Published in final edited form as:

J Am Diet Assoc. 2010 October ; 110(10): 1426–1431. doi:10.1016/j.jada.2010.08.013.

Online Dietary Supplement Resources

Leila G Saldanha, PhD, RD [Scientific Consultant],

Office of Dietary Supplements, National Institutes of Health, 5904 Sandbrook Ct, Alexandria, VA 22307

Johanna T Dwyer, DSc, RD [Senior Nutrition Scientist],

Office of Dietary Supplements, National Institutes of Health, 6100 Executive Blvd MSC 7517, Room 3B01, Bethesda, MD 20892, Phone: 301-496-0048, Fax: 301-480-1845, DwyerJ1@od.nih.gov

Karen W Andrews, BS,

US Department of Agriculture, Agricultural Research Service, Nutrient Data Laboratory, 10300 Baltimore Avenue, Building 005, Beltsville, MD 20705, Phone: 301-504-0710, Fax: 301-504-0713, karen.andrews@ars.usda.gov

Regan L Bailey, PhD, RD,

Office of Dietary Supplements, National Institutes of Health, 6100 Executive Blvd MSC 7517, Room 3B01, Bethesda, MD 20892, Phone: 301-496-0187, Fax: 301-480-1845, baileyr@mail.nih.gov

Jaime J. Gahche, MPH,

National Health and Nutrition Examination Survey/Planning Branch, National Center for Health Statistics/CDC, 3311 Toledo Road, Room 4332, Hyattsville, MD 20782, Phone: 301-458-4767, Fax: 301-458-4028, JGahche@cdc.gov

Constance J Hardy, MS, RD [Interdisciplinary Scientist],

Center for Food Safety and Applied Nutrition Food and Drug Administration, College Park MD 20740, Phone: 301-436-2375, Fax: 301-436-2636, Constance.Hardy@fda.hhs.gov

Joanne M Holden, MS [Research Leader],

US Department of Agriculture, Agricultural Research Service, Nutrient Data Laboratory, 10300 Baltimore Avenue, Building 005, Beltsville, MD 20705; Phone: 301-504-0630, Fax: 301-504-0713, joanne.holden@ars.usda.gov

Mary Frances Picciano, PhD [Senior Nutrition Research Scientist],

Office of Dietary Supplements, National Institutes of Health, 6100 Executive Blvd MSC 7517, Room 3B01, Bethesda, MD 20892-7517, Phone: 301-435-3608, Fax: 301-480-1845, PiccianoMF@od.nih.gov

Janet M Roseland, MS, RD,

US Department of Agriculture, Agricultural Research Service, Nutrient Data Laboratory, 10300 Baltimore Avenue, Building 005, Beltsville, MD 20705, Phone: 301-504-0715, Fax: 301-504-0713, janet.roseland@ars.usda.gov

Paul R. Thomas, EdD, RD [Scientific Consultant], and

Office of Dietary Supplements, National Institutes of Health, 6100 Executive Blvd MSC 7517, Room 3B01, Bethesda, MD 20892, Phone: 301.435.2920, Fax: 301 443-0503, ThomasPaul@od.nih.gov

© 2010 The American Dietetic Association. Published by Elsevier Inc. All rights reserved.

corresponding author: Phone: 202-460-3529, Fax: 703-317-9253, saldanhl@mail.nih.gov.

Publisher's Disclaimer: This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Wayne R. Wolf, PhD [Research Chemist]

Food Composition and Methods Development Lab, Room 203C, 10300 Baltimore Avenue, Bldg 161 BARC-East, Beltsville, MD, 20705-2350, Phone: 301-504-8927 ext. 227, Fax: 301-504-8314, Wayne.Wolf@ars.usda.gov

Keywords

online resources; government; dietary supplements; databases

Online Dietary Supplement Resources

With the vast amount of information and resources on the Internet, it's easy for individuals to look up information on dietary supplements. The difficulty for consumers and health professionals is identifying Web sites that provide reliable information. This article provides registered dietitians (RDs) and dietetic technicians, registered (DTRs) with examples of federal Web sites that contain accurate, reliable, and unbiased information on dietary supplements and examples of commercial Web sites that currently provide useful information on dietary supplements.

In 1994 the Dietary Supplement Health and Education Act (DSHEA) created a new category of foods called *dietary supplements* and defined them for regulatory purposes (1). DSHEA also fueled the growth of the dietary supplement industry that has increased more than five-fold since its passage; from around \$4 billion in 1994 to 23.7 billion in 2008 (2). Currently, an estimated 4% of all dietary supplement sales are made through the Internet (2). Internet marketing and sales are in part responsible for the growth and development of the dietary supplement industry over the past decade. National survey data collected from 2003 to 2006 indicate that 53% of US adults report dietary supplement use (3). Consumers can easily find information about dietary supplement over the Internet and on social networking sites such as Twitter and Facebook, but its veracity is sometimes questionable. This is of concern because with the high prevalence of dietary supplement use, and easy access to information on the Internet, it is not surprising that many individuals may circumvent health professionals as a source of information and go directly to the Web for help.

GENERAL INFORMATION SITES

The Figure provides a quick reference list of US government Web sites discussed in this paper that provide free access to facts and authoritative information on dietary supplements. One of the most reliable sources is the National Institutes of Health (NIH), and, in particular, the Office of Dietary Supplements (ODS). The ODS Web site has five sections:

1. **Health Information:** Provides authoritative fact sheets on dietary supplement ingredients, nutrient recommendations, information on dietary supplement use and safety, and some database resources. These fact sheets can be used to quickly educate the reader on specific dietary supplements, vitamins, minerals, herbals, and botanicals.
2. **News, Events & Media Resources:** Provides links to conferences and workshops as well as announcements and news releases on dietary supplement related matters.
3. **About ODS:** Describes the ODS office and its staff.
4. **Research & Training Programs:** Describes the ODS programs and offers links to research resources and research sponsored by ODS.

5. *Funding:* Notes grant opportunities for those interested in conducting dietary supplement research.

The ODS “Health Information” section also contains databases where dietitians and others can search for published information on dietary supplements, research in progress, and databases on dietary supplement composition. To stay current on ODS activities, individuals can subscribe to the ODS newsletter/e-mail list either online from the ODS home page or by sending an e-mail (with a blank subject line and the following text in the message body: “subscribe NIH-ODS-L *your name*”) to listserv@list.nih.gov. For example, John Smith would subscribe as follows: “subscribe NIH-ODS-L John Smith.”

Each of the NIH’s 26 institutes and centers has independent Web sites, which can be accessed from the NIH home page. For example, the National Center for Complementary and Alternative Medicine Web site is an excellent resource for facts on botanicals. *Herbs at a Glance* and *Using Dietary Supplements Wisely* are two free publications that can be downloaded. The National Cancer Institute Web site provides information sources on dietary supplements and cancer.

There are also non-federally operated Web sites that provide information on dietary supplements. The federal government does not endorse these Web sites, but some practitioners and researchers report that they have found them useful. These include: 1) ConsumerLab.com, which conducts independent testing of products and reports the findings (www.consumerlab.com); 2) Natural Standard Professional Database, which evaluates and reports the quality of available evidence (www.naturalstandard.com); 3) Natural Medicines Comprehensive Database (www.naturaldatabase.com); and 4) Quackwatch: Your Guide to Quackery, Health Fraud, and Intelligent Decisions (www.quackwatch.com). These Web sites charge for their services and/or ask for a donation to support their work.

INFORMATION ON BRANDED AND GENERIC PRODUCTS

MedlinePlus: Drugs, Supplements, and Herbal Information, a service of the National Library of Medicine and NIH, is a comprehensive and free government-funded source for facts on generic and brand name drugs; including special precautions about their use. The site also provides links to related sites for herbs and dietary supplements.

Other sites that provide this information on brand and generic products are commercial and fee-based. Although the federal government does not endorse these, they may be helpful. They include the Facts & Comparisons Web site from Wolters Kluwer Health Clinical Solutions (www.factsandcomparisons.com); Medscape from WebMD (<http://search.medscape.com/drug-reference-search>); and Drugs & Supplements from the Physicians’ Desk Reference (www.pdrhealth.com/drugs/drugs-index.aspx).

INFORMATION ON THE COMPOSITION OF DIETARY SUPPLEMENTS

Access to all searchable databases on dietary supplements that are government funded and maintained can be found under “Health Information” on the ODS Web site. They are briefly described as follows:

The Dietary Supplement Ingredient Database (DSID)

The USDA/NIH’s DSID contains research-based information on the composition of dietary supplements. DSID provides statistical estimates of selected ingredients, based on chemical analysis, for dietary supplement products collected from various US market channels, compared with label-reported ingredient levels. The first release of the DSID data (DSID-1, April 2009) provides access to predicted nutrient amounts and variability parameters based on

regression analysis estimates of 18 nutrients for a range of labeled levels. The estimates are derived from the analysis of representative adult multivitamin/mineral supplements (MVM) consumed in the United States. These estimates will improve assessment of total nutrient intakes from foods and dietary supplements and will enhance researchers' abilities to investigate relationships between dietary supplement intakes and health indicators. DSID-1 features include data files, a research summary, and an MVM calculator. The MVM calculator is an interactive Web-based research tool that can be used along with DSID-1 files to obtain analytically-derived data estimates for nutrients in generic forms of adult MVMs in order to create and store electronic files for the purpose of combining this information with food data for total nutrient intake estimates.

In contrast to the DSID, other databases provide the composition of dietary supplements as declared by the dietary supplement manufacturer on product labels. Examples of such databases hosted on government Web sites include:

- National Library of Medicine Dietary Supplements Labels Database includes information from the labels of over 4,000 dietary supplement products in the marketplace.
- National Health and Nutrition Examination Survey (NHANES) Dietary Supplements Label Database from the National Center for Health Statistics (NCHS) of the Centers for Disease Control and Prevention. NCHS collects data on a representative sample of the US population in order to monitor and assess the health and nutritional status of adults and children. One component of NHANES collects information from participants on their use of dietary supplements. Dietary supplement names are recorded during the interview and then product labels are obtained by NCHS nutritionists and the information from those product labels such as serving size, amount, ingredients, and ingredient amounts are then recorded in an internal database. This database, along with information on reported participants' usage patterns of all dietary supplements have been publicly released in 2-year cycles since 1999 and are available on the NHANES Web site. Currently, NCHS is updating and creating a comprehensive dietary supplement label database to encompass all dietary supplements and non-prescription antacids containing calcium and/or magnesium reported by survey participants from 1999-2008. This database is anticipated to be publicly released in the summer of 2010 and will include more than 7,000 dietary supplements and non-prescription antacids that have been reported by NHANES participants.
- The **Interactive DRI for Healthcare Professionals** tool launched in November 2009, can be used to calculate daily nutrient recommendations for dietary planning based on the Dietary Reference Intakes (DRIs). When an individual's age, sex, height, weight, and physical activity levels are entered, the appropriate nutrient recommendations are provided. The DRIs represent the most current scientific knowledge on nutrient needs and are developed by the Food and Nutrition Board of the Institute of Medicine. This DRI tool can help an RD evaluate how actual nutrient intakes compare with recommendations, using estimates from the US Department of Agriculture food composition database and the NHANES dietary supplement database. Universities and independent, for-profit groups maintain Web-accessible databases on food and dietary supplements. While some, such as the University of Hawaii, maintain these databases solely to support epidemiological research, others, like the University of Minnesota, have commercialized their product. Both of these products have been developed under grants or contracts from the federal government. The Dietary Supplement Assessment Module from the University of Minnesota allows for the automated collection and coding of dietary supplement use in

conjunction with its larger dietary assessment program. Information on this system and costs is available from the vendor (www.ncc.umn.edu/news/20070816DSAM.html).

INFORMATION ON DIETARY SUPPLEMENT RESEARCH PROJECTS

Through the ODS Web site, RDs and DTRs can access the Computer Access to Research on Dietary Supplements and the International Bibliographic Information on Dietary Supplements. The Computer Access to Research on Dietary Supplements provides access to information about federally-funded research specific to dietary supplements, compiled from information available from other government sites. The International Bibliographic Information on Dietary Supplements provides access to citations and abstracts from published, international, and scientific literature on dietary supplements.

There is also a link to the Clinical Trials Database, which is a registry of federally and privately supported clinical trials conducted in the United States and worldwide. ClinicalTrials.gov currently contains 82,706 trials sponsored by the NIH, other federal agencies, and private industry. The site provides information about a trial's purpose, who may participate, locations, and contact phone numbers to obtain more details.

INFORMATION ON REGULATIONS PERTAINING TO DIETARY SUPPLEMENTS

The Food and Drug Administration is responsible for regulating dietary supplement label declarations, while the Federal Trade Commission (FTC) oversees the advertising of dietary supplements. Through the Food and Drug Administration Web site, RDs and DTRs can access product alerts and recalls, regulations governing labeling and claims, and other useful information for consumers and health practitioners. The FTC Web site has several useful downloadable offerings, including Dietary Supplements: An Advertising Guide for Industry and the *FTC Enforcement Policy Statement on Food Advertising*.

CREDIBILITY OF WEB SITES

Given the growing popularity of the Internet, it is important for health professionals to consider carefully the source of the information presented on the site. Many commercial Web sites containing food and supplement composition data link to a common source and do not contain original information themselves, so there is no guarantee the information they provide is valid.

Many sites are available that provide direction for evaluating the credibility of Web sites. For example, the ODS Web site contains questions and answers on how to evaluate information on the Internet. The Stanford Persuasive Technology Lab at Stanford University (<http://credibility.stanford.edu/guidelines/index.html>) and The University of California, Berkley (www.lib.berkeley.edu/TeachingLib/Guides/Internet/Evaluate.html) are other sites hosted through universities that provide guidelines for evaluation.

RDs and DTRs will find the federal Web sites listed in the Figure to contain valid and reliable information on dietary supplements. These sites should be used as primary resources and monitored periodically for new launches and updates. RDs and DTRs over the coming years can expect to find expansions to the dietary supplement composition databases and tools to derive intakes from dietary supplements, and how to combine nutrient estimates from foods with dietary supplement to derive estimated total nutrient intakes. These sites also provide information on upcoming conferences and workshops, and access to educational materials that can count toward meeting continuing education requirements. Finally, RDs and DTRs should

sign-on to the federal e-mail lists to receive timely updates on these projects and learn about other federal developments in dietary supplements.

References

1. Dietary Supplement Health and Education Act of 1994. Oct 25. 1994 Pub L 103-417, 108 STAT. 4235
2. Nutrition Business Journal. [Accessed February 2, 2010]. 2009 Supplement Business Report. Nutrition Business Journal Web site.
<http://nutritionbusinessjournal.com/supplements/market-research/supplement-business-report-nutrition-journal/>
3. Bailey RL, Dodd KW, Gahche JJ, Dwyer JT, McDowell MA, Yetley EA, Sempos CA, Burt VL, Radimer KL, Picciano MF. Total folate and folic acid intake from foods and dietary supplements in the United States: 2003-2006. *Am J Clin Nutr* 2010;91:231-237. [PubMed: 19923379]

項目	評価基準	評価結果
1. 経営方針・経営戦略	経営方針・経営戦略が明確であること	経営方針・経営戦略が明確であること
2. 経営体制	経営体制が整っていること	経営体制が整っていること
3. 経営者の能力・資質	経営者の能力・資質が高いこと	経営者の能力・資質が高いこと
4. 経営者の経験・実績	経営者の経験・実績が豊富であること	経営者の経験・実績が豊富であること
5. 経営者の人脈・関係	経営者の人脈・関係が広範であること	経営者の人脈・関係が広範であること
6. 経営者のリーダーシップ	経営者のリーダーシップが強いこと	経営者のリーダーシップが強いこと
7. 経営者のコミュニケーション能力	経営者のコミュニケーション能力が高いこと	経営者のコミュニケーション能力が高いこと
8. 経営者の決断力	経営者の決断力が高いこと	経営者の決断力が高いこと
9. 経営者の実行力	経営者の実行力が高いこと	経営者の実行力が高いこと
10. 経営者の責任感	経営者の責任感が高いこと	経営者の責任感が高いこと
11. 経営者の誠実さ	経営者の誠実さが高いこと	経営者の誠実さが高いこと
12. 経営者の謙虚さ	経営者の謙虚さが高いこと	経営者の謙虚さが高いこと
13. 経営者の忍耐強さ	経営者の忍耐強さが高いこと	経営者の忍耐強さが高いこと
14. 経営者の柔軟性	経営者の柔軟性が高いこと	経営者の柔軟性が高いこと
15. 経営者の創造性	経営者の創造性が高いこと	経営者の創造性が高いこと
16. 経営者の学習能力	経営者の学習能力が高いこと	経営者の学習能力が高いこと
17. 経営者の適応力	経営者の適応力が高いこと	経営者の適応力が高いこと
18. 経営者のリスク管理能力	経営者のリスク管理能力が高いこと	経営者のリスク管理能力が高いこと
19. 経営者の危機管理能力	経営者の危機管理能力が高いこと	経営者の危機管理能力が高いこと
20. 経営者の社会貢献性	経営者の社会貢献性が高いこと	経営者の社会貢献性が高いこと

Figure.
US government Web sites that provide free access to information on dietary supplements.