other agencies based on keyword searches available at http://kb.nih.gov/www_query_main.asp
- National Center for Complementary and Alternative Medicine (NCCAM); health information available at <http://nccam.nih.gov/health/>
- National Center for Research Resources (NCRR); various information directories available at <http://www.ncrr.nih.gov/publications.asp>
- Office of Rare Diseases; various fact sheets available at http://rarediseases.info.nih.gov/html/resources/rep_pubs.html
- Centers for Disease Control and Prevention; various fact sheets on infectious diseases available at <http://www.cdc.gov/publications.htm>

NIH Databases

In addition to the various Institutes of Health that publish professional guidelines, the NIH has designed a number of databases for professionals.⁸ Physician-oriented resources provide a wide variety of information related to the biomedical and health sciences, both past and present. The format of these resources varies. Searchable databases, bibliographic citations, full-text articles (when available), archival collections, and images are all available. The following are referenced by the National Library of Medicine:⁹

- **Bioethics:** Access to published literature on the ethical, legal, and public policy issues surrounding healthcare and biomedical research. This information is provided in conjunction with the Kennedy Institute of Ethics located at Georgetown University, Washington, D.C.: http://www.nlm.nih.gov/databases/databases_bioethics.html
- **HIV/AIDS Resources:** Describes various links and databases dedicated to HIV/AIDS research: <http://www.nlm.nih.gov/pubs/factsheets/aidsinfo.html>
- **NLM Online Exhibitions:** Describes “Exhibitions in the History of Medicine”: <http://www.nlm.nih.gov/exhibition/exhibition.html>. Additional resources for historical scholarship in medicine: <http://www.nlm.nih.gov/hmd/hmd.html>
- **Biotechnology Information:** Access to public databases. The National Center for Biotechnology Information conducts research in computational biology, develops software tools for analyzing genome data, and disseminates biomedical information for the better understanding of molecular processes affecting human health and disease: <http://www.ncbi.nlm.nih.gov/>
- **Population Information:** The National Library of Medicine provides access to worldwide coverage of population, family planning, and related health issues, including family planning technology and programs, fertility, and population law and policy: http://www.nlm.nih.gov/databases/databases_population.html
- **Cancer Information:** Access to cancer-oriented databases: http://www.nlm.nih.gov/databases/databases_cancer.html
- **Profiles in Science:** Offering the archival collections of prominent twentieth-century biomedical scientists to the public through modern digital technology: <http://www.profiles.nlm.nih.gov/>
- **Chemical Information:** Provides links to various chemical databases and references: <http://sis.nlm.nih.gov/Chem/ChemMain.html>
- **Clinical Alerts:** Reports the release of findings from the NIH-funded clinical trials where such release could significantly affect morbidity and mortality: http://www.nlm.nih.gov/databases/alerts/clinical_alerts.html
- **Space Life Sciences:** Provides links and information to space-based research (including NASA): http://www.nlm.nih.gov/databases/databases_space.html
- **MEDLINE:** Bibliographic database covering the fields of medicine, nursing, dentistry, veterinary medicine, the healthcare system, and the pre-clinical sciences: http://www.nlm.nih.gov/databases/databases_medline.html

⁸ Remember, for the general public, the National Library of Medicine recommends the databases referenced in MEDLINEplus (<http://medlineplus.gov/> or <http://www.nlm.nih.gov/medlineplus/databases.html>).

⁹ See <http://www.nlm.nih.gov/databases/databases.html>.

- **Toxicology and Environmental Health Information (TOXNET):** Databases covering toxicology and environmental health: <http://sis.nlm.nih.gov/Tox/ToxMain.html>
- **Visible Human Interface:** Anatomically detailed, three-dimensional representations of normal male and female human bodies:
http://www.nlm.nih.gov/research/visible/visible_human.html

The NLM Gateway¹⁰

The NLM (National Library of Medicine) Gateway is a Web-based system that lets users search simultaneously in multiple retrieval systems at the U.S. National Library of Medicine (NLM). It allows users of NLM services to initiate searches from one Web interface, providing one-stop searching for many of NLM's information resources or databases.¹¹ To use the NLM Gateway, simply go to the search site at <http://gateway.nlm.nih.gov/gw/Cmd>. Type "almonds" (or synonyms) into the search box and click "Search." The results will be presented in a tabular form, indicating the number of references in each database category.

Results Summary

| Category | Items Found |
|------------------------------------|-------------|
| Journal Articles | 345 |
| Books / Periodicals / Audio Visual | 4 |
| Consumer Health | 411 |
| Meeting Abstracts | 0 |
| Other Collections | 0 |
| Total | 760 |

HSTAT¹²

HSTAT is a free, Web-based resource that provides access to full-text documents used in healthcare decision-making.¹³ These documents include clinical practice guidelines, quick-reference guides for clinicians, consumer health brochures, evidence reports and technology assessments from the Agency for Healthcare Research and Quality (AHRQ), as well as AHRQ's Put Prevention Into Practice.¹⁴ Simply search by "almonds" (or synonyms) at the following Web site: <http://text.nlm.nih.gov>.

¹⁰ Adapted from NLM: <http://gateway.nlm.nih.gov/gw/Cmd?Overview.x>.

¹¹ The NLM Gateway is currently being developed by the Lister Hill National Center for Biomedical Communications (LHNCBC) at the National Library of Medicine (NLM) of the National Institutes of Health (NIH).

¹² Adapted from HSTAT: <http://www.nlm.nih.gov/pubs/factsheets/hstat.html>.

¹³ The HSTAT URL is <http://hstat.nlm.nih.gov/>.

¹⁴ Other important documents in HSTAT include: the National Institutes of Health (NIH) Consensus Conference Reports and Technology Assessment Reports; the HIV/AIDS Treatment Information Service (ATIS) resource documents; the Substance Abuse and Mental Health Services Administration's Center for Substance Abuse Treatment (SAMHSA/CSAT) Treatment Improvement Protocols (TIP) and Center for Substance Abuse Prevention (SAMHSA/CSAP) Prevention Enhancement Protocols System (PEPS); the Public Health Service (PHS) Preventive Services Task Force's *Guide to Clinical Preventive Services*; the independent, nonfederal Task Force on Community Services' *Guide to Community Preventive Services*; and the Health Technology Advisory Committee (HTAC) of the Minnesota Health Care Commission (MHCC) health technology evaluations.

Coffee Break: Tutorials for Biologists¹⁵

Coffee Break is a general healthcare site that takes a scientific view of the news and covers recent breakthroughs in biology that may one day assist physicians in developing treatments. Here you will find a collection of short reports on recent biological discoveries. Each report incorporates interactive tutorials that demonstrate how bioinformatics tools are used as a part of the research process. Currently, all Coffee Breaks are written by NCBI staff.¹⁶ Each report is about 400 words and is usually based on a discovery reported in one or more articles from recently published, peer-reviewed literature.¹⁷ This site has new articles every few weeks, so it can be considered an online magazine of sorts. It is intended for general background information. You can access the Coffee Break Web site at the following hyperlink: <http://www.ncbi.nlm.nih.gov/Coffeebreak/>.

Other Commercial Databases

In addition to resources maintained by official agencies, other databases exist that are commercial ventures addressing medical professionals. Here are some examples that may interest you:

- **CliniWeb International:** Index and table of contents to selected clinical information on the Internet; see <http://www.ohsu.edu/clinweb/>.
- **Medical World Search:** Searches full text from thousands of selected medical sites on the Internet; see <http://www.mwsearch.com/>.

¹⁵ Adapted from <http://www.ncbi.nlm.nih.gov/Coffeebreak/Archive/FAQ.html>.

¹⁶ The figure that accompanies each article is frequently supplied by an expert external to NCBI, in which case the source of the figure is cited. The result is an interactive tutorial that tells a biological story.

¹⁷ After a brief introduction that sets the work described into a broader context, the report focuses on how a molecular understanding can provide explanations of observed biology and lead to therapies for diseases. Each vignette is accompanied by a figure and hypertext links that lead to a series of pages that interactively show how NCBI tools and resources are used in the research process.

APPENDIX B. PATIENT RESOURCES

Overview

Official agencies, as well as federally funded institutions supported by national grants, frequently publish a variety of guidelines written with the patient in mind. These are typically called “Fact Sheets” or “Guidelines.” They can take the form of a brochure, information kit, pamphlet, or flyer. Often they are only a few pages in length. Since new guidelines on almonds can appear at any moment and be published by a number of sources, the best approach to finding guidelines is to systematically scan the Internet-based services that post them.

Patient Guideline Sources

The remainder of this chapter directs you to sources which either publish or can help you find additional guidelines on topics related to almonds. Due to space limitations, these sources are listed in a concise manner. Do not hesitate to consult the following sources by either using the Internet hyperlink provided, or, in cases where the contact information is provided, contacting the publisher or author directly.

The National Institutes of Health

The NIH gateway to patients is located at <http://health.nih.gov/>. From this site, you can search across various sources and institutes, a number of which are summarized below.

Topic Pages: MEDLINEplus

The National Library of Medicine has created a vast and patient-oriented healthcare information portal called MEDLINEplus. Within this Internet-based system are “health topic pages” which list links to available materials relevant to almonds. To access this system, log on to <http://www.nlm.nih.gov/medlineplus/healthtopics.html>. From there you can either search using the alphabetical index or browse by broad topic areas. Recently, MEDLINEplus listed the following when searched for “almonds”:

- Other guides

- Chemical Weapons**

- <http://www.nlm.nih.gov/medlineplus/chemicalweapons.html>

- Nutrition for Seniors**

- <http://www.nlm.nih.gov/medlineplus/nutritionforseniors.html>

- Osteoporosis**

- <http://www.nlm.nih.gov/medlineplus/osteoporosis.html>

- Ovarian Cancer**

- <http://www.nlm.nih.gov/medlineplus/ovariancancer.html>

You may also choose to use the search utility provided by MEDLINEplus at the following Web address: <http://www.nlm.nih.gov/medlineplus/>. Simply type a keyword into the search box and click "Search." This utility is similar to the NIH search utility, with the exception that it only includes materials that are linked within the MEDLINEplus system (mostly patient-oriented information). It also has the disadvantage of generating unstructured results. We recommend, therefore, that you use this method only if you have a very targeted search.

The Combined Health Information Database (CHID)

CHID Online is a reference tool that maintains a database directory of thousands of journal articles and patient education guidelines on almonds. CHID offers summaries that describe the guidelines available, including contact information and pricing. CHID's general Web site is <http://chid.nih.gov/>. To search this database, go to <http://chid.nih.gov/detail/detail.html>. In particular, you can use the advanced search options to look up pamphlets, reports, brochures, and information kits. The following was recently posted in this archive:

- **Understanding Food Labels**

Source: Fairfax, VA: Food Allergy and Anaphylaxis Network (FAAN). 1996. 16 p.

Contact: Available from Food Allergy and Anaphylaxis Network (FAAN). 10400 Eaton Place, Suite 107, Fairfax, VA 22030. (800) 929-4040 or (703) 691-3179. Fax (703) 691-2713. E-mail: faan@foodallergy.org. Web site: <http://www.foodallergy.org/>. Price: \$5.00 each.

Summary: This booklet on understanding food labels is a publication of the Food Allergy and Anaphylaxis Network, a national nonprofit organization established to help families living with food allergies and to increase public awareness about food allergies and anaphylaxis. The authors emphasize that the only way to manage food allergies is to strictly avoid the foods to which one is allergic. Knowing how to interpret ingredients on food labels is the backbone of successful avoidance of these foods. This booklet provides tips for learning how to read and interpret food labels and to spot high-risk foods. The authors also remind readers that foods and food product ingredients can and often do change without warning, so the label must be read thoroughly every time a product is purchased. Other topics covered include understanding Kosher symbols, rules, and markings; the use of products labeled 'nondairy'; imitation seafood, particularly surimi; flavors and extracts; processed foods; food and products available from health food stores; foods without ingredient listings; foods with foreign language ingredient listings; high risk foods, including Worcestershire sauce, barbecue sauce, imitation butter flavor, water-added hams, hot dogs, deli meats, light fig newtons, low-

fat peanut butter, oils, pet food, sweet and sour sauce, health food store vitamins, and egg substitutes; the use of allergy causing foods in common recipes, including **almonds**, eggs, peanut butter, pinon nuts (pine nuts), and spices; cross contamination during processing, during home cooking, at the grocery store, and at food service places; and how to contact grocery manufacturers. The booklet concludes with a list of various sources of information, including the Asthma and Allergy Foundation of America, the Medic Alert Foundation, and a few manufacturers of allergy-free food products. 1 figure. (AA-M).

- **FAN Flashbacks: Tree Nuts**

Source: Fairfax, VA: Food Allergy and Anaphylaxis Network (FAAN). 1996. 4 p.

Contact: Available from Food Allergy and Anaphylaxis Network (FAAN). 10400 Eaton Place, Suite 107, Fairfax, VA 22030. (800) 929-4040 or (703) 691-3179. Fax (703) 691-2713. E-mail: faan@foodallergy.org. Web site: <http://www.foodallergy.org/>. Price: \$2.00 each.

Summary: This brochure reprints relevant information on specific topics from previous issues of Food Allergy News, the newsletter of the Food Allergy Network. This brochure focuses on tree nuts. Included is a listing of fruits and seeds that are commonly referred to as nuts. This list includes **almonds**, Brazil nuts (souari, swarri, butter, paradise, or guiana nuts), cashew, hazelnut or filbert, pecan, pinon or pinyon nuts, pistachio, walnuts, acorns, beech nuts, chestnuts, coconut, ginkgo or salnuts, hickory (pecan), oysternut, pignolia, pili (Javanese almonds), Queensland or macadamia nuts, terminalia, and wingnuts. For each item on the list, the brochure defines its source and whether or not it can be eaten by people allergic to tree nuts. The remainder of the brochure provides news reports, cooking tips, consumer alert information, and some information sent in from readers outside the United States. The brochure includes the address, telephone numbers, and email addresses for the Food Allergy and Anaphylaxis Network. (AA-M).

- **Healthy Diet for Individuals with Hemochromatosis**

Source: Richmond, BC, Canada: Canadian Hemochromatosis Society. 1997. 1 p.

Contact: Available from Canadian Hemochromatosis Society. 272-7000 Minoru Boulevard, Richmond, BC, Canada V6Y 3Z5. (604) 279-7135. Fax (604) 279-7138. E-mail: chcts@istar.ca. PRICE: Single copy free.

Summary: This fact sheet outlines a recommended diet for people with hemochromatosis (HH), a genetic disorder that results in an overload of iron in the body. Iron accumulates over a number of years and collects in vital organs, such as the heart, liver, and pancreas, causing damage and, in some cases, total destruction. Patients with HH can be treated successfully by regular blood withdrawals (phlebotomies), which will reduce the buildup of excess iron in the body. The fact sheet notes that a diet low in iron cannot take the place of phlebotomy, but patients with HH are nonetheless advised to minimize their intake of iron rich foods and supplements. In addition, patients must take care to replace nutrients lost through phlebotomy. The fact sheet lists enhancers that can increase the amount of iron absorbed from food, such as alcohol, organ meats, vitamin C, cooked shellfish, and foods fortified with iron. The fact sheet then lists four categories of iron inhibitors: oxalates (currents, concord grapes, figs, plums, sweet potatoes, **almonds**, raspberries, tomato, okra, green and wax beans, chocolate, cocoa, and tea), phosphates (cheese and dairy products), carbonates (sodas, soft drinks), and tannates (including tea). The least iron absorption occurs from wholemeal flour products, tea, and high fiber cereals. Although many vegetables are

rich in iron, many also contain an iron inhibitor. More iron is absorbed from meat than from vegetables.

The NIH Search Utility

The NIH search utility allows you to search for documents on over 100 selected Web sites that comprise the NIH-WEB-SPACE. Each of these servers is “crawled” and indexed on an ongoing basis. Your search will produce a list of various documents, all of which will relate in some way to almonds. The drawbacks of this approach are that the information is not organized by theme and that the references are often a mix of information for professionals and patients. Nevertheless, a large number of the listed Web sites provide useful background information. We can only recommend this route, therefore, for relatively rare or specific disorders, or when using highly targeted searches. To use the NIH search utility, visit the following Web page: <http://search.nih.gov/index.html>.

Additional Web Sources

A number of Web sites are available to the public that often link to government sites. These can also point you in the direction of essential information. The following is a representative sample:

- AOL: <http://search.aol.com/cat.adp?id=168&layer=&from=subcats>
- Family Village: <http://www.familyvillage.wisc.edu/specific.htm>
- Google: http://directory.google.com/Top/Health/Conditions_and_Diseases/
- Med Help International: <http://www.medhelp.org/HealthTopics/A.html>
- Open Directory Project: http://dmoz.org/Health/Conditions_and_Diseases/
- Yahoo.com: http://dir.yahoo.com/Health/Diseases_and_Conditions/
- WebMD®Health: http://my.webmd.com/health_topics

Finding Associations

There are several Internet directories that provide lists of medical associations with information on or resources relating to almonds. By consulting all of associations listed in this chapter, you will have nearly exhausted all sources for patient associations concerned with almonds.

The National Health Information Center (NHIC)

The National Health Information Center (NHIC) offers a free referral service to help people find organizations that provide information about almonds. For more information, see the NHIC’s Web site at <http://www.health.gov/NHIC/> or contact an information specialist by calling 1-800-336-4797.

Directory of Health Organizations

The Directory of Health Organizations, provided by the National Library of Medicine Specialized Information Services, is a comprehensive source of information on associations. The Directory of Health Organizations database can be accessed via the Internet at <http://www.sis.nlm.nih.gov/Dir/DirMain.html>. It is composed of two parts: DIRLINE and Health Hotlines.

The DIRLINE database comprises some 10,000 records of organizations, research centers, and government institutes and associations that primarily focus on health and biomedicine. To access DIRLINE directly, go to the following Web site: <http://dirline.nlm.nih.gov/>. Simply type in “almonds” (or a synonym), and you will receive information on all relevant organizations listed in the database.

Health Hotlines directs you to toll-free numbers to over 300 organizations. You can access this database directly at <http://www.sis.nlm.nih.gov/hotlines/>. On this page, you are given the option to search by keyword or by browsing the subject list. When you have received your search results, click on the name of the organization for its description and contact information.

The Combined Health Information Database

Another comprehensive source of information on healthcare associations is the Combined Health Information Database. Using the “Detailed Search” option, you will need to limit your search to “Organizations” and “almonds”. Type the following hyperlink into your Web browser: <http://chid.nih.gov/detail/detail.html>. To find associations, use the drop boxes at the bottom of the search page where “You may refine your search by.” For publication date, select “All Years.” Then, select your preferred language and the format option “Organization Resource Sheet.” Type “almonds” (or synonyms) into the “For these words:” box. You should check back periodically with this database since it is updated every three months.

The National Organization for Rare Disorders, Inc.

The National Organization for Rare Disorders, Inc. has prepared a Web site that provides, at no charge, lists of associations organized by health topic. You can access this database at the following Web site: <http://www.rarediseases.org/search/orgsearch.html>. Type “almonds” (or a synonym) into the search box, and click “Submit Query.”

APPENDIX C. FINDING MEDICAL LIBRARIES

Overview

In this Appendix, we show you how to quickly find a medical library in your area.

Preparation

Your local public library and medical libraries have interlibrary loan programs with the National Library of Medicine (NLM), one of the largest medical collections in the world. According to the NLM, most of the literature in the general and historical collections of the National Library of Medicine is available on interlibrary loan to any library. If you would like to access NLM medical literature, then visit a library in your area that can request the publications for you.¹⁸

Finding a Local Medical Library

The quickest method to locate medical libraries is to use the Internet-based directory published by the National Network of Libraries of Medicine (NN/LM). This network includes 4626 members and affiliates that provide many services to librarians, health professionals, and the public. To find a library in your area, simply visit <http://nnlm.gov/members/adv.html> or call 1-800-338-7657.

Medical Libraries in the U.S. and Canada

In addition to the NN/LM, the National Library of Medicine (NLM) lists a number of libraries with reference facilities that are open to the public. The following is the NLM's list and includes hyperlinks to each library's Web site. These Web pages can provide information on hours of operation and other restrictions. The list below is a small sample of

¹⁸ Adapted from the NLM: <http://www.nlm.nih.gov/psd/cas/interlibrary.html>.

libraries recommended by the National Library of Medicine (sorted alphabetically by name of the U.S. state or Canadian province where the library is located)¹⁹:

- **Alabama:** Health InfoNet of Jefferson County (Jefferson County Library Cooperative, Lister Hill Library of the Health Sciences), <http://www.uab.edu/infonet/>
- **Alabama:** Richard M. Scrushy Library (American Sports Medicine Institute)
- **Arizona:** Samaritan Regional Medical Center: The Learning Center (Samaritan Health System, Phoenix, Arizona), <http://www.samaritan.edu/library/bannerlibs.htm>
- **California:** Kris Kelly Health Information Center (St. Joseph Health System, Humboldt), <http://www.humboldt1.com/~kkhic/index.html>
- **California:** Community Health Library of Los Gatos, <http://www.healthlib.org/orgresources.html>
- **California:** Consumer Health Program and Services (CHIPS) (County of Los Angeles Public Library, Los Angeles County Harbor-UCLA Medical Center Library) - Carson, CA, <http://www.colapublib.org/services/chips.html>
- **California:** Gateway Health Library (Sutter Gould Medical Foundation)
- **California:** Health Library (Stanford University Medical Center), <http://www-med.stanford.edu/healthlibrary/>
- **California:** Patient Education Resource Center - Health Information and Resources (University of California, San Francisco), <http://sfghdean.ucsf.edu/barnett/PERC/default.asp>
- **California:** Redwood Health Library (Petaluma Health Care District), <http://www.phcd.org/rdwdlib.html>
- **California:** Los Gatos PlaneTree Health Library, <http://planetreesanjose.org/>
- **California:** Sutter Resource Library (Sutter Hospitals Foundation, Sacramento), <http://suttermedicalcenter.org/library/>
- **California:** Health Sciences Libraries (University of California, Davis), <http://www.lib.ucdavis.edu/healthsci/>
- **California:** ValleyCare Health Library & Ryan Comer Cancer Resource Center (ValleyCare Health System, Pleasanton), <http://gaenet.stmarys-ca.edu/other.libs/gbal/east/vchl.html>
- **California:** Washington Community Health Resource Library (Fremont), <http://www.healthlibrary.org/>
- **Colorado:** William V. Gervasini Memorial Library (Exempla Healthcare), <http://www.saintjosephdenver.org/yourhealth/libraries/>
- **Connecticut:** Hartford Hospital Health Science Libraries (Hartford Hospital), <http://www.harthosp.org/library/>
- **Connecticut:** Healthnet: Connecticut Consumer Health Information Center (University of Connecticut Health Center, Lyman Maynard Stowe Library), <http://library.uchc.edu/departm/hnet/>

¹⁹ Abstracted from <http://www.nlm.nih.gov/medlineplus/libraries.html>.

- **Connecticut:** Waterbury Hospital Health Center Library (Waterbury Hospital, Waterbury), <http://www.waterburyhospital.com/library/consumer.shtml>
- **Delaware:** Consumer Health Library (Christiana Care Health System, Eugene du Pont Preventive Medicine & Rehabilitation Institute, Wilmington), http://www.christianacare.org/health_guide/health_guide_pmri_health_info.cfm
- **Delaware:** Lewis B. Flinn Library (Delaware Academy of Medicine, Wilmington), <http://www.delamed.org/chls.html>
- **Georgia:** Family Resource Library (Medical College of Georgia, Augusta), http://cmc.mcg.edu/kids_families/fam_resources/fam_res_lib/frl.htm
- **Georgia:** Health Resource Center (Medical Center of Central Georgia, Macon), <http://www.mccg.org/hrc/hrchome.asp>
- **Hawaii:** Hawaii Medical Library: Consumer Health Information Service (Hawaii Medical Library, Honolulu), <http://hml.org/CHIS/>
- **Idaho:** DeArmond Consumer Health Library (Kootenai Medical Center, Coeur d'Alene), <http://www.nicon.org/DeArmond/index.htm>
- **Illinois:** Health Learning Center of Northwestern Memorial Hospital (Chicago), http://www.nmh.org/health_info/hlc.html
- **Illinois:** Medical Library (OSF Saint Francis Medical Center, Peoria), <http://www.osfsaintfrancis.org/general/library/>
- **Kentucky:** Medical Library - Services for Patients, Families, Students & the Public (Central Baptist Hospital, Lexington), <http://www.centralbap.com/education/community/library.cfm>
- **Kentucky:** University of Kentucky - Health Information Library (Chandler Medical Center, Lexington), <http://www.mc.uky.edu/PatientEd/>
- **Louisiana:** Alton Ochsner Medical Foundation Library (Alton Ochsner Medical Foundation, New Orleans), <http://www.ochsner.org/library/>
- **Louisiana:** Louisiana State University Health Sciences Center Medical Library-Shreveport, <http://lib-sh.lsuhscc.edu/>
- **Maine:** Franklin Memorial Hospital Medical Library (Franklin Memorial Hospital, Farmington), <http://www.fchn.org/fmh/lib.htm>
- **Maine:** Gerrish-True Health Sciences Library (Central Maine Medical Center, Lewiston), <http://www.cmmc.org/library/library.html>
- **Maine:** Hadley Parrot Health Science Library (Eastern Maine Healthcare, Bangor), <http://www.emh.org/hll/hpl/guide.htm>
- **Maine:** Maine Medical Center Library (Maine Medical Center, Portland), <http://www.mmc.org/library/>
- **Maine:** Parkview Hospital (Brunswick), <http://www.parkviewhospital.org/>
- **Maine:** Southern Maine Medical Center Health Sciences Library (Southern Maine Medical Center, Biddeford), <http://www.smmc.org/services/service.php3?choice=10>
- **Maine:** Stephens Memorial Hospital's Health Information Library (Western Maine Health, Norway), <http://www.wmhcc.org/Library/>

- **Manitoba, Canada:** Consumer & Patient Health Information Service (University of Manitoba Libraries), <http://www.umanitoba.ca/libraries/units/health/reference/chis.html>
- **Manitoba, Canada:** J.W. Crane Memorial Library (Deer Lodge Centre, Winnipeg), http://www.deerlodge.mb.ca/crane_library/about.asp
- **Maryland:** Health Information Center at the Wheaton Regional Library (Montgomery County, Dept. of Public Libraries, Wheaton Regional Library), <http://www.mont.lib.md.us/healthinfo/hic.asp>
- **Massachusetts:** Baystate Medical Center Library (Baystate Health System), <http://www.baystatehealth.com/1024/>
- **Massachusetts:** Boston University Medical Center Alumni Medical Library (Boston University Medical Center), <http://med-libwww.bu.edu/library/lib.html>
- **Massachusetts:** Lowell General Hospital Health Sciences Library (Lowell General Hospital, Lowell), <http://www.lowellgeneral.org/library/HomePageLinks/WWW.htm>
- **Massachusetts:** Paul E. Woodard Health Sciences Library (New England Baptist Hospital, Boston), http://www.nebh.org/health_lib.asp
- **Massachusetts:** St. Luke's Hospital Health Sciences Library (St. Luke's Hospital, Southcoast Health System, New Bedford), <http://www.southcoast.org/library/>
- **Massachusetts:** Treadwell Library Consumer Health Reference Center (Massachusetts General Hospital), <http://www.mgh.harvard.edu/library/chrcindex.html>
- **Massachusetts:** UMass HealthNet (University of Massachusetts Medical School, Worcester), <http://healthnet.umassmed.edu/>
- **Michigan:** Botsford General Hospital Library - Consumer Health (Botsford General Hospital, Library & Internet Services), <http://www.botsfordlibrary.org/consumer.htm>
- **Michigan:** Helen DeRoy Medical Library (Providence Hospital and Medical Centers), <http://www.providence-hospital.org/library/>
- **Michigan:** Marquette General Hospital - Consumer Health Library (Marquette General Hospital, Health Information Center), <http://www.mgh.org/center.html>
- **Michigan:** Patient Education Resource Center - University of Michigan Cancer Center (University of Michigan Comprehensive Cancer Center, Ann Arbor), <http://www.cancer.med.umich.edu/learn/leares.htm>
- **Michigan:** Sladen Library & Center for Health Information Resources - Consumer Health Information (Detroit), <http://www.henryford.com/body.cfm?id=39330>
- **Montana:** Center for Health Information (St. Patrick Hospital and Health Sciences Center, Missoula)
- **National:** Consumer Health Library Directory (Medical Library Association, Consumer and Patient Health Information Section), <http://caphis.mlanet.org/directory/index.html>
- **National:** National Network of Libraries of Medicine (National Library of Medicine) - provides library services for health professionals in the United States who do not have access to a medical library, <http://nnlm.gov/>
- **National:** NN/LM List of Libraries Serving the Public (National Network of Libraries of Medicine), <http://nnlm.gov/members/>

- **Nevada:** Health Science Library, West Charleston Library (Las Vegas-Clark County Library District, Las Vegas), http://www.lvcld.org/special_collections/medical/index.htm
- **New Hampshire:** Dartmouth Biomedical Libraries (Dartmouth College Library, Hanover), <http://www.dartmouth.edu/~biomed/resources.html#conshealth.html#d/>
- **New Jersey:** Consumer Health Library (Rahway Hospital, Rahway), <http://www.rahwayhospital.com/library.htm>
- **New Jersey:** Dr. Walter Phillips Health Sciences Library (Englewood Hospital and Medical Center, Englewood), <http://www.englewoodhospital.com/links/index.htm>
- **New Jersey:** Meland Foundation (Englewood Hospital and Medical Center, Englewood), <http://www.geocities.com/ResearchTriangle/9360/>
- **New York:** Choices in Health Information (New York Public Library) - NLM Consumer Pilot Project participant, <http://www.nypl.org/branch/health/links.html>
- **New York:** Health Information Center (Upstate Medical University, State University of New York, Syracuse), <http://www.upstate.edu/library/hic/>
- **New York:** Health Sciences Library (Long Island Jewish Medical Center, New Hyde Park), <http://www.lij.edu/library/library.html>
- **New York:** ViaHealth Medical Library (Rochester General Hospital), <http://www.nyam.org/library/>
- **Ohio:** Consumer Health Library (Akron General Medical Center, Medical & Consumer Health Library), <http://www.akrongeneral.org/hwlibrary.htm>
- **Oklahoma:** The Health Information Center at Saint Francis Hospital (Saint Francis Health System, Tulsa), <http://www.sfh-tulsa.com/services/healthinfo.asp>
- **Oregon:** Planetree Health Resource Center (Mid-Columbia Medical Center, The Dalles), <http://www.mcmc.net/phrc/>
- **Pennsylvania:** Community Health Information Library (Milton S. Hershey Medical Center, Hershey), <http://www.hmc.psu.edu/commhealth/>
- **Pennsylvania:** Community Health Resource Library (Geisinger Medical Center, Danville), <http://www.geisinger.edu/education/commmlib.shtml>
- **Pennsylvania:** HealthInfo Library (Moses Taylor Hospital, Scranton), <http://www.mth.org/healthwellness.html>
- **Pennsylvania:** Hopwood Library (University of Pittsburgh, Health Sciences Library System, Pittsburgh), http://www.hsls.pitt.edu/guides/chi/hopwood/index_html
- **Pennsylvania:** Koop Community Health Information Center (College of Physicians of Philadelphia), <http://www.collphyphil.org/kooppg1.shtml>
- **Pennsylvania:** Learning Resources Center - Medical Library (Susquehanna Health System, Williamsport), <http://www.shscare.org/services/lrc/index.asp>
- **Pennsylvania:** Medical Library (UPMC Health System, Pittsburgh), <http://www.upmc.edu/passavant/library.htm>
- **Quebec, Canada:** Medical Library (Montreal General Hospital), <http://www.mghlib.mcgill.ca/>

- **South Dakota:** Rapid City Regional Hospital Medical Library (Rapid City Regional Hospital), <http://www.rcrh.org/Services/Library/Default.asp>
- **Texas:** Houston HealthWays (Houston Academy of Medicine-Texas Medical Center Library), <http://hhw.library.tmc.edu/>
- **Washington:** Community Health Library (Kittitas Valley Community Hospital), <http://www.kvch.com/>
- **Washington:** Southwest Washington Medical Center Library (Southwest Washington Medical Center, Vancouver), <http://www.swmedicalcenter.com/body.cfm?id=72>

ONLINE GLOSSARIES

The Internet provides access to a number of free-to-use medical dictionaries. The National Library of Medicine has compiled the following list of online dictionaries:

- ADAM Medical Encyclopedia (A.D.A.M., Inc.), comprehensive medical reference:
<http://www.nlm.nih.gov/medlineplus/encyclopedia.html>
- MedicineNet.com Medical Dictionary (MedicineNet, Inc.):
<http://www.medterms.com/Script/Main/hp.asp>
- Merriam-Webster Medical Dictionary (Inteli-Health, Inc.):
<http://www.intelihealth.com/IH/>
- Multilingual Glossary of Technical and Popular Medical Terms in Eight European Languages (European Commission) - Danish, Dutch, English, French, German, Italian, Portuguese, and Spanish: <http://allserv.rug.ac.be/~rvdstich/eugloss/welcome.html>
- On-line Medical Dictionary (CancerWEB): <http://cancerweb.ncl.ac.uk/omd/>
- Rare Diseases Terms (Office of Rare Diseases):
<http://ord.aspensys.com/asp/diseases/diseases.asp>
- Technology Glossary (National Library of Medicine) - Health Care Technology:
<http://www.nlm.nih.gov/nichsr/ta101/ta10108.htm>

Beyond these, MEDLINEplus contains a very patient-friendly encyclopedia covering every aspect of medicine (licensed from A.D.A.M., Inc.). The ADAM Medical Encyclopedia can be accessed at <http://www.nlm.nih.gov/medlineplus/encyclopedia.html>. ADAM is also available on commercial Web sites such as drkoop.com (<http://www.drkoop.com/>) and Web MD (http://my.webmd.com/adam/asset/adam_disease_articles/a_to_z/a).

Online Dictionary Directories

The following are additional online directories compiled by the National Library of Medicine, including a number of specialized medical dictionaries:

- Medical Dictionaries: Medical & Biological (World Health Organization):
<http://www.who.int/hlt/virtuallibrary/English/diction.htm#Medical>
- MEL-Michigan Electronic Library List of Online Health and Medical Dictionaries (Michigan Electronic Library): <http://mel.lib.mi.us/health/health-dictionaries.html>
- Patient Education: Glossaries (DMOZ Open Directory Project):
http://dmoz.org/Health/Education/Patient_Education/Glossaries/
- Web of Online Dictionaries (Bucknell University):
<http://www.yourdictionary.com/diction5.html#medicine>

ALMONDS DICTIONARY

The definitions below are derived from official public sources, including the National Institutes of Health [NIH] and the European Union [EU].

Abdominal: Having to do with the abdomen, which is the part of the body between the chest and the hips that contains the pancreas, stomach, intestines, liver, gallbladder, and other organs. [NIH]

Abdominal Pain: Sensation of discomfort, distress, or agony in the abdominal region. [NIH]

Aberrant: Wandering or deviating from the usual or normal course. [EU]

Acceptor: A substance which, while normally not oxidized by oxygen or reduced by hydrogen, can be oxidized or reduced in presence of a substance which is itself undergoing oxidation or reduction. [NIH]

Acetylcholine: A neurotransmitter. Acetylcholine in vertebrates is the major transmitter at neuromuscular junctions, autonomic ganglia, parasympathetic effector junctions, a subset of sympathetic effector junctions, and at many sites in the central nervous system. It is generally not used as an administered drug because it is broken down very rapidly by cholinesterases, but it is useful in some ophthalmological applications. [NIH]

Adenine: A purine base and a fundamental unit of adenine nucleotides. [NIH]

Adhesives: Substances that cause the adherence of two surfaces. They include glues (properly collagen-derived adhesives), mucilages, sticky pastes, gums, resins, or latex. [NIH]

Adrenal Medulla: The inner part of the adrenal gland; it synthesizes, stores and releases catecholamines. [NIH]

Adrenergic: Activated by, characteristic of, or secreting epinephrine or substances with similar activity; the term is applied to those nerve fibres that liberate norepinephrine at a synapse when a nerve impulse passes, i.e., the sympathetic fibres. [EU]

Adverse Effect: An unwanted side effect of treatment. [NIH]

Affinity: 1. Inherent likeness or relationship. 2. A special attraction for a specific element, organ, or structure. 3. Chemical affinity; the force that binds atoms in molecules; the tendency of substances to combine by chemical reaction. 4. The strength of noncovalent chemical binding between two substances as measured by the dissociation constant of the complex. 5. In immunology, a thermodynamic expression of the strength of interaction between a single antigen-binding site and a single antigenic determinant (and thus of the stereochemical compatibility between them), most accurately applied to interactions among simple, uniform antigenic determinants such as haptens. Expressed as the association constant (K litres mole⁻¹), which, owing to the heterogeneity of affinities in a population of antibody molecules of a given specificity, actually represents an average value (mean intrinsic association constant). 6. The reciprocal of the dissociation constant. [EU]

Affinity Chromatography: In affinity chromatography, a ligand attached to a column binds specifically to the molecule to be purified. [NIH]

Aflatoxins: A group of closely related toxic metabolites that are designated mycotoxins. They are produced by *Aspergillus flavus* and *A. parasiticus*. Members of the group include aflatoxin B1, aflatoxin B2, aflatoxin G1, aflatoxin G2, aflatoxin M1, and aflatoxin M2. [NIH]

Age of Onset: The age or period of life at which a disease or the initial symptoms or manifestations of a disease appear in an individual. [NIH]

Airway: A device for securing unobstructed passage of air into and out of the lungs during general anesthesia. [NIH]

Albumin: 1. Any protein that is soluble in water and moderately concentrated salt solutions and is coagulable by heat. 2. Serum albumin; the major plasma protein (approximately 60 per cent of the total), which is responsible for much of the plasma colloidal osmotic pressure and serves as a transport protein carrying large organic anions, such as fatty acids, bilirubin, and many drugs, and also carrying certain hormones, such as cortisol and thyroxine, when their specific binding globulins are saturated. Albumin is synthesized in the liver. Low serum levels occur in protein malnutrition, active inflammation and serious hepatic and renal disease. [EU]

Algorithms: A procedure consisting of a sequence of algebraic formulas and/or logical steps to calculate or determine a given task. [NIH]

Allergen: An antigenic substance capable of producing immediate-type hypersensitivity (allergy). [EU]

Allylamine: Possesses an unusual and selective cytotoxicity for vascular smooth muscle cells in dogs and rats. Useful for experiments dealing with arterial injury, myocardial fibrosis or cardiac decompensation. [NIH]

Alpha Particles: Positively charged particles composed of two protons and two neutrons, i.e., helium nuclei, emitted during disintegration of very heavy isotopes; a beam of alpha particles or an alpha ray has very strong ionizing power, but weak penetrability. [NIH]

Alternative medicine: Practices not generally recognized by the medical community as standard or conventional medical approaches and used instead of standard treatments. Alternative medicine includes the taking of dietary supplements, megadose vitamins, and herbal preparations; the drinking of special teas; and practices such as massage therapy, magnet therapy, spiritual healing, and meditation. [NIH]

Amine: An organic compound containing nitrogen; any member of a group of chemical compounds formed from ammonia by replacement of one or more of the hydrogen atoms by organic (hydrocarbon) radicals. The amines are distinguished as primary, secondary, and tertiary, according to whether one, two, or three hydrogen atoms are replaced. The amines include allylamine, amylamine, ethylamine, methylamine, phenylamine, propylamine, and many other compounds. [EU]

Amino Acid Sequence: The order of amino acids as they occur in a polypeptide chain. This is referred to as the primary structure of proteins. It is of fundamental importance in determining protein conformation. [NIH]

Amino Acids: Organic compounds that generally contain an amino (-NH₂) and a carboxyl (-COOH) group. Twenty alpha-amino acids are the subunits which are polymerized to form proteins. [NIH]

Amino Acids: Organic compounds that generally contain an amino (-NH₂) and a carboxyl (-COOH) group. Twenty alpha-amino acids are the subunits which are polymerized to form proteins. [NIH]

Ammonia: A colorless alkaline gas. It is formed in the body during decomposition of organic materials during a large number of metabolically important reactions. [NIH]

Amygdalin: A cyanogenic glycoside found in the seeds of Rosaceae. [NIH]

Anaesthesia: Loss of feeling or sensation. Although the term is used for loss of tactile sensibility, or of any of the other senses, it is applied especially to loss of the sensation of pain, as it is induced to permit performance of surgery or other painful procedures. [EU]

Anaphylactic: Pertaining to anaphylaxis. [EU]

Anaphylaxis: An acute hypersensitivity reaction due to exposure to a previously encountered antigen. The reaction may include rapidly progressing urticaria, respiratory distress, vascular collapse, systemic shock, and death. [NIH]

Anechoic: Almost totally sound-absorbent at a very wide range of frequencies. An anechoic chamber gives almost free field conditions. [NIH]

Anemia: A reduction in the number of circulating erythrocytes or in the quantity of hemoglobin. [NIH]

Anesthetics: Agents that are capable of inducing a total or partial loss of sensation, especially tactile sensation and pain. They may act to induce general anesthesia, in which an unconscious state is achieved, or may act locally to induce numbness or lack of sensation at a targeted site. [NIH]

Anion Exchange Resins: High-molecular-weight insoluble polymers that contain functional anionic groups capable of undergoing exchange reactions. These resins are used for ion exchange chromatography, as gastric antacids, hypocholesteremics, etc. [NIH]

Anionic: Pertaining to or containing an anion. [EU]

Anions: Negatively charged atoms, radicals or groups of atoms which travel to the anode or positive pole during electrolysis. [NIH]

Antibodies: Immunoglobulin molecules having a specific amino acid sequence by virtue of which they interact only with the antigen that induced their synthesis in cells of the lymphoid series (especially plasma cells), or with an antigen closely related to it. [NIH]

Antibody: A type of protein made by certain white blood cells in response to a foreign substance (antigen). Each antibody can bind to only a specific antigen. The purpose of this binding is to help destroy the antigen. Antibodies can work in several ways, depending on the nature of the antigen. Some antibodies destroy antigens directly. Others make it easier for white blood cells to destroy the antigen. [NIH]

Anticoagulant: A drug that helps prevent blood clots from forming. Also called a blood thinner. [NIH]

Antigen: Any substance which is capable, under appropriate conditions, of inducing a specific immune response and of reacting with the products of that response, that is, with specific antibody or specifically sensitized T-lymphocytes, or both. Antigens may be soluble substances, such as toxins and foreign proteins, or particulate, such as bacteria and tissue cells; however, only the portion of the protein or polysaccharide molecule known as the antigenic determinant (q.v.) combines with antibody or a specific receptor on a lymphocyte. Abbreviated Ag. [EU]

Antioxidant: A substance that prevents damage caused by free radicals. Free radicals are highly reactive chemicals that often contain oxygen. They are produced when molecules are split to give products that have unpaired electrons. This process is called oxidation. [NIH]

Antipruritic: Relieving or preventing itching. [EU]

Apolipoproteins: The protein components of lipoproteins which remain after the lipids to which the proteins are bound have been removed. They play an important role in lipid transport and metabolism. [NIH]

Aqueous: Having to do with water. [NIH]

Arginine: An essential amino acid that is physiologically active in the L-form. [NIH]

Aromatic: Having a spicy odour. [EU]

Arteries: The vessels carrying blood away from the heart. [NIH]

Aseptic: Free from infection or septic material; sterile. [EU]

Auxins: Organic compounds found in plant sprouts. They promote tissue growth through cell elongation rather than multiplication. [NIH]

Avian: A plasmodial infection in birds. [NIH]

Bacteria: Unicellular prokaryotic microorganisms which generally possess rigid cell walls, multiply by cell division, and exhibit three principal forms: round or coccid, rodlike or bacillary, and spiral or spirochetal. [NIH]

Base: In chemistry, the nonacid part of a salt; a substance that combines with acids to form salts; a substance that dissociates to give hydroxide ions in aqueous solutions; a substance whose molecule or ion can combine with a proton (hydrogen ion); a substance capable of donating a pair of electrons (to an acid) for the formation of a coordinate covalent bond. [EU]

Baths: The immersion or washing of the body or any of its parts in water or other medium for cleansing or medical treatment. It includes bathing for personal hygiene as well as for medical purposes with the addition of therapeutic agents, such as alkalines, antiseptics, oil, etc. [NIH]

Beer: An alcoholic beverage usually made from malted cereal grain (as barley), flavored with hops, and brewed by slow fermentation. [NIH]

Benign: Not cancerous; does not invade nearby tissue or spread to other parts of the body. [NIH]

Benign prostatic hyperplasia: A benign (noncancerous) condition in which an overgrowth of prostate tissue pushes against the urethra and the bladder, blocking the flow of urine. Also called benign prostatic hypertrophy or BPH. [NIH]

Benzene: Toxic, volatile, flammable liquid hydrocarbon biproduct of coal distillation. It is used as an industrial solvent in paints, varnishes, lacquer thinners, gasoline, etc. Benzene causes central nervous system damage acutely and bone marrow damage chronically and is carcinogenic. It was formerly used as parasiticide. [NIH]

Benzoic Acid: A fungistatic compound that is widely used as a food preservative. It is conjugated to glycine in the liver and excreted as hippuric acid. [NIH]

Beta-Glucosidase: An enzyme that catalyzes the hydrolysis of terminal non-reducing residues in beta-D-glucosides with release of beta-glucose. EC 3.2.1.21. [NIH]

Bile: An emulsifying agent produced in the liver and secreted into the duodenum. Its composition includes bile acids and salts, cholesterol, and electrolytes. It aids digestion of fats in the duodenum. [NIH]

Bile Acids: Acids made by the liver that work with bile to break down fats. [NIH]

Bile Acids and Salts: Steroid acids and salts. The primary bile acids are derived from cholesterol in the liver and usually conjugated with glycine or taurine. The secondary bile acids are further modified by bacteria in the intestine. They play an important role in the digestion and absorption of fat. They have also been used pharmacologically, especially in the treatment of gallstones. [NIH]

Biliary: Having to do with the liver, bile ducts, and/or gallbladder. [NIH]

Bilirubin: A bile pigment that is a degradation product of heme. [NIH]

Biosynthesis: The building up of a chemical compound in the physiologic processes of a living organism. [EU]

Biotechnology: Body of knowledge related to the use of organisms, cells or cell-derived constituents for the purpose of developing products which are technically, scientifically and clinically useful. Alteration of biologic function at the molecular level (i.e., genetic engineering) is a central focus; laboratory methods used include transfection and cloning

technologies, sequence and structure analysis algorithms, computer databases, and gene and protein structure function analysis and prediction. [NIH]

Bladder: The organ that stores urine. [NIH]

Blastocyst: The mammalian embryo in the post-morula stage in which a fluid-filled cavity, enclosed primarily by trophoblast, contains an inner cell mass which becomes the embryonic disc. [NIH]

Bloating: Fullness or swelling in the abdomen that often occurs after meals. [NIH]

Blood pressure: The pressure of blood against the walls of a blood vessel or heart chamber. Unless there is reference to another location, such as the pulmonary artery or one of the heart chambers, it refers to the pressure in the systemic arteries, as measured, for example, in the forearm. [NIH]

Blood vessel: A tube in the body through which blood circulates. Blood vessels include a network of arteries, arterioles, capillaries, venules, and veins. [NIH]

Body Fluids: Liquid components of living organisms. [NIH]

Bolus: A single dose of drug usually injected into a blood vessel over a short period of time. Also called bolus infusion. [NIH]

Bolus infusion: A single dose of drug usually injected into a blood vessel over a short period of time. Also called bolus. [NIH]

Bone Cements: Adhesives used to fix prosthetic devices to bones and to cement bone to bone in difficult fractures. Synthetic resins are commonly used as cements. A mixture of monocalcium phosphate, monohydrate, alpha-tricalcium phosphate, and calcium carbonate with a sodium phosphate solution is also a useful bone paste. [NIH]

Boron: A trace element with the atomic symbol B, atomic number 5, and atomic weight 10.81. Boron-10, an isotope of boron, is used as a neutron absorber in boron neutron capture therapy. [NIH]

Boron Neutron Capture Therapy: A technique for the treatment of neoplasms, especially gliomas and melanomas in which boron-10, an isotope, is introduced into the target cells followed by irradiation with thermal neutrons. [NIH]

Bowel: The long tube-shaped organ in the abdomen that completes the process of digestion. There is both a small and a large bowel. Also called the intestine. [NIH]

Bradykinin: A nonapeptide messenger that is enzymatically produced from kallidin in the blood where it is a potent but short-lived agent of arteriolar dilation and increased capillary permeability. Bradykinin is also released from mast cells during asthma attacks, from gut walls as a gastrointestinal vasodilator, from damaged tissues as a pain signal, and may be a neurotransmitter. [NIH]

Branch: Most commonly used for branches of nerves, but applied also to other structures. [NIH]

Breakdown: A physical, metal, or nervous collapse. [NIH]

Bronchi: The larger air passages of the lungs arising from the terminal bifurcation of the trachea. [NIH]

Caffeine: A methylxanthine naturally occurring in some beverages and also used as a pharmacological agent. Caffeine's most notable pharmacological effect is as a central nervous system stimulant, increasing alertness and producing agitation. It also relaxes smooth muscle, stimulates cardiac muscle, stimulates diuresis, and appears to be useful in the treatment of some types of headache. Several cellular actions of caffeine have been observed, but it is not entirely clear how each contributes to its pharmacological profile.

Among the most important are inhibition of cyclic nucleotide phosphodiesterases, antagonism of adenosine receptors, and modulation of intracellular calcium handling. [NIH]

Calcium: A basic element found in nearly all organized tissues. It is a member of the alkaline earth family of metals with the atomic symbol Ca, atomic number 20, and atomic weight 40. Calcium is the most abundant mineral in the body and combines with phosphorus to form calcium phosphate in the bones and teeth. It is essential for the normal functioning of nerves and muscles and plays a role in blood coagulation (as factor IV) and in many enzymatic processes. [NIH]

Calcium Oxalate: The calcium salt of oxalic acid, occurring in the urine as crystals and in certain calculi. [NIH]

Canonical: A particular nucleotide sequence in which each position represents the base more often found when many actual sequences of a given class of genetic elements are compared. [NIH]

Carbohydrate: An aldehyde or ketone derivative of a polyhydric alcohol, particularly of the pentahydric and hexahydric alcohols. They are so named because the hydrogen and oxygen are usually in the proportion to form water, (CH₂O)_n. The most important carbohydrates are the starches, sugars, celluloses, and gums. They are classified into mono-, di-, tri-, poly- and heterosaccharides. [EU]

Carbon Dioxide: A colorless, odorless gas that can be formed by the body and is necessary for the respiration cycle of plants and animals. [NIH]

Carcinogenesis: The process by which normal cells are transformed into cancer cells. [NIH]

Carcinogenic: Producing carcinoma. [EU]

Cardiac: Having to do with the heart. [NIH]

Cardiovascular: Having to do with the heart and blood vessels. [NIH]

Cardiovascular disease: Any abnormal condition characterized by dysfunction of the heart and blood vessels. CVD includes atherosclerosis (especially coronary heart disease, which can lead to heart attacks), cerebrovascular disease (e.g., stroke), and hypertension (high blood pressure). [NIH]

Cell: The individual unit that makes up all of the tissues of the body. All living things are made up of one or more cells. [NIH]

Cell Cycle: The complex series of phenomena, occurring between the end of one cell division and the end of the next, by which cellular material is divided between daughter cells. [NIH]

Cell Division: The fission of a cell. [NIH]

Cell membrane: Cell membrane = plasma membrane. The structure enveloping a cell, enclosing the cytoplasm, and forming a selective permeability barrier; it consists of lipids, proteins, and some carbohydrates, the lipids thought to form a bilayer in which integral proteins are embedded to varying degrees. [EU]

Cellulose: A polysaccharide with glucose units linked as in cellobiose. It is the chief constituent of plant fibers, cotton being the purest natural form of the substance. As a raw material, it forms the basis for many derivatives used in chromatography, ion exchange materials, explosives manufacturing, and pharmaceutical preparations. [NIH]

Cerebral: Of or pertaining of the cerebrum or the brain. [EU]

Cerebrovascular: Pertaining to the blood vessels of the cerebrum, or brain. [EU]

Chamomile: Common name for several daisy-like species native to Europe and Western Asia, now naturalized in the United States and Australia. The dried flower-heads of two

species, *Anthemis nobilis* (*Chamaemelum nobile*) and *Matricaria recutita*, have specific use as herbs. They are administered as tea, extracts, tinctures, or ointments. Chamomile contains choline, coumarins, cyanogenic glycosides, flavonoids, salicylate derivatives, tannins, and volatile oils. [NIH]

Character: In current usage, approximately equivalent to personality. The sum of the relatively fixed personality traits and habitual modes of response of an individual. [NIH]

Chlorophyll: Porphyrin derivatives containing magnesium that act to convert light energy in photosynthetic organisms. [NIH]

Cholesterol: The principal sterol of all higher animals, distributed in body tissues, especially the brain and spinal cord, and in animal fats and oils. [NIH]

Cholesterol Esters: Fatty acid esters of cholesterol which constitute about two-thirds of the cholesterol in the plasma. The accumulation of cholesterol esters in the arterial intima is a characteristic feature of atherosclerosis. [NIH]

Cholestyramine: Strongly basic anion exchange resin whose main constituent is polystyrene trimethylbenzylammonium as Cl(-) anion. It exchanges chloride ions with bile salts, thus decreasing their concentration and that of cholesterol. It is used as a hypocholesteremic in diarrhea and biliary obstruction and as an antipruritic. [NIH]

Choline: A basic constituent of lecithin that is found in many plants and animal organs. It is important as a precursor of acetylcholine, as a methyl donor in various metabolic processes, and in lipid metabolism. [NIH]

Chromosome: Part of a cell that contains genetic information. Except for sperm and eggs, all human cells contain 46 chromosomes. [NIH]

Chronic: A disease or condition that persists or progresses over a long period of time. [NIH]

Chylomicrons: A class of lipoproteins that carry dietary cholesterol and triglycerides from the small intestines to the tissues. [NIH]

Clinical trial: A research study that tests how well new medical treatments or other interventions work in people. Each study is designed to test new methods of screening, prevention, diagnosis, or treatment of a disease. [NIH]

Cloning: The production of a number of genetically identical individuals; in genetic engineering, a process for the efficient replication of a great number of identical DNA molecules. [NIH]

Cod Liver Oil: Oil obtained from fresh livers of the cod family, Gadidae. It is a source of vitamins A and D. [NIH]

Coenzyme: An organic nonprotein molecule, frequently a phosphorylated derivative of a water-soluble vitamin, that binds with the protein molecule (apoenzyme) to form the active enzyme (holoenzyme). [EU]

Colestipol: Highly crosslinked and insoluble basic anion exchange resin used as anticholesteremic. It may also may reduce triglyceride levels. [NIH]

Colitis: Inflammation of the colon. [NIH]

Collagen: A polypeptide substance comprising about one third of the total protein in mammalian organisms. It is the main constituent of skin, connective tissue, and the organic substance of bones and teeth. Different forms of collagen are produced in the body but all consist of three alpha-polypeptide chains arranged in a triple helix. Collagen is differentiated from other fibrous proteins, such as elastin, by the content of proline, hydroxyproline, and hydroxylysine; by the absence of tryptophan; and particularly by the high content of polar groups which are responsible for its swelling properties. [NIH]

Collapse: 1. A state of extreme prostration and depression, with failure of circulation. 2. Abnormal falling in of the walls of any part of organ. [EU]

Colloidal: Of the nature of a colloid. [EU]

Communis: Common tendon of the rectus group of muscles that surrounds the optic foramen and a portion of the superior orbital fissure, to the anterior margin of which it is attached at the spina recti lateralis. [NIH]

Complement: A term originally used to refer to the heat-labile factor in serum that causes immune cytolysis, the lysis of antibody-coated cells, and now referring to the entire functionally related system comprising at least 20 distinct serum proteins that is the effector not only of immune cytolysis but also of other biologic functions. Complement activation occurs by two different sequences, the classic and alternative pathways. The proteins of the classic pathway are termed 'components of complement' and are designated by the symbols C1 through C9. C1 is a calcium-dependent complex of three distinct proteins C1q, C1r and C1s. The proteins of the alternative pathway (collectively referred to as the properdin system) and complement regulatory proteins are known by semisystematic or trivial names. Fragments resulting from proteolytic cleavage of complement proteins are designated with lower-case letter suffixes, e.g., C3a. Inactivated fragments may be designated with the suffix 'i', e.g. C3bi. Activated components or complexes with biological activity are designated by a bar over the symbol e.g. C1 or C4b,2a. The classic pathway is activated by the binding of C1 to classic pathway activators, primarily antigen-antibody complexes containing IgM, IgG1, IgG3; C1q binds to a single IgM molecule or two adjacent IgG molecules. The alternative pathway can be activated by IgA immune complexes and also by nonimmunologic materials including bacterial endotoxins, microbial polysaccharides, and cell walls. Activation of the classic pathway triggers an enzymatic cascade involving C1, C4, C2 and C3; activation of the alternative pathway triggers a cascade involving C3 and factors B, D and P. Both result in the cleavage of C5 and the formation of the membrane attack complex. Complement activation also results in the formation of many biologically active complement fragments that act as anaphylatoxins, opsonins, or chemotactic factors. [EU]

Complementary and alternative medicine: CAM. Forms of treatment that are used in addition to (complementary) or instead of (alternative) standard treatments. These practices are not considered standard medical approaches. CAM includes dietary supplements, megadose vitamins, herbal preparations, special teas, massage therapy, magnet therapy, spiritual healing, and meditation. [NIH]

Complementary medicine: Practices not generally recognized by the medical community as standard or conventional medical approaches and used to enhance or complement the standard treatments. Complementary medicine includes the taking of dietary supplements, megadose vitamins, and herbal preparations; the drinking of special teas; and practices such as massage therapy, magnet therapy, spiritual healing, and meditation. [NIH]

Computational Biology: A field of biology concerned with the development of techniques for the collection and manipulation of biological data, and the use of such data to make biological discoveries or predictions. This field encompasses all computational methods and theories applicable to molecular biology and areas of computer-based techniques for solving biological problems including manipulation of models and datasets. [NIH]

Congestion: Excessive or abnormal accumulation of blood in a part. [EU]

Conjugated: Acting or operating as if joined; simultaneous. [EU]

Constipation: Infrequent or difficult evacuation of feces. [NIH]

Constriction: The act of constricting. [NIH]

Consumption: Pulmonary tuberculosis. [NIH]

Contamination: The soiling or pollution by inferior material, as by the introduction of organisms into a wound, or sewage into a stream. [EU]

Contraindications: Any factor or sign that it is unwise to pursue a certain kind of action or treatment, e. g. giving a general anesthetic to a person with pneumonia. [NIH]

Coronary: Encircling in the manner of a crown; a term applied to vessels; nerves, ligaments, etc. The term usually denotes the arteries that supply the heart muscle and, by extension, a pathologic involvement of them. [EU]

Coronary heart disease: A type of heart disease caused by narrowing of the coronary arteries that feed the heart, which needs a constant supply of oxygen and nutrients carried by the blood in the coronary arteries. When the coronary arteries become narrowed or clogged by fat and cholesterol deposits and cannot supply enough blood to the heart, CHD results. [NIH]

Coronary Thrombosis: Presence of a thrombus in a coronary artery, often causing a myocardial infarction. [NIH]

Cortisol: A steroid hormone secreted by the adrenal cortex as part of the body's response to stress. [NIH]

Coumarins: Synthetic or naturally occurring substances related to coumarin, the delta-lactone of coumarinic acid. Coumarin itself occurs in the tonka bean. The various coumarins have a wide range of proposed actions and uses including as anticoagulants, pharmaceutical aids, indicators and reagents, photoreactive substances, and antineoplastic agents. [NIH]

Curative: Tending to overcome disease and promote recovery. [EU]

Cyanide: An extremely toxic class of compounds that can be lethal on inhaling or ingesting in minute quantities. [NIH]

Cyclic: Pertaining to or occurring in a cycle or cycles; the term is applied to chemical compounds that contain a ring of atoms in the nucleus. [EU]

Cytokinins: Plant hormones that promote the separation of daughter cells after mitotic division of a parent cell. Frequently they are purine derivatives. [NIH]

Cytoplasm: The protoplasm of a cell exclusive of that of the nucleus; it consists of a continuous aqueous solution (cytosol) and the organelles and inclusions suspended in it (phaneroplasm), and is the site of most of the chemical activities of the cell. [EU]

Dairy Products: Raw and processed or manufactured milk and milk-derived products. These are usually from cows (bovine) but are also from goats, sheep, reindeer, and water buffalo. [NIH]

Databases, Bibliographic: Extensive collections, reputedly complete, of references and citations to books, articles, publications, etc., generally on a single subject or specialized subject area. Databases can operate through automated files, libraries, or computer disks. The concept should be differentiated from factual databases which is used for collections of data and facts apart from bibliographic references to them. [NIH]

Decidua: The epithelial lining of the endometrium that is formed before the fertilized ovum reaches the uterus. The fertilized ovum embeds in the decidua. If the ovum is not fertilized, the decidua is shed during menstruation. [NIH]

Density: The logarithm to the base 10 of the opacity of an exposed and processed film. [NIH]

Depressive Disorder: An affective disorder manifested by either a dysphoric mood or loss of interest or pleasure in usual activities. The mood disturbance is prominent and relatively persistent. [NIH]

Diagnostic procedure: A method used to identify a disease. [NIH]

Diarrhea: Passage of excessively liquid or excessively frequent stools. [NIH]

Digestion: The process of breakdown of food for metabolism and use by the body. [NIH]

Dimethylnitrosamine: A nitrosamine derivative with alkylating, carcinogenic, and mutagenic properties. It causes serious liver damage and is a hepatocarcinogen in rodents. [NIH]

Diploid: Having two sets of chromosomes. [NIH]

Direct: 1. Straight; in a straight line. 2. Performed immediately and without the intervention of subsidiary means. [EU]

Dispenser: Glass, metal or plastic shell fitted with valve from which a pressurized formulation is dispensed; an instrument for atomizing. [NIH]

Dissociation: 1. The act of separating or state of being separated. 2. The separation of a molecule into two or more fragments (atoms, molecules, ions, or free radicals) produced by the absorption of light or thermal energy or by solvation. 3. In psychology, a defense mechanism in which a group of mental processes are segregated from the rest of a person's mental activity in order to avoid emotional distress, as in the dissociative disorders (q.v.), or in which an idea or object is segregated from its emotional significance; in the first sense it is roughly equivalent to splitting, in the second, to isolation. 4. A defect of mental integration in which one or more groups of mental processes become separated off from normal consciousness and, thus separated, function as a unitary whole. [EU]

Diuretic: A drug that increases the production of urine. [NIH]

Drive: A state of internal activity of an organism that is a necessary condition before a given stimulus will elicit a class of responses; e.g., a certain level of hunger (drive) must be present before food will elicit an eating response. [NIH]

Drug Interactions: The action of a drug that may affect the activity, metabolism, or toxicity of another drug. [NIH]

Duct: A tube through which body fluids pass. [NIH]

Duodenum: The first part of the small intestine. [NIH]

Electrolyte: A substance that dissociates into ions when fused or in solution, and thus becomes capable of conducting electricity; an ionic solute. [EU]

Electrons: Stable elementary particles having the smallest known negative charge, present in all elements; also called negatrons. Positively charged electrons are called positrons. The numbers, energies and arrangement of electrons around atomic nuclei determine the chemical identities of elements. Beams of electrons are called cathode rays or beta rays, the latter being a high-energy biproduct of nuclear decay. [NIH]

Embryo: The prenatal stage of mammalian development characterized by rapid morphological changes and the differentiation of basic structures. [NIH]

Emulsion: A preparation of one liquid distributed in small globules throughout the body of a second liquid. The dispersed liquid is the discontinuous phase, and the dispersion medium is the continuous phase. When oil is the dispersed liquid and an aqueous solution is the continuous phase, it is known as an oil-in-water emulsion, whereas when water or aqueous solution is the dispersed phase and oil or oleaginous substance is the continuous phase, it is known as a water-in-oil emulsion. Pharmaceutical emulsions for which official standards have been promulgated include cod liver oil emulsion, cod liver oil emulsion with malt, liquid petrolatum emulsion, and phenolphthalein in liquid petrolatum emulsion. [EU]

Endothelium: A layer of epithelium that lines the heart, blood vessels (endothelium, vascular), lymph vessels (endothelium, lymphatic), and the serous cavities of the body. [NIH]

Endothelium-derived: Small molecule that diffuses to the adjacent muscle layer and relaxes it. [NIH]

Enhancers: Transcriptional element in the virus genome. [NIH]

Environmental Health: The science of controlling or modifying those conditions, influences, or forces surrounding man which relate to promoting, establishing, and maintaining health. [NIH]

Enzyme: A protein that speeds up chemical reactions in the body. [NIH]

Enzyme-Linked Immunosorbent Assay: An immunoassay utilizing an antibody labeled with an enzyme marker such as horseradish peroxidase. While either the enzyme or the antibody is bound to an immunosorbent substrate, they both retain their biologic activity; the change in enzyme activity as a result of the enzyme-antibody-antigen reaction is proportional to the concentration of the antigen and can be measured spectrophotometrically or with the naked eye. Many variations of the method have been developed. [NIH]

Epigastric: Having to do with the upper middle area of the abdomen. [NIH]

Epinephrine: The active sympathomimetic hormone from the adrenal medulla in most species. It stimulates both the alpha- and beta- adrenergic systems, causes systemic vasoconstriction and gastrointestinal relaxation, stimulates the heart, and dilates bronchi and cerebral vessels. It is used in asthma and cardiac failure and to delay absorption of local anesthetics. [NIH]

Epiphyseal: Pertaining to or of the nature of an epiphysis. [EU]

Epiphyses: The head of a long bone that is separated from the shaft by the epiphyseal plate until bone growth stops. At that time, the plate disappears and the head and shaft are united. [NIH]

Erythritol: A four-carbon sugar that is found in algae, fungi, and lichens. It is twice as sweet as sucrose and can be used as a coronary vasodilator. [NIH]

Esophagus: The muscular tube through which food passes from the throat to the stomach. [NIH]

Ether: One of a class of organic compounds in which any two organic radicals are attached directly to a single oxygen atom. [NIH]

Exocrine: Secreting outwardly, via a duct. [EU]

Exogenous: Developed or originating outside the organism, as exogenous disease. [EU]

Extender: Any of several colloidal substances of high molecular weight, used as a blood or plasma substitute in transfusion for increasing the volume of the circulating blood. [NIH]

Extracellular: Outside a cell or cells. [EU]

Extraction: The process or act of pulling or drawing out. [EU]

Family Planning: Programs or services designed to assist the family in controlling reproduction by either improving or diminishing fertility. [NIH]

Fat: Total lipids including phospholipids. [NIH]

Fatty acids: A major component of fats that are used by the body for energy and tissue development. [NIH]

Fermentation: An enzyme-induced chemical change in organic compounds that takes place in the absence of oxygen. The change usually results in the production of ethanol or lactic acid, and the production of energy. [NIH]

Fetus: The developing offspring from 7 to 8 weeks after conception until birth. [NIH]

Fibrinogen: Plasma glycoprotein clotted by thrombin, composed of a dimer of three non-identical pairs of polypeptide chains (alpha, beta, gamma) held together by disulfide bonds. Fibrinogen clotting is a sol-gel change involving complex molecular arrangements: whereas fibrinogen is cleaved by thrombin to form polypeptides A and B, the proteolytic action of other enzymes yields different fibrinogen degradation products. [NIH]

Fish Products: Food products manufactured from fish (e.g., fish flour, fish meal). [NIH]

Fissure: Any cleft or groove, normal or otherwise; especially a deep fold in the cerebral cortex which involves the entire thickness of the brain wall. [EU]

Flatus: Gas passed through the rectum. [NIH]

Fluorescence: The property of emitting radiation while being irradiated. The radiation emitted is usually of longer wavelength than that incident or absorbed, e.g., a substance can be irradiated with invisible radiation and emit visible light. X-ray fluorescence is used in diagnosis. [NIH]

Folate: A B-complex vitamin that is being studied as a cancer prevention agent. Also called folic acid. [NIH]

Fold: A plication or doubling of various parts of the body. [NIH]

Folic Acid: N-(4-(((2-Amino-1,4-dihydro-4-oxo-6-pteridiny)l)methyl)amino)benzoyl)-L-glutamic acid. A member of the vitamin B family that stimulates the hematopoietic system. It is present in the liver and kidney and is found in mushrooms, spinach, yeast, green leaves, and grasses. Folic acid is used in the treatment and prevention of folate deficiencies and megaloblastic anemia. [NIH]

Foramen: A natural hole of perforation, especially one in a bone. [NIH]

Forearm: The part between the elbow and the wrist. [NIH]

Fungi: A kingdom of eukaryotic, heterotrophic organisms that live as saprobes or parasites, including mushrooms, yeasts, smuts, molds, etc. They reproduce either sexually or asexually, and have life cycles that range from simple to complex. Filamentous fungi refer to those that grow as multicellular colonies (mushrooms and molds). [NIH]

Fungistatic: Inhibiting the growth of fungi. [EU]

Fungus: A general term used to denote a group of eukaryotic protists, including mushrooms, yeasts, rusts, moulds, smuts, etc., which are characterized by the absence of chlorophyll and by the presence of a rigid cell wall composed of chitin, mannans, and sometimes cellulose. They are usually of simple morphological form or show some reversible cellular specialization, such as the formation of pseudoparenchymatous tissue in the fruiting body of a mushroom. The dimorphic fungi grow, according to environmental conditions, as moulds or yeasts. [EU]

Gas: Air that comes from normal breakdown of food. The gases are passed out of the body through the rectum (flatus) or the mouth (burp). [NIH]

Gastric: Having to do with the stomach. [NIH]

Gastrointestinal: Refers to the stomach and intestines. [NIH]

Gene: The functional and physical unit of heredity passed from parent to offspring. Genes are pieces of DNA, and most genes contain the information for making a specific protein. [NIH]

Germ Cells: The reproductive cells in multicellular organisms. [NIH]

Gestation: The period of development of the young in viviparous animals, from the time of fertilization of the ovum until birth. [EU]

Gibberellins: A class of plant growth hormone isolated from cultures of *Gibberella*

fujikuroi, a fungus causing Bakanae disease in rice. There are many different members of the family as well as mixtures of multiple members; all are diterpenoid acids based on the gibberellane skeleton. [NIH]

Gland: An organ that produces and releases one or more substances for use in the body. Some glands produce fluids that affect tissues or organs. Others produce hormones or participate in blood production. [NIH]

Glucose: D-Glucose. A primary source of energy for living organisms. It is naturally occurring and is found in fruits and other parts of plants in its free state. It is used therapeutically in fluid and nutrient replacement. [NIH]

Glucose tolerance: The power of the normal liver to absorb and store large quantities of glucose and the effectiveness of intestinal absorption of glucose. The glucose tolerance test is a metabolic test of carbohydrate tolerance that measures active insulin, a hepatic function based on the ability of the liver to absorb glucose. The test consists of ingesting 100 grams of glucose into a fasting stomach; blood sugar should return to normal in 2 to 21 hours after ingestion. [NIH]

Glucose Tolerance Test: Determination of whole blood or plasma sugar in a fasting state before and at prescribed intervals (usually 1/2 hr, 1 hr, 3 hr, 4 hr) after taking a specified amount (usually 100 gm orally) of glucose. [NIH]

Glutamate: Excitatory neurotransmitter of the brain. [NIH]

Glutamic Acid: A non-essential amino acid naturally occurring in the L-form. Glutamic acid (glutamate) is the most common excitatory neurotransmitter in the central nervous system. [NIH]

Glycine: A non-essential amino acid. It is found primarily in gelatin and silk fibroin and used therapeutically as a nutrient. It is also a fast inhibitory neurotransmitter. [NIH]

Glycopeptides: Proteins which contain carbohydrate groups attached covalently to the polypeptide chain. The protein moiety is the predominant group with the carbohydrate making up only a small percentage of the total weight. [NIH]

Glycoprotein: A protein that has sugar molecules attached to it. [NIH]

Glycoside: Any compound that contains a carbohydrate molecule (sugar), particularly any such natural product in plants, convertible, by hydrolytic cleavage, into sugar and a nonsugar component (aglycone), and named specifically for the sugar contained, as glucoside (glucose), pentoside (pentose), fructoside (fructose) etc. [EU]

Glycosidic: Formed by elimination of water between the anomeric hydroxyl of one sugar and a hydroxyl of another sugar molecule. [NIH]

Goats: Any of numerous agile, hollow-horned ruminants of the genus *Capra*, closely related to the sheep. [NIH]

Governing Board: The group in which legal authority is vested for the control of health-related institutions and organizations. [NIH]

Grade: The grade of a tumor depends on how abnormal the cancer cells look under a microscope and how quickly the tumor is likely to grow and spread. Grading systems are different for each type of cancer. [NIH]

Graft: Healthy skin, bone, or other tissue taken from one part of the body and used to replace diseased or injured tissue removed from another part of the body. [NIH]

Granule: A small pill made from sucrose. [EU]

Grasses: A large family, Gramineae, of narrow-leaved herbaceous monocots. Many grasses produce highly allergenic pollens and are hosts to cattle parasites and toxic fungi. [NIH]

Growth: The progressive development of a living being or part of an organism from its earliest stage to maturity. [NIH]

Guanylate Cyclase: An enzyme that catalyzes the conversion of GTP to 3',5'-cyclic GMP and pyrophosphate. It also acts on ITP and dGTP. (From Enzyme Nomenclature, 1992) EC 4.6.1.2. [NIH]

Habitual: Of the nature of a habit; according to habit; established by or repeated by force of habit, customary. [EU]

Hair follicles: Shafts or openings on the surface of the skin through which hair grows. [NIH]

Haploid: An organism with one basic chromosome set, symbolized by n ; the normal condition of gametes in diploids. [NIH]

Haptens: Small antigenic determinants capable of eliciting an immune response only when coupled to a carrier. Haptens bind to antibodies but by themselves cannot elicit an antibody response. [NIH]

Heart attack: A seizure of weak or abnormal functioning of the heart. [NIH]

Hemochromatosis: A disease that occurs when the body absorbs too much iron. The body stores the excess iron in the liver, pancreas, and other organs. May cause cirrhosis of the liver. Also called iron overload disease. [NIH]

Hemorrhage: Bleeding or escape of blood from a vessel. [NIH]

Hepatic: Refers to the liver. [NIH]

Heredity: 1. The genetic transmission of a particular quality or trait from parent to offspring.
2. The genetic constitution of an individual. [EU]

Heterogeneity: The property of one or more samples or populations which implies that they are not identical in respect of some or all of their parameters, e. g. heterogeneity of variance. [NIH]

Hormone: A substance in the body that regulates certain organs. Hormones such as gastrin help in breaking down food. Some hormones come from cells in the stomach and small intestine. [NIH]

Horseradish Peroxidase: An enzyme isolated from horseradish which is able to act as an antigen. It is frequently used as a histochemical tracer for light and electron microscopy. Its antigenicity has permitted its use as a combined antigen and marker in experimental immunology. [NIH]

Host: Any animal that receives a transplanted graft. [NIH]

Hydrogen: The first chemical element in the periodic table. It has the atomic symbol H, atomic number 1, and atomic weight 1. It exists, under normal conditions, as a colorless, odorless, tasteless, diatomic gas. Hydrogen ions are protons. Besides the common H1 isotope, hydrogen exists as the stable isotope deuterium and the unstable, radioactive isotope tritium. [NIH]

Hydrogen Peroxide: A strong oxidizing agent used in aqueous solution as a ripening agent, bleach, and topical anti-infective. It is relatively unstable and solutions deteriorate over time unless stabilized by the addition of acetanilide or similar organic materials. [NIH]

Hydrolysis: The process of cleaving a chemical compound by the addition of a molecule of water. [NIH]

Hydrophilic: Readily absorbing moisture; hygroscopic; having strongly polar groups that readily interact with water. [EU]

Hydrophobic: Not readily absorbing water, or being adversely affected by water, as a hydrophobic colloid. [EU]

Hypercholesterolemia: Abnormally high levels of cholesterol in the blood. [NIH]

Hypersensitivity: Altered reactivity to an antigen, which can result in pathologic reactions upon subsequent exposure to that particular antigen. [NIH]

Hypertension: Persistently high arterial blood pressure. Currently accepted threshold levels are 140 mm Hg systolic and 90 mm Hg diastolic pressure. [NIH]

Hypertrophy: General increase in bulk of a part or organ, not due to tumor formation, nor to an increase in the number of cells. [NIH]

Id: The part of the personality structure which harbors the unconscious instinctive desires and strivings of the individual. [NIH]

Immersion: The placing of a body or a part thereof into a liquid. [NIH]

Immune response: The activity of the immune system against foreign substances (antigens). [NIH]

Immune system: The organs, cells, and molecules responsible for the recognition and disposal of foreign ("non-self") material which enters the body. [NIH]

Immunoassay: Immunochemical assay or detection of a substance by serologic or immunologic methods. Usually the substance being studied serves as antigen both in antibody production and in measurement of antibody by the test substance. [NIH]

Immunology: The study of the body's immune system. [NIH]

Indicative: That indicates; that points out more or less exactly; that reveals fairly clearly. [EU]

Induction: The act or process of inducing or causing to occur, especially the production of a specific morphogenetic effect in the developing embryo through the influence of evocators or organizers, or the production of anaesthesia or unconsciousness by use of appropriate agents. [EU]

Infarction: A pathological process consisting of a sudden insufficient blood supply to an area, which results in necrosis of that area. It is usually caused by a thrombus, an embolus, or a vascular torsion. [NIH]

Infection: 1. Invasion and multiplication of microorganisms in body tissues, which may be clinically unapparent or result in local cellular injury due to competitive metabolism, toxins, intracellular replication, or antigen-antibody response. The infection may remain localized, subclinical, and temporary if the body's defensive mechanisms are effective. A local infection may persist and spread by extension to become an acute, subacute, or chronic clinical infection or disease state. A local infection may also become systemic when the microorganisms gain access to the lymphatic or vascular system. 2. An infectious disease. [EU]

Inflammation: A pathological process characterized by injury or destruction of tissues caused by a variety of cytologic and chemical reactions. It is usually manifested by typical signs of pain, heat, redness, swelling, and loss of function. [NIH]

Ingestion: Taking into the body by mouth [NIH]

Inhalation: The drawing of air or other substances into the lungs. [EU]

Inositol: An isomer of glucose that has traditionally been considered to be a B vitamin although it has an uncertain status as a vitamin and a deficiency syndrome has not been identified in man. (From Martindale, The Extra Pharmacopoeia, 30th ed, p1379) Inositol phospholipids are important in signal transduction. [NIH]

Insulin: A protein hormone secreted by beta cells of the pancreas. Insulin plays a major role in the regulation of glucose metabolism, generally promoting the cellular utilization of glucose. It is also an important regulator of protein and lipid metabolism. Insulin is used as

a drug to control insulin-dependent diabetes mellitus. [NIH]

Insulin-dependent diabetes mellitus: A disease characterized by high levels of blood glucose resulting from defects in insulin secretion, insulin action, or both. Autoimmune, genetic, and environmental factors are involved in the development of type I diabetes. [NIH]

Intestinal: Having to do with the intestines. [NIH]

Intestine: A long, tube-shaped organ in the abdomen that completes the process of digestion. There is both a large intestine and a small intestine. Also called the bowel. [NIH]

Intracellular: Inside a cell. [NIH]

Intrinsic: Situated entirely within or pertaining exclusively to a part. [EU]

Ion Exchange: Reversible chemical reaction between a solid, often an ION exchange resin, and a fluid whereby ions may be exchanged from one substance to another. This technique is used in water purification, in research, and in industry. [NIH]

Ions: An atom or group of atoms that have a positive or negative electric charge due to a gain (negative charge) or loss (positive charge) of one or more electrons. Atoms with a positive charge are known as cations; those with a negative charge are anions. [NIH]

Irritable Bowel Syndrome: A disorder that comes and goes. Nerves that control the muscles in the GI tract are too active. The GI tract becomes sensitive to food, stool, gas, and stress. Causes abdominal pain, bloating, and constipation or diarrhea. Also called spastic colon or mucous colitis. [NIH]

Isoflavones: 3-Phenylchromones. Isomeric form of flavones in which the benzene group is attached to the 3 position of the benzopyran ring instead of the 2 position. [NIH]

Kb: A measure of the length of DNA fragments, 1 Kb = 1000 base pairs. The largest DNA fragments are up to 50 kilobases long. [NIH]

Kidney stone: A stone that develops from crystals that form in urine and build up on the inner surfaces of the kidney, in the renal pelvis, or in the ureters. [NIH]

Large Intestine: The part of the intestine that goes from the cecum to the rectum. The large intestine absorbs water from stool and changes it from a liquid to a solid form. The large intestine is 5 feet long and includes the appendix, cecum, colon, and rectum. Also called colon. [NIH]

Laxative: An agent that acts to promote evacuation of the bowel; a cathartic or purgative. [EU]

Lethal: Deadly, fatal. [EU]

Library Services: Services offered to the library user. They include reference and circulation. [NIH]

Lichens: Any of a group of plants formed by a mutual combination of an alga and a fungus. [NIH]

Ligaments: Shiny, flexible bands of fibrous tissue connecting together articular extremities of bones. They are pliant, tough, and inextensible. [NIH]

Linkages: The tendency of two or more genes in the same chromosome to remain together from one generation to the next more frequently than expected according to the law of independent assortment. [NIH]

Lipid: Fat. [NIH]

Lipid Peroxidation: Peroxidase catalyzed oxidation of lipids using hydrogen peroxide as an electron acceptor. [NIH]

Lipophilic: Having an affinity for fat; pertaining to or characterized by lipophilia. [EU]

Lipoprotein: Any of the lipid-protein complexes in which lipids are transported in the blood; lipoprotein particles consist of a spherical hydrophobic core of triglycerides or cholesterol esters surrounded by an amphipathic monolayer of phospholipids, cholesterol, and apolipoproteins; the four principal classes are high-density, low-density, and very-low-density lipoproteins and chylomicrons. [EU]

Lipoprotein(a): A family of lipoprotein particles varying in density and size depending on the protein-lipid ratio and the protein composition. These particles consist of apolipoprotein B-100 covalently linked to apolipoprotein-a by one or two disulfide bonds. There is a correlation between high plasma levels of this lipoprotein and increased risk for atherosclerotic cardiovascular disease. [NIH]

Lithium: An element in the alkali metals family. It has the atomic symbol Li, atomic number 3, and atomic weight 6.94. Salts of lithium are used in treating manic-depressive disorders. [NIH]

Liver: A large, glandular organ located in the upper abdomen. The liver cleanses the blood and aids in digestion by secreting bile. [NIH]

Localized: Cancer which has not metastasized yet. [NIH]

Locomotion: Movement or the ability to move from one place or another. It can refer to humans, vertebrate or invertebrate animals, and microorganisms. [NIH]

Lovastatin: A fungal metabolite isolated from cultures of *Aspergillus terreus*. The compound is a potent anticholesteremic agent. It inhibits 3-hydroxy-3-methylglutaryl coenzyme A reductase (hydroxymethylglutaryl CoA reductases), which is the rate-limiting enzyme in cholesterol biosynthesis. It also stimulates the production of low-density lipoprotein receptors in the liver. [NIH]

Low-density lipoprotein: Lipoprotein that contains most of the cholesterol in the blood. LDL carries cholesterol to the tissues of the body, including the arteries. A high level of LDL increases the risk of heart disease. LDL typically contains 60 to 70 percent of the total serum cholesterol and both are directly correlated with CHD risk. [NIH]

Lymphatic: The tissues and organs, including the bone marrow, spleen, thymus, and lymph nodes, that produce and store cells that fight infection and disease. [NIH]

Lymphocyte: A white blood cell. Lymphocytes have a number of roles in the immune system, including the production of antibodies and other substances that fight infection and diseases. [NIH]

Lymphoid: Referring to lymphocytes, a type of white blood cell. Also refers to tissue in which lymphocytes develop. [NIH]

Malnutrition: A condition caused by not eating enough food or not eating a balanced diet. [NIH]

Manic: Affected with mania. [EU]

Mannans: Polysaccharides consisting of mannose units. [NIH]

Masseter Muscle: A masticatory muscle whose action is closing the jaws. [NIH]

Mastication: The act and process of chewing and grinding food in the mouth. [NIH]

Meat: The edible portions of any animal used for food including domestic mammals (the major ones being cattle, swine, and sheep) along with poultry, fish, shellfish, and game. [NIH]

Meat Products: Articles of food which are derived by a process of manufacture from any portion of carcasses of any animal used for food (e.g., head cheese, sausage, scrapple). [NIH]

MEDLINE: An online database of MEDLARS, the computerized bibliographic Medical

Literature Analysis and Retrieval System of the National Library of Medicine. [NIH]

Megaloblastic: A large abnormal red blood cell appearing in the blood in pernicious anaemia. [EU]

Membrane: A very thin layer of tissue that covers a surface. [NIH]

Menopause: Permanent cessation of menstruation. [NIH]

Metabolite: Any substance produced by metabolism or by a metabolic process. [EU]

MI: Myocardial infarction. Gross necrosis of the myocardium as a result of interruption of the blood supply to the area; it is almost always caused by atherosclerosis of the coronary arteries, upon which coronary thrombosis is usually superimposed. [NIH]

Microbe: An organism which cannot be observed with the naked eye; e. g. unicellular animals, lower algae, lower fungi, bacteria. [NIH]

Microorganism: An organism that can be seen only through a microscope. Microorganisms include bacteria, protozoa, algae, and fungi. Although viruses are not considered living organisms, they are sometimes classified as microorganisms. [NIH]

Mitotic: Cell resulting from mitosis. [NIH]

Molasses: The syrup remaining after sugar is crystallized out of sugar cane or sugar beet juice. It is also used in animal feed, and in a fermented form, is used to make industrial ethyl alcohol and alcoholic beverages. [NIH]

Molecular: Of, pertaining to, or composed of molecules : a very small mass of matter. [EU]

Molecule: A chemical made up of two or more atoms. The atoms in a molecule can be the same (an oxygen molecule has two oxygen atoms) or different (a water molecule has two hydrogen atoms and one oxygen atom). Biological molecules, such as proteins and DNA, can be made up of many thousands of atoms. [NIH]

Monounsaturated fat: An unsaturated fat that is found primarily in plant foods, including olive and canola oils. [NIH]

Morphological: Relating to the configuration or the structure of live organs. [NIH]

Moths: Insects of the suborder Heterocera of the order Lepidoptera. [NIH]

Motion Sickness: Sickness caused by motion, as sea sickness, train sickness, car sickness, and air sickness. [NIH]

Mutagenic: Inducing genetic mutation. [EU]

Mycotoxins: Toxins derived from bacteria or fungi. [NIH]

Myocardium: The muscle tissue of the heart composed of striated, involuntary muscle known as cardiac muscle. [NIH]

Nausea: An unpleasant sensation in the stomach usually accompanied by the urge to vomit. Common causes are early pregnancy, sea and motion sickness, emotional stress, intense pain, food poisoning, and various enteroviruses. [NIH]

Necrosis: A pathological process caused by the progressive degradative action of enzymes that is generally associated with severe cellular trauma. It is characterized by mitochondrial swelling, nuclear flocculation, uncontrolled cell lysis, and ultimately cell death. [NIH]

Need: A state of tension or dissatisfaction felt by an individual that impels him to action toward a goal he believes will satisfy the impulse. [NIH]

Nervous System: The entire nerve apparatus composed of the brain, spinal cord, nerves and ganglia. [NIH]

Neutrons: Electrically neutral elementary particles found in all atomic nuclei except light

hydrogen; the mass is equal to that of the proton and electron combined and they are unstable when isolated from the nucleus, undergoing beta decay. Slow, thermal, epithermal, and fast neutrons refer to the energy levels with which the neutrons are ejected from heavier nuclei during their decay. [NIH]

Niacin: Water-soluble vitamin of the B complex occurring in various animal and plant tissues. Required by the body for the formation of coenzymes NAD and NADP. Has pellagra-curative, vasodilating, and antilipemic properties. [NIH]

Nitric Oxide: A free radical gas produced endogenously by a variety of mammalian cells. It is synthesized from arginine by a complex reaction, catalyzed by nitric oxide synthase. Nitric oxide is endothelium-derived relaxing factor. It is released by the vascular endothelium and mediates the relaxation induced by some vasodilators such as acetylcholine and bradykinin. It also inhibits platelet aggregation, induces disaggregation of aggregated platelets, and inhibits platelet adhesion to the vascular endothelium. Nitric oxide activates cytosolic guanylate cyclase and thus elevates intracellular levels of cyclic GMP. [NIH]

Nitrogen: An element with the atomic symbol N, atomic number 7, and atomic weight 14. Nitrogen exists as a diatomic gas and makes up about 78% of the earth's atmosphere by volume. It is a constituent of proteins and nucleic acids and found in all living cells. [NIH]

Nucleic acid: Either of two types of macromolecule (DNA or RNA) formed by polymerization of nucleotides. Nucleic acids are found in all living cells and contain the information (genetic code) for the transfer of genetic information from one generation to the next. [NIH]

Ointments: Semisolid preparations used topically for protective emollient effects or as a vehicle for local administration of medications. Ointment bases are various mixtures of fats, waxes, animal and plant oils and solid and liquid hydrocarbons. [NIH]

Oligosaccharides: Carbohydrates consisting of between two and ten monosaccharides connected by either an alpha- or beta-glycosidic link. They are found throughout nature in both the free and bound form. [NIH]

Opacity: Degree of density (area most dense taken for reading). [NIH]

Orbital: Pertaining to the orbit (= the bony cavity that contains the eyeball). [EU]

Organoleptic: Of, relating to, or involving the employment of the sense organs; used especially of subjective testing (as of flavor, odor, appearance) of food and drug products. [NIH]

Osmotic: Pertaining to or of the nature of osmosis (= the passage of pure solvent from a solution of lesser to one of greater solute concentration when the two solutions are separated by a membrane which selectively prevents the passage of solute molecules, but is permeable to the solvent). [EU]

Osteoporosis: Reduction of bone mass without alteration in the composition of bone, leading to fractures. Primary osteoporosis can be of two major types: postmenopausal osteoporosis and age-related (or senile) osteoporosis. [NIH]

Ovary: Either of the paired glands in the female that produce the female germ cells and secrete some of the female sex hormones. [NIH]

Oxalate: A chemical that combines with calcium in urine to form the most common type of kidney stone (calcium oxalate stone). [NIH]

Oxidation: The act of oxidizing or state of being oxidized. Chemically it consists in the increase of positive charges on an atom or the loss of negative charges. Most biological oxidations are accomplished by the removal of a pair of hydrogen atoms (dehydrogenation) from a molecule. Such oxidations must be accompanied by reduction of an acceptor

molecule. Univalent o. indicates loss of one electron; divalent o., the loss of two electrons. [EU]

Palliative: 1. Affording relief, but not cure. 2. An alleviating medicine. [EU]

Pancreas: A mixed exocrine and endocrine gland situated transversely across the posterior abdominal wall in the epigastric and hypochondriac regions. The endocrine portion is comprised of the Islets of Langerhans, while the exocrine portion is a compound acinar gland that secretes digestive enzymes. [NIH]

Particle: A tiny mass of material. [EU]

Pathologic: 1. Indicative of or caused by a morbid condition. 2. Pertaining to pathology (= branch of medicine that treats the essential nature of the disease, especially the structural and functional changes in tissues and organs of the body caused by the disease). [EU]

Patient Education: The teaching or training of patients concerning their own health needs. [NIH]

Peptide: Any compound consisting of two or more amino acids, the building blocks of proteins. Peptides are combined to make proteins. [NIH]

Perennial: Lasting through the year or for several years. [EU]

Petrolatum: A colloidal system of semisolid hydrocarbons obtained from petroleum. It is used as an ointment base, topical protectant, and lubricant. [NIH]

Pharmacologic: Pertaining to pharmacology or to the properties and reactions of drugs. [EU]

Phenolphthalein: An acid-base indicator which is colorless in acid solution, but turns pink to red as the solution becomes alkaline. It is used medicinally as a cathartic. [NIH]

Phenyl: Ingredient used in cold and flu remedies. [NIH]

Phenylacetate: A drug being studied in the treatment of cancer. [NIH]

Phlebotomy: The letting of blood from a vein. Although it is one of the techniques used in drawing blood to be used in diagnostic procedures, in modern medicine, it is used commonly in the treatment of erythrocytosis, hemochromocytosis, polycythemia vera, and porphyria cutanea tarda. Its historical counterpart is bloodletting. (From Cecil Textbook of Medicine, 19th ed & Wintrobe's Clinical Hematology, 9th ed) Venipuncture is not only for the letting of blood from a vein but also for the injecting of a drug into the vein for diagnostic analysis. [NIH]

Phosphates: Inorganic salts of phosphoric acid. [NIH]

Phospholipids: Lipids containing one or more phosphate groups, particularly those derived from either glycerol (phosphoglycerides; glycerophospholipids) or sphingosine (sphingolipids). They are polar lipids that are of great importance for the structure and function of cell membranes and are the most abundant of membrane lipids, although not stored in large amounts in the system. [NIH]

Physiologic: Having to do with the functions of the body. When used in the phrase "physiologic age," it refers to an age assigned by general health, as opposed to calendar age. [NIH]

Pitch: The subjective awareness of the frequency or spectral distribution of a sound. [NIH]

Placenta: A highly vascular fetal organ through which the fetus absorbs oxygen and other nutrients and excretes carbon dioxide and other wastes. It begins to form about the eighth day of gestation when the blastocyst adheres to the decidua. [NIH]

Plants: Multicellular, eukaryotic life forms of the kingdom Plantae. They are characterized by a mainly photosynthetic mode of nutrition; essentially unlimited growth at localized regions of cell divisions (meristems); cellulose within cells providing rigidity; the absence of

organs of locomotion; absence of nervous and sensory systems; and an alteration of haploid and diploid generations. [NIH]

Plasma: The clear, yellowish, fluid part of the blood that carries the blood cells. The proteins that form blood clots are in plasma. [NIH]

Plasma cells: A type of white blood cell that produces antibodies. [NIH]

Plasma protein: One of the hundreds of different proteins present in blood plasma, including carrier proteins (such as albumin, transferrin, and haptoglobin), fibrinogen and other coagulation factors, complement components, immunoglobulins, enzyme inhibitors, precursors of substances such as angiotensin and bradykinin, and many other types of proteins. [EU]

Platelet Aggregation: The attachment of platelets to one another. This clumping together can be induced by a number of agents (e.g., thrombin, collagen) and is part of the mechanism leading to the formation of a thrombus. [NIH]

Platelets: A type of blood cell that helps prevent bleeding by causing blood clots to form. Also called thrombocytes. [NIH]

Poisoning: A condition or physical state produced by the ingestion, injection or inhalation of, or exposure to a deleterious agent. [NIH]

Polymers: Compounds formed by the joining of smaller, usually repeating, units linked by covalent bonds. These compounds often form large macromolecules (e.g., polypeptides, proteins, plastics). [NIH]

Polypeptide: A peptide which on hydrolysis yields more than two amino acids; called tripeptides, tetrapeptides, etc. according to the number of amino acids contained. [EU]

Polysaccharide: A type of carbohydrate. It contains sugar molecules that are linked together chemically. [NIH]

Porosity: Condition of having pores or open spaces. This often refers to bones, bone implants, or bone cements, but can refer to the porous state of any solid substance. [NIH]

Porphyria: A group of disorders characterized by the excessive production of porphyrins or their precursors that arises from abnormalities in the regulation of the porphyrin-heme pathway. The porphyrias are usually divided into three broad groups, erythropoietic, hepatic, and erythrohepatic, according to the major sites of abnormal porphyrin synthesis. [NIH]

Porphyria Cutanea Tarda: A form of hepatic porphyria (porphyria, hepatic) characterized by photosensitivity resulting in bullae that rupture easily to form shallow ulcers. This condition occurs in two forms: a sporadic, nonfamilial form that begins in middle age and has normal amounts of uroporphyrinogen decarboxylase with diminished activity in the liver; and a familial form in which there is an autosomal dominant inherited deficiency of uroporphyrinogen decarboxylase in the liver and red blood cells. [NIH]

Posterior: Situated in back of, or in the back part of, or affecting the back or dorsal surface of the body. In lower animals, it refers to the caudal end of the body. [EU]

Postmenopausal: Refers to the time after menopause. Menopause is the time in a woman's life when menstrual periods stop permanently; also called "change of life." [NIH]

Postprandial: Occurring after dinner, or after a meal; postcibal. [EU]

Potassium: An element that is in the alkali group of metals. It has an atomic symbol K, atomic number 19, and atomic weight 39.10. It is the chief cation in the intracellular fluid of muscle and other cells. Potassium ion is a strong electrolyte and it plays a significant role in the regulation of fluid volume and maintenance of the water-electrolyte balance. [NIH]

Practice Guidelines: Directions or principles presenting current or future rules of policy for the health care practitioner to assist him in patient care decisions regarding diagnosis, therapy, or related clinical circumstances. The guidelines may be developed by government agencies at any level, institutions, professional societies, governing boards, or by the convening of expert panels. The guidelines form a basis for the evaluation of all aspects of health care and delivery. [NIH]

Prevalence: The total number of cases of a given disease in a specified population at a designated time. It is differentiated from incidence, which refers to the number of new cases in the population at a given time. [NIH]

Progression: Increase in the size of a tumor or spread of cancer in the body. [NIH]

Progressive: Advancing; going forward; going from bad to worse; increasing in scope or severity. [EU]

Proportional: Being in proportion : corresponding in size, degree, or intensity, having the same or a constant ratio; of, relating to, or used in determining proportions. [EU]

Prostate: A gland in males that surrounds the neck of the bladder and the urethra. It secretes a substance that liquifies coagulated semen. It is situated in the pelvic cavity behind the lower part of the pubic symphysis, above the deep layer of the triangular ligament, and rests upon the rectum. [NIH]

Prostatic Hyperplasia: Enlargement or overgrowth of the prostate gland as a result of an increase in the number of its constituent cells. [NIH]

Protein C: A vitamin-K dependent zymogen present in the blood, which, upon activation by thrombin and thrombomodulin exerts anticoagulant properties by inactivating factors Va and VIIIa at the rate-limiting steps of thrombin formation. [NIH]

Protein S: The vitamin K-dependent cofactor of activated protein C. Together with protein C, it inhibits the action of factors VIIIa and Va. A deficiency in protein S can lead to recurrent venous and arterial thrombosis. [NIH]

Proteins: Polymers of amino acids linked by peptide bonds. The specific sequence of amino acids determines the shape and function of the protein. [NIH]

Proteolytic: 1. Pertaining to, characterized by, or promoting proteolysis. 2. An enzyme that promotes proteolysis (= the splitting of proteins by hydrolysis of the peptide bonds with formation of smaller polypeptides). [EU]

Protons: Stable elementary particles having the smallest known positive charge, found in the nuclei of all elements. The proton mass is less than that of a neutron. A proton is the nucleus of the light hydrogen atom, i.e., the hydrogen ion. [NIH]

Psyllium: Dried, ripe seeds of *Plantago psyllium*, *P. indica*, and *P. ovata* (Plantaginaceae). Plantain seeds swell in water and are used as demulcents and bulk laxatives. [NIH]

Public Policy: A course or method of action selected, usually by a government, from among alternatives to guide and determine present and future decisions. [NIH]

Pulmonary: Relating to the lungs. [NIH]

Pulmonary Artery: The short wide vessel arising from the conus arteriosus of the right ventricle and conveying unaerated blood to the lungs. [NIH]

Pulsation: A throb or rhythmical beat, as of the heart. [EU]

Purines: A series of heterocyclic compounds that are variously substituted in nature and are known also as purine bases. They include adenine and guanine, constituents of nucleic acids, as well as many alkaloids such as caffeine and theophylline. Uric acid is the metabolic end product of purine metabolism. [NIH]

Radar: A system using beamed and reflected radio signals to and from an object in such a way that range, bearing, and other characteristics of the object may be determined. [NIH]

Radiation: Emission or propagation of electromagnetic energy (waves/rays), or the waves/rays themselves; a stream of electromagnetic particles (electrons, neutrons, protons, alpha particles) or a mixture of these. The most common source is the sun. [NIH]

Randomized: Describes an experiment or clinical trial in which animal or human subjects are assigned by chance to separate groups that compare different treatments. [NIH]

Receptor: A molecule inside or on the surface of a cell that binds to a specific substance and causes a specific physiologic effect in the cell. [NIH]

Recombinant: A cell or an individual with a new combination of genes not found together in either parent; usually applied to linked genes. [EU]

Rectum: The last 8 to 10 inches of the large intestine. [NIH]

Reductase: Enzyme converting testosterone to dihydrotestosterone. [NIH]

Refer: To send or direct for treatment, aid, information, de decision. [NIH]

Renal pelvis: The area at the center of the kidney. Urine collects here and is funneled into the ureter, the tube that connects the kidney to the bladder. [NIH]

Respiration: The act of breathing with the lungs, consisting of inspiration, or the taking into the lungs of the ambient air, and of expiration, or the expelling of the modified air which contains more carbon dioxide than the air taken in (Blakiston's Gould Medical Dictionary, 4th ed.). This does not include tissue respiration (= oxygen consumption) or cell respiration (= cell respiration). [NIH]

Retina: The ten-layered nervous tissue membrane of the eye. It is continuous with the optic nerve and receives images of external objects and transmits visual impulses to the brain. Its outer surface is in contact with the choroid and the inner surface with the vitreous body. The outer-most layer is pigmented, whereas the inner nine layers are transparent. [NIH]

Riboflavin: Nutritional factor found in milk, eggs, malted barley, liver, kidney, heart, and leafy vegetables. The richest natural source is yeast. It occurs in the free form only in the retina of the eye, in whey, and in urine; its principal forms in tissues and cells are as FMN and FAD. [NIH]

Rigidity: Stiffness or inflexibility, chiefly that which is abnormal or morbid; rigor. [EU]

Risk factor: A habit, trait, condition, or genetic alteration that increases a person's chance of developing a disease. [NIH]

Risk patient: Patient who is at risk, because of his/her behaviour or because of the type of person he/she is. [EU]

Salicylate: Non-steroidal anti-inflammatory drugs. [NIH]

Saliva: The clear, viscous fluid secreted by the salivary glands and mucous glands of the mouth. It contains mucins, water, organic salts, and ptylin. [NIH]

Salivary: The duct that convey saliva to the mouth. [NIH]

Saturated fat: A type of fat found in greatest amounts in foods from animals, such as fatty cuts of meat, poultry with the skin, whole-milk dairy products, lard, and in some vegetable oils, including coconut, palm kernel, and palm oils. Saturated fat raises blood cholesterol more than anything else eaten. On a Step I Diet, no more than 8 to 10 percent of total calories should come from saturated fat, and in the Step II Diet, less than 7 percent of the day's total calories should come from saturated fat. [NIH]

Screening: Checking for disease when there are no symptoms. [NIH]

Seafood: Marine fish and shellfish used as food or suitable for food. (Webster, 3d ed) shellfish and fish products are more specific types of seafood. [NIH]

Sebaceous: Gland that secretes sebum. [NIH]

Sebaceous gland: Gland that secretes sebum. [NIH]

Senescence: The bodily and mental state associated with advancing age. [NIH]

Senile: Relating or belonging to old age; characteristic of old age; resulting from infirmity of old age. [NIH]

Septic: Produced by or due to decomposition by microorganisms; putrefactive. [EU]

Serum: The clear liquid part of the blood that remains after blood cells and clotting proteins have been removed. [NIH]

Shock: The general bodily disturbance following a severe injury; an emotional or moral upset occasioned by some disturbing or unexpected experience; disruption of the circulation, which can upset all body functions: sometimes referred to as circulatory shock. [NIH]

Side effect: A consequence other than the one(s) for which an agent or measure is used, as the adverse effects produced by a drug, especially on a tissue or organ system other than the one sought to be benefited by its administration. [EU]

Signal Transduction: The intercellular or intracellular transfer of information (biological activation/inhibition) through a signal pathway. In each signal transduction system, an activation/inhibition signal from a biologically active molecule (hormone, neurotransmitter) is mediated via the coupling of a receptor/enzyme to a second messenger system or to an ion channel. Signal transduction plays an important role in activating cellular functions, cell differentiation, and cell proliferation. Examples of signal transduction systems are the GABA-postsynaptic receptor-calcium ion channel system, the receptor-mediated T-cell activation pathway, and the receptor-mediated activation of phospholipases. Those coupled to membrane depolarization or intracellular release of calcium include the receptor-mediated activation of cytotoxic functions in granulocytes and the synaptic potentiation of protein kinase activation. Some signal transduction pathways may be part of larger signal transduction pathways; for example, protein kinase activation is part of the platelet activation signal pathway. [NIH]

Skeleton: The framework that supports the soft tissues of vertebrate animals and protects many of their internal organs. The skeletons of vertebrates are made of bone and/or cartilage. [NIH]

Sodium: An element that is a member of the alkali group of metals. It has the atomic symbol Na, atomic number 11, and atomic weight 23. With a valence of 1, it has a strong affinity for oxygen and other nonmetallic elements. Sodium provides the chief cation of the extracellular body fluids. Its salts are the most widely used in medicine. (From Dorland, 27th ed) Physiologically the sodium ion plays a major role in blood pressure regulation, maintenance of fluid volume, and electrolyte balance. [NIH]

Sorbitol: A polyhydric alcohol with about half the sweetness of sucrose. Sorbitol occurs naturally and is also produced synthetically from glucose. It was formerly used as a diuretic and may still be used as a laxative and in irrigating solutions for some surgical procedures. It is also used in many manufacturing processes, as a pharmaceutical aid, and in several research applications. [NIH]

Spastic: 1. Of the nature of or characterized by spasms. 2. Hypertonic, so that the muscles are stiff and the movements awkward. 3. A person exhibiting spasticity, such as occurs in spastic paralysis or in cerebral palsy. [EU]

Specialist: In medicine, one who concentrates on 1 special branch of medical science. [NIH]

Species: A taxonomic category subordinate to a genus (or subgenus) and superior to a subspecies or variety, composed of individuals possessing common characters distinguishing them from other categories of individuals of the same taxonomic level. In taxonomic nomenclature, species are designated by the genus name followed by a Latin or Latinized adjective or noun. [EU]

Specificity: Degree of selectivity shown by an antibody with respect to the number and types of antigens with which the antibody combines, as well as with respect to the rates and the extents of these reactions. [NIH]

Spices: The dried seeds, bark, root, stems, buds, leaves, or fruit of aromatic plants used to season food. [NIH]

Spinal cord: The main trunk or bundle of nerves running down the spine through holes in the spinal bone (the vertebrae) from the brain to the level of the lower back. [NIH]

Sterile: Unable to produce children. [NIH]

Sterilization: The destroying of all forms of life, especially microorganisms, by heat, chemical, or other means. [NIH]

Stimulus: That which can elicit or evoke action (response) in a muscle, nerve, gland or other excitable issue, or cause an augmenting action upon any function or metabolic process. [NIH]

Stomach: An organ of digestion situated in the left upper quadrant of the abdomen between the termination of the esophagus and the beginning of the duodenum. [NIH]

Stool: The waste matter discharged in a bowel movement; feces. [NIH]

Stress: Forcibly exerted influence; pressure. Any condition or situation that causes strain or tension. Stress may be either physical or psychologic, or both. [NIH]

Stroke: Sudden loss of function of part of the brain because of loss of blood flow. Stroke may be caused by a clot (thrombosis) or rupture (hemorrhage) of a blood vessel to the brain. [NIH]

Subacute: Somewhat acute; between acute and chronic. [EU]

Subclinical: Without clinical manifestations; said of the early stage(s) of an infection or other disease or abnormality before symptoms and signs become apparent or detectable by clinical examination or laboratory tests, or of a very mild form of an infection or other disease or abnormality. [EU]

Subspecies: A category intermediate in rank between species and variety, based on a smaller number of correlated characters than are used to differentiate species and generally conditioned by geographical and/or ecological occurrence. [NIH]

Substrate: A substance upon which an enzyme acts. [EU]

Substrate Specificity: A characteristic feature of enzyme activity in relation to the kind of substrate on which the enzyme or catalytic molecule reacts. [NIH]

Suction: The removal of secretions, gas or fluid from hollow or tubular organs or cavities by means of a tube and a device that acts on negative pressure. [NIH]

Sulfites: Inorganic salts of sulfurous acid. [NIH]

Surfactant: A fat-containing protein in the respiratory passages which reduces the surface tension of pulmonary fluids and contributes to the elastic properties of pulmonary tissue. [NIH]

Sympathomimetic: 1. Mimicking the effects of impulses conveyed by adrenergic postganglionic fibres of the sympathetic nervous system. 2. An agent that produces effects similar to those of impulses conveyed by adrenergic postganglionic fibres of the sympathetic

nervous system. Called also adrenergic. [EU]

Systemic: Affecting the entire body. [NIH]

Theophylline: Alkaloid obtained from *Thea sinensis* (tea) and others. It stimulates the heart and central nervous system, dilates bronchi and blood vessels, and causes diuresis. The drug is used mainly in bronchial asthma and for myocardial stimulation. Among its more prominent cellular effects are inhibition of cyclic nucleotide phosphodiesterases and antagonism of adenosine receptors. [NIH]

Therapeutics: The branch of medicine which is concerned with the treatment of diseases, palliative or curative. [NIH]

Thrombin: An enzyme formed from prothrombin that converts fibrinogen to fibrin. (Dorland, 27th ed) EC 3.4.21.5. [NIH]

Thrombomodulin: A cell surface glycoprotein of endothelial cells that binds thrombin and serves as a cofactor in the activation of protein C and its regulation of blood coagulation. [NIH]

Thrombosis: The formation or presence of a blood clot inside a blood vessel. [NIH]

Thyroxine: An amino acid of the thyroid gland which exerts a stimulating effect on thyroid metabolism. [NIH]

Tissue: A group or layer of cells that are alike in type and work together to perform a specific function. [NIH]

Tolerance: 1. The ability to endure unusually large doses of a drug or toxin. 2. Acquired drug tolerance; a decreasing response to repeated constant doses of a drug or the need for increasing doses to maintain a constant response. [EU]

Toxic: Having to do with poison or something harmful to the body. Toxic substances usually cause unwanted side effects. [NIH]

Toxicity: The quality of being poisonous, especially the degree of virulence of a toxic microbe or of a poison. [EU]

Toxicology: The science concerned with the detection, chemical composition, and pharmacologic action of toxic substances or poisons and the treatment and prevention of toxic manifestations. [NIH]

Toxins: Specific, characterizable, poisonous chemicals, often proteins, with specific biological properties, including immunogenicity, produced by microbes, higher plants, or animals. [NIH]

Trace element: Substance or element essential to plant or animal life, but present in extremely small amounts. [NIH]

Transfection: The uptake of naked or purified DNA into cells, usually eukaryotic. It is analogous to bacterial transformation. [NIH]

Transfusion: The infusion of components of blood or whole blood into the bloodstream. The blood may be donated from another person, or it may have been taken from the person earlier and stored until needed. [NIH]

Trees: Woody, usually tall, perennial higher plants (Angiosperms, Gymnosperms, and some Pterophyta) having usually a main stem and numerous branches. [NIH]

Triglyceride: A lipid carried through the blood stream to tissues. Most of the body's fat tissue is in the form of triglycerides, stored for use as energy. Triglycerides are obtained primarily from fat in foods. [NIH]

Tuberculosis: Any of the infectious diseases of man and other animals caused by species of *Mycobacterium*. [NIH]

Type 2 diabetes: Usually characterized by a gradual onset with minimal or no symptoms of metabolic disturbance and no requirement for exogenous insulin. The peak age of onset is 50 to 60 years. Obesity and possibly a genetic factor are usually present. [NIH]

Umbilical Arteries: Either of a pair of arteries originating from the internal iliac artery and passing through the umbilical cord to carry blood from the fetus to the placenta. [NIH]

Umbilical Cord: The flexible structure, giving passage to the umbilical arteries and vein, which connects the embryo or fetus to the placenta. [NIH]

Unconscious: Experience which was once conscious, but was subsequently rejected, as the "personal unconscious". [NIH]

Ureters: Tubes that carry urine from the kidneys to the bladder. [NIH]

Urethra: The tube through which urine leaves the body. It empties urine from the bladder. [NIH]

Urine: Fluid containing water and waste products. Urine is made by the kidneys, stored in the bladder, and leaves the body through the urethra. [NIH]

Urticaria: A vascular reaction of the skin characterized by erythema and wheal formation due to localized increase of vascular permeability. The causative mechanism may be allergy, infection, or stress. [NIH]

Vaccines: Suspensions of killed or attenuated microorganisms (bacteria, viruses, fungi, protozoa, or rickettsiae), antigenic proteins derived from them, or synthetic constructs, administered for the prevention, amelioration, or treatment of infectious and other diseases. [NIH]

Vascular: Pertaining to blood vessels or indicative of a copious blood supply. [EU]

Vasoconstriction: Narrowing of the blood vessels without anatomic change, for which constriction, pathologic is used. [NIH]

Vasodilator: An agent that widens blood vessels. [NIH]

Vegetative: 1. Concerned with growth and with nutrition. 2. Functioning involuntarily or unconsciously, as the vegetative nervous system. 3. Resting; denoting the portion of a cell cycle during which the cell is not involved in replication. 4. Of, pertaining to, or characteristic of plants. [EU]

Vein: Vessel-carrying blood from various parts of the body to the heart. [NIH]

Veterinary Medicine: The medical science concerned with the prevention, diagnosis, and treatment of diseases in animals. [NIH]

Virulence: The degree of pathogenicity within a group or species of microorganisms or viruses as indicated by case fatality rates and/or the ability of the organism to invade the tissues of the host. [NIH]

Virus: Submicroscopic organism that causes infectious disease. In cancer therapy, some viruses may be made into vaccines that help the body build an immune response to, and kill, tumor cells. [NIH]

Vitamin A: A substance used in cancer prevention; it belongs to the family of drugs called retinoids. [NIH]

Vitro: Descriptive of an event or enzyme reaction under experimental investigation occurring outside a living organism. Parts of an organism or microorganism are used together with artificial substrates and/or conditions. [NIH]

Vulgaris: An affection of the skin, especially of the face, the back and the chest, due to chronic inflammation of the sebaceous glands and the hair follicles. [NIH]

Wheezing: Breathing with a rasp or whistling sound; a sign of airway constriction or

obstruction. [NIH]

Xerostomia: Decreased salivary flow. [NIH]

Yeasts: A general term for single-celled rounded fungi that reproduce by budding. Brewers' and bakers' yeasts are *Saccharomyces cerevisiae*; therapeutic dried yeast is dried yeast. [NIH]

Zymogen: Inactive form of an enzyme which can then be converted to the active form, usually by excision of a polypeptide, e. g. trypsinogen is the zymogen of trypsin. [NIH]

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