

Bugs, Drugs and Food Fads:
Considerations for the Dental Professional
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What is a probiotic?

- Probiotic is Greek
- Pro (for) + biotic (bios) (life) = For Life

“ Live microorganisms which when administered in adequate amounts confer a health benefit on the host” –FAO/WHO (2002) Expert Consultation,
<http://www.fao.org/home/en/>

- Within FDA, probiotics fall under two different categories: dietary supplements and food
- In supplement form, they can be found in capsules, tablets, powders, packets, straws and lozenges
- In food, yogurts, dairy products such as buttermilk, kefir and infant formulas. They can also be added to expressed breast milk, sausages, miso, tempeh, juices, soy beverages, granola, candy bars, cereal, cookies, mouthrinses and chewing gum.

Most common bacteria found in probiotics are *Lactobacillus* and *Bifidobacterium*.

Common Probiotics and their implications for dentistry:

ProBiora 3® patented blend of three of beneficial bacteria naturally present in healthy mouths, including *Streptococcus oralis* KJ3™, *Streptococcus uberis* KJ2™, and *Streptococcus rattus* JH145™. Promotes fresher breath, whiter teeth and supports gum and tooth health.

EvoraPlus® *Streptococcus oralis* KJ3™, *Streptococcus uberis* KJ2™, and *Streptococcus rattus* JH145™.

- Designed for those over age 11; take twice daily
- Improves gingival health
- Reduces halitosis
- Proposed as a natural tooth whitener
- Short term use, need DDS prescription

Evora Pro® *Streptococcus oralis* KJ3™, *Streptococcus uberis* KJ2™, and *Streptococcus rattus* JH145™.

- Ideally applied after prophylaxis or nonsurgical periodontal therapy
- Improves gingival health
- Reduces halitosis
- Proposed as a natural tooth whitener

Evora Kids® higher levels of *Streptococcus rattus* JH145™ and lower levels of *Streptococcus oralis* KJ3™, *Streptococcus uberis* KJ2™,

- 100% natural and GMO free, with no artificial colors or flavors or sweeteners. It is sugar, gluten, soy and dairy free.
- Recommended for children ages 3-10

PerioBalance®

- Contains Prodentis™
- Recommended to take 1x/day; let dissolve in mouth for 10 minutes—DO NOT brush or rinse with an antibacterial rinse right afterwards
- Recommend taking for 28 days initially; continue for added benefit
- Rebalance the oral environment
- Promote periodontal health

Spry Dental Probiotic®

- Has prebiotic for *L salivarius* S1
- Use once a day for 30 days
- Use in evenings after brushing/mouth rinse for best result
- Recommended doing 1 month cycle 2x/year

NOTES:

What IS a dietary supplement?

Includes vitamins, minerals, and other less familiar substances — such as herbals, botanicals, amino acids, and enzymes. Marketed in forms such as tablets, capsules, softgels, and gelpcaps.

Must be identified on the label as a dietary supplement

Who regulates dietary supplements?

- Regulated as a subcategory of food by the FDA's Center for Food Safety and Applied Nutrition
- DSHEA (Dietary Supplement Health Education Act of 1994) defines and sets safety and labeling requirements for supplements.

Are there risks to taking supplements?

Yes. Many supplements contain active ingredients that have strong biological effects in the body. This could make them unsafe and hurt or complicate your health. Examples include:

- Using supplements with medications (whether prescription or over-the-counter)
- Substituting supplements for prescription medicines
- Taking too much of some supplements, such as vitamin A, vitamin D, and iron

Some supplements can also have unwanted effects *before, during, and after* surgery.

Who is responsible for the safety of dietary supplements?

Dietary supplements are *not* approved by the government for safety and effectiveness before they are marketed. If the dietary supplement contains a NEW ingredient, that ingredient will be reviewed by FDA (not approved) prior to marketing — but only for safety, not effectiveness.

The manufacturers and distributors of dietary supplements are responsible for making sure their products are safe BEFORE they go to market.

As of December 2007, manufacturers are required to report all serious dietary supplement related adverse events or illnesses to FDA — *Dietary Supplement and Nonprescription Drug Consumer Protection Act*.

However, FDA can take dietary supplements off the market if they are found to be unsafe, contaminated, or if the claims on the products are false and misleading.

How can I find out more about the dietary supplement I'm taking?

If you want to know more about the product you are taking, check with the manufacturer or distributor about:

- Information to support the claims of the product
- Information on the safety and effectiveness of the ingredients in the product
- Any reports of adverse effects or events from consumers using the product

<http://www.fda.gov/Food/ResourcesForYou/Consumers/ucm109760.htm>

Supplement Precautions for the Dental Professional

- **Ephedra** recommended to discontinue at least 24 hours before surgery
- **Garlic** recommended to discontinue 7-14 days before surgery
- **Ginkgo** recommended to discontinue 36 hours before
- **Ginseng** recommended to discontinue 7-14 days before surgery
- **Kava** recommended to discontinue 24 hours before
- **St. John's Wort** recommended to discontinue 5 days before surgery; can reduce the effectiveness of a variety of drugs including birth control pills and antidepressants
- **Vitamin E** recommended to discontinue at least 1 week prior to surgery
- **Vitamin K** can reduce Coumadin's ability to prevent blood from clotting
- **Antioxidants** such as vitamins C and E may reduce effectiveness of some types of chemotherapeutics

Quality—Look for these symbols:

Organizations that do quality testing and allow products that pass to display their seals of approval:

- ✓ USP (United States Pharmacopoeia)
- ✓ NSF (NSF International)
- ✓ CL (ConsumerLab.com)
- ✓ Natural Products Association

Resources to determine risk vs benefits of certain supplements

MedWatch: The FDA Safety Information and Adverse Event Reporting Program

<http://www.fda.gov/Safety/MedWatch/default.htm>

- This program allows the FDA to monitor safety and collect reports on adverse events from consumers, health professionals and manufacturers.
- Reports can be made by telephone by calling 1-800-FDA-1088 or online at <http://www.fda.gov/Safety/MedWatch/howtoreport/ucm085568.htm>

Dietary Supplements-Professional resources

- The Office of Dietary Supplements , NIH <http://ods.od.nih.gov/factsheets/list-all>
- The National Center for Complementary and Alternative Medicine, NIH <http://nccam.nih.gov/health>
- USDA <http://www.nutrition.gov/dietary-supplements>
- National Library of Medicine <http://www.nlm.nih.gov/medlineplus/dietarysupplements.html>
- Natural Medicines Comprehensive Database <http://naturaldatabase.therapeuticresearch.com/home> (subscription required)
- Natural Standard www.naturalstandard.com (subscription required)
- PDR for Non Prescription Drugs, Dietary Supplements, and Herbs
- Lexicomp Online for Dentistry <http://webstore.lexi.com/ONLINE-Software-for-Dentists>

Vitamins and Minerals specific to various patient populations

Infants, children, adolescents

Vitamin D2 or D3-400 IU daily supplement

Females

- **Vitamin D2 or D3**-needed for proper calcium absorption; sources include fatty fish, beef liver, cheese and egg yolks; sunlight is ideal source; all adults 19-70 need 600 IU/d; adults 71 years and older require 800 IU.
- **Calcium**: osteoporosis prevention; Calcium carbonate found in products such as Os-Cal 500®, Caltrate 600®, Viactiv Calcium Chews®, Roloids® and Tums® should be taken with food. Calcium citrate found in Citrical® can be taken on an empty stomach. 1000 mg recommended for females 19-50; 1200 mg recommended for females 51-older.
- **Iron**: heme iron absorbed most readily; sources include lean meat and poultry; non heme sources include white beans, lentils, spinach, enriches breads and cereals; food with vitamin C aid in absorption; 18 mg recommended for non pregnant women; 27 mg

recommended for pregnant women; 8 mg is maximum recommended for post menopausal women

- **Folic acid:** sources include beans, peas oranges, dark leafy green veggies, 400 mcg for women of childbearing age; 600 mcg for pregnant women.
- **Vitamin A:** post menopausal women should make sure supplemental intake has beta carotene as the major component; vitamin A from retinol (1500 ug/day) associated with increased risk of hip fracture and reduced bone mineral density.

Aging Adult

Macronutrient needs *do not change* from young adults' needs; some micronutrient needs do.

Micronutrients that are often present in less than optimal amounts of many adults include: *calcium, vitamin D, vitamin E, iron, zinc, magnesium, folate, vitamin B-6 and vitamin B-12.*

- **Calcium** needs after 50.
- **B-12** absorption change after 50 due to decreased production of HCL; 2.4 mcg per day
- **Vitamin D**-3x more needed after 70.
- Decreased need for **sodium**; adequate intake of **potassium** may lower risk of HBP

Recommended dietary practices for later years include:

- ✓ Decrease in total energy consumption
- ✓ Increase diet's nutrient density
- ✓ Increase complex CHO intake and decrease intake of sugary, simple CHOs.
- ✓ Reduce saturate fat intake; focus on consumption of healthy fats
- ✓ Make sure fiber and fluid intake are adequate; fiber decreases risk of heart disease, helps control weight and helps balance blood glucose levels
- ✓ Do not consume excess protein; lean choices; plant protein

Vegans

- **Vitamin B12**
- **Vitamin D**

Supplements, Oral Health and Dental Disease

- **Ginkgo biloba**
- **St. Johns Wort**
- **Echinacea**
- **Ginseng**
- **Saw palmetto**
- **Kava**

Vitamin C—gingival bleeding; chewable vitamin C may contribute to dental erosion

Folic acid-benefits in regards to pregnancy gingivitis, appearance of 'bald tongue' noted with deficiency

Vitamin B12-deficiency may result in oral burning, appearance of 'bald tongue' noted with deficiency; pernicious anemia in vegans and elderly

Vitamin D—deficiencies can result in bone loss and inflammation; excess associated with enamel hypoplasia and focal pulp calcification

Omega 3-lower prevalence of periodontal disease associated with intake of DHA

Vitamins, Minerals and Nutrients— More is NOT always better..

Calcium

Sources: dairy products, sardines and spinach; added to products including orange juice, tofu, cereal, and nutritional bars and shakes.

Why you need it: For muscle contraction and bone health; it also can help improve blood pressure.

How much you need: The recommended intake for adults is 1,000 to 1,200 milligrams daily.

How much is too much: 2,500 milligrams. More can lead to constipation, abdominal pain and calcium deposits in the body.

Iron

Sources: oysters, beef, lentils and spinach; added to products including hot and cold cereals, breads, and nutrition shakes.

Why you need it: To bring oxygen to our cells; a deficiency can lead to fatigue, impaired mental performance, a weakened immune system and difficulty staying warm.

How much is enough: 8 mg for adult men; 18 mg for women.

How much is too much: 45 mg. Too much iron can cause constipation, arthritis, loss of libido and impotence; post menopausal women and health males should not take supplements

Zinc

Sources: oysters, beef, pork, almonds; added to products including fortified breakfast cereals.

Why you need it: For immune function and wound healing, as well as our sense of taste and smell.

How much you need: 8 to 11 mg, depending on gender

How much is too much: 40 mg. Excessively high zinc intakes (150-450 mg daily) might impair iron absorption, reduce immune function and reduce levels of good HDL cholesterol.

Vitamin A

Sources: liver, carrots and spinach; added to products including milk and yogurt.

Why you need it: For vision, bone health and immune system; retinoids (vitamin A derivatives) are used to treat skin conditions such as acne.

How much is enough: The recommended intake is 3,000 international units (IU) for men; 2,300 IU for women.

How much is too much: 10,000 IU daily. Too much vitamin A can lead to birth defects, liver problems, reduced bone density and central nervous system disorders. Most cases of vitamin A overload involve taking vitamin A in supplement form. Multivitamins often contain 5,000 IU; combine this with a separate vitamin A capsule, and you easily can approach the 10,000 IU mark.

Vitamin B-3 (niacin)

Sources: tuna, chicken, salmon; added to products including cereals, breads and energy drinks.

Why you need it: Converts food into energy; can improve circulation and cholesterol levels. In high doses, niacin can reduce bad LDL cholesterol and significantly raise good HDL cholesterol.

How much is enough: 14 to 16 mg daily, depending on age and gender.

How much is too much: The upper limit (UL) for niacin is set at 35 mg from synthetic supplements, fortified foods or a combination of the two.

Vitamin D

Sources: cod liver oil, fish, eggs and mushrooms; added to foods including milk, cereal and orange juice. Our bodies also make vitamin D from sunlight.

Why you need it: For optimal bone health. It also has been shown to reduce the risk of cardiovascular disease, certain cancers and autoimmune disorders (such as rheumatoid arthritis and multiple sclerosis).

How much is enough: The IOM recommends that adults get 400-800 IU, depending on age.

How much is too much: The IOM has established the upper daily limit at 2,000 IU per day, but there's debate about this level. Newer research supports raising the upper limit to as high as 10,000 IU per day. Side effects associated with excessive amounts of vitamin D have included nausea, vomiting, poor appetite, constipation, weakness and weight loss.

Omega-3 Fats

Sources: cold water fish, flax and walnuts; added to butter-style spreads, peanut butters, eggs, yogurt, milk and cereals.

Why you need it: Omega-3 fats can reduce your risk of heart disease by reducing triglyceride levels, minimizing hardening of the arteries and helping to lower blood pressure; also linked to an improvement in symptoms of depression.

How much is enough: 1 or 2 grams of omega-3 fats daily, preferably from fatty fish such as salmon or tuna.

How much is too much: AHA recommends as much as 2 to 4 grams of omega-3 fats daily; people who take more than 3 grams from supplements should do so only under a physician's care. Consuming more than that (or more than 10 grams from fish oil) can increase your risk of bleeding.

Food trends and potential impact on oral health

- Juicing
- Red raspberry ketone supplementation
- High protein diets
- Gluten free diet
- Paleo diet
- Juice Plus
- Acai berry
- Energy drinks, sports drinks, vitamin water

Practice Considerations for the Dental Professional

- Comprehensive medical history
- Review of systems
- Question about recent illnesses, changes in health behaviors or diet modifications
- Every appointment-- patient should provide list of all meds and supplements— DOCUMENT
- Keep good prescription drug and dietary supplement reference(s) on hand

- Prior to prescribing meds, need to ensure current meds or supplements won't interact
- Observe patients for physical manifestations of bleeding
- Contact physician if patient's medical status is a concern
- Possible need to discontinue herbal supplements prior to invasive dental surgery
- Perform thorough oral exam at each visit; teach OH techniques to reduce oral disease risk
- Ask about any special diets patient is on and ask them to describe the program if you're not familiar with it.
- Ask about any oral symptoms or conditions that may have been noticed while following the dietary regimen.
- Serve as an advocate by educating your patient about possible oral manifestations related to fad diets and/or specific supplement(s) your patient may be consuming.

NOTES: