

NUTRITION PERSPECTIVES

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ADVISING PATIENTS ABOUT HERBAL THERAPIES

Almost 40 percent of adults in the US use at least one alternative therapy such as relaxation techniques, chiropractic, massage, herbal medicines, or megavitamins (1). Of the groups surveyed in a recent study of 1,539 adults in 1990, and 2,055 adults in 1997, use was more common in women especially those in the 35- to 49-year-old age bracket, those with a college education, and those with an income greater than \$50,000. The two largest increases were in the use of herbal medicines and megavitamins. The majority of alternative therapies were paid for out-of-pocket. Estimated expenditures for high-dose vitamins increased to \$3.3 billion annually, while herbal products generated an estimated \$5.1 billion annually in revenues.

High Use of Herbals

Eisenberg et al. extrapolated that an estimated 15 million adults in 1997 took prescription medications concurrently with herbal medicines and/or high-dose vitamins. As in the 1990 survey, 96 percent of the 1997 respondents who saw an alternative therapist for a principal condition also saw a medical doctor during the prior 12 months. Less than 40 percent of alternative therapies were discussed with a physician. A substantial portion of alternative therapies used for a principal medical condition (46 percent in 1990, and 51 percent in 1997) was used without guidance from either a medical doctor or alternative therapist.

John Astin found similar results in a written survey (2). Forty percent reported using some form of alternative health care during the past year. Users tended to be more educated and had a more holistic approach toward health. Alternative therapies were used not because of dissatisfaction with conventional medicine, but because health care alternatives were more congruent with the users' values, beliefs, and philosophies.

Popular use of medical herbs makes it necessary for health care professionals to become educated about the health benefits, risks, and uncertainties so they can educate their patients (2). Patients are often unaware of the similarities and differences between medicinal herbs and FDA-approved medications. Manufacturers of medicinal herbs are not required to demonstrate safety or efficacy before marketing, nor are they regulated for quality. Herbs often contain an array of chemicals whose concentration varies depending on the genetics of the plants, growing conditions, plant parts used, time of harvest, preparation, and storage.

Patient Counseling

David Eisenberg suggested a step-by-step approach to discuss alternative medical treatments with patients proactively (3). He recommended that health care professionals ask neutral questions about other therapies the patient might be using and avoid terminology such as "alternative", "complementary", or "unorthodox", which can be perceived as judgmental and thus inhibit discussion.

After exhausting conventional therapies or having a patient refuse conventional therapeutic options, the physician should assist the patient in making a selection of a qualified alternative therapist during the initial consultation. Sample questions that the

patient should inquire about include:

1. Is the provider's belief in the effectiveness of the therapy based on clinical experience with similar patients?
2. Of what does the therapy consist?
3. What are the costs associated with the therapy?
4. How long does the therapy need to be used before a positive or negative result will be seen?
5. Are there potential side effects?

Asking the patient to keep a symptom diary and to schedule follow-up visits to monitor for potentially adverse effects are additional steps.

Patients already using alternative therapies may not wish to discuss them. This should be documented in the medical record. A more challenging situation involves a new patient who is currently using an alternative therapy but refuses a conventional evaluation. Convincing the patient that an integrated approach is best is recommended. When this fails, the practitioner may need to follow professional guidelines for referring the patient to another health care professional for treatment and should not feel obligated to assist the patient with alternative therapies in the absence of a conventional evaluation. Practitioners need to feel comfortable discussing alternative therapies with patients and to avoid the "don't ask, don't tell" approach that often characterizes communication in this area. These discussions are opportunities for shared decision making and education about potential benefits as well as problematic drug-drug interactions and toxicities (4).

References: 1. Eisenberg DM, Davis RB, Ettner SL, Appel S, et al. Trends in alternative medicine use in the United States, 1990-1997. *JAMA* 280(18): 1569-75, November 11, 1998.

2. Astin JA. Why patients use alternative medicine: results of a national study. *JAMA* 279(19): 548-53, May 20, 1998.

3. Eisenberg DM. Advising patients who seek alternative medical therapies. *Ann Intern Med* 127(1): 61-9, July 1 1997.

4. O'Hara MJ, Kiefer D, Farrell K, Kemper K. A review of 12 commonly used medicinal herbs. *Arch Fam Med* 7(6): 523-36, Nov/Dec 1998.

Adapted from: *Nutrition & the MD* 25(5), May 1999.

HERBAL REMEDIES IN PSYCHIATRIC ILLNESS

Herbal remedies may be used to treat psychiatric symptoms. They may also produce changes in mood, thinking, or behavior as a side effect, or they may interact with psychiatric medications. Literature from sources found on MEDLINE and from the alternative/complementary health field was thoroughly reviewed by Albert H. C. Wong MD, et al. (1).

Each herb was assessed for its uses, physiological basis, efficacy, and safety in treating target symptoms or diagnoses. In many cases, the quantity or quality of data were insufficient to make definitive conclusions about efficacy or safety. More research is required on most of the herbs reported here, but the information published to date is of clinical interest to health care providers in diagnosing, counseling, and treating patients

who may be taking botanical remedies.

BLACK COHOSH (*Cimicifuga racemosa*):

Uses:

It has a history among North American native peoples as a treatment for the hot flashes, anxiety, and dysphoria associated with menopause, as an analgesic, and as a promoter of lactation and menses.

Physiological basis:

Its putative action is on the gonadotropin system, through estrogenic ligands that suppress luteinizing hormone release, and through nonestrogenic ligands that appear to decrease luteinizing hormone secretion with long-term use.

Efficacy:

A randomized study comparing a commercial product of *Cimicifuga racemosa* with conventional hormone therapy for the treatment of ovarian insufficiency symptoms showed similar efficacy for both treatments.

Safety:

The usual dose of black cohosh ranges from 40-200 mg daily and the onset of action is about two weeks. Potential side effects include gastric upset, headaches, dysphoria, and cardiovascular depression. Since this herb may interact with the sex hormone system, caution is advised.

GERMAN CHAMOMILE (*Matricaria recutita*):

Uses:

It has been used to treat mild insomnia and anxiety.

Physiological basis:

The herb contains the flavonoid, apigenin that may interact with the histamine system.

Efficacy/Safety:

No randomized studies have documented the efficacy and safety of this herb. Doses commonly range from 2-4 g of dried flower heads three times daily prepared as a tea.

EVENING PRIMROSE (*Oenothera biennis*):

Uses:

It has been used in the treatment of schizophrenia, childhood hyperactivity, and dementia on the basis of isolated reports of prostaglandin abnormalities in schizophrenia and attention-deficit/hyperactivity disorder.

Physiological basis:

The constituents are essential and non-essential fatty acids. The empirical evidence for changes in physiological fatty acid levels after oral administration is sparse.

Efficacy:

There is no scientific evidence to support this usage.

Safety:

The adult dose ranges from 6-8 g daily, normally given in divided doses. In general, evening primrose oil is relatively safe, but it should be used with caution in mania and epilepsy. There have been cases in which evening primrose oil appears to have exacerbated epilepsy. Drugs that may interact adversely with evening primrose include phenothiazines, nonsteroidal antiinflammatories, corticosteroids, beta-blockers, and

anticoagulants.

GINKGO (*Ginkgo biloba*):

Uses:

It has been used for medicinal purposes in Europe and China. Its indications are varied and include dementia, chronic cerebrovascular insufficiency, and cerebral trauma.

Physiological basis:

Standard commercial preparations usually contain the active constituents flavone glycosides (24 percent), and terpenoids (6 percent).

Efficacy:

There is considerable evidence that ginkgo extracts can improve vascular perfusion. Studies on ginkgo have found significant improvement in symptoms such as memory loss, concentration difficulties, fatigue, anxiety, and depressed mood. Evidence from randomized controlled trials shows that ginkgo extracts are effective in the treatment of psychopathological conditions and memory impairment caused by Alzheimer's disease and vascular dementia.

Safety:

The dose for most indications is 40 mg of standard extract three times daily, which must be given for 1-3 months before the full therapeutic effects are apparent. Side effects of ginkgo appear to be relatively uncommon, but include headache, gastrointestinal tract upset, and skin allergy to the ginkgo fruit.

HOPS (*Humulus lupulus*):

Uses:

It is used in the brewing industry to produce beer. The female flowers of the plant also have a long medicinal history as a mild sedative. Hops is also used as a mild hypnotic agent.

Physiological basis:

Unclear

Efficacy:

There are no clinical studies of its use as a single agent to treat specific symptoms or illnesses, such as insomnia or anxiety.

Safety:

Hops is commonly given before bed and three times daily as 0.5-1 g of dried flowers. Adverse effects include allergy, and disruption of menstrual cycles. The use of hops should be avoided in depression, pregnancy, and during lactation.

KAVA (*Piper methysticum*):

Uses:

It is used by the peoples of the South Pacific for both medicinal and cultural purposes. Medically it has been reputed to have anxiolytic, anticonvulsant, sedative, and muscle relaxation properties.

Physiological basis:

It has been reported to produce changes in EEG similar to those seen with diazepam.

Efficacy:

Kava products standardized for kavalactone content (70 percent) may be beneficial in the

management of anxiety and tension of nonpsychotic origin. Kava appears not to adversely affect cognitive function, mental acuity, or coordination in comparison with oxazepam.

Safety:

Standardized preparation dosages range from 100-200 mg of kavalactones daily in divided doses. Long-term administration with higher doses may result in scaling of the skin on the extremities.

LEMON BALM (*Melissa officinalis*):

Uses:

It has a history of use as an anxiolytic.

Physiological basis:

Unclear

Efficacy/Safety:

Doses of lemon balm range from 1-4 g daily. No clinical studies demonstrate hypnotic or anxiolytic effects. Lemon balm may potentiate the effects of other central nervous system depressants, including alcohol, and may interact with thyroid medications or thyroid disease.

PASSION FLOWER (*Passiflora incarnata*):

Uses:

It is native to the Americas where its perennial vine leaves have been used as a sedative by indigenous people such as the Aztecs.

Physiological basis:

Unclear

Efficacy/Safety:

Its current use as a sedative/hypnotic is not supported in human trials. Passion flower is commonly given three times daily as 0.25-1 g of dried herb usually prepared as a tea. Hypersensitivity, vasculitis, and altered consciousness have been reported with products containing passion flower. Passion flower may cause sedation.

SKULLCAP (*Scutellaria*):

Uses:

It has a long history of medicinal use with roots in Chinese medicine and with aerial flower parts in western herbalism. It has been used as a sedative and an anticonvulsant.

Physiological basis:

Unclear

Efficacy/Safety:

It is usually taken three times daily as 1-2 g of dried herb. Adverse reactions include giddiness, confusion, sedation, and seizures.

ST. JOHN'S WORT (*Hypericum perforatum*):

Uses:

It can be traced back to the texts of ancient Greek physicians. Contemporary usage has been as an antidepressant, for which there is more rigorous evidence than for any other herbal remedy.

Physiological basis:

The active ingredients responsible for antidepressant action are hypericin and pseudohypericin. Hypericum extracts show affinity for a variety of neurotransmitter receptors, including those for adenosine, GABA, serotonin, and monamines.

Efficacy:

There is evidence of efficacy in mild to moderate depression as reviewed by Linde et al. in a meta analysis of 23 randomized trials with a total of 1,757 outpatients (2). St. John's wort alone or in combination with other herbs was tested against placebo or antidepressant drugs. St. John's wort was reported to be clearly superior to placebo and comparable to conventional drug treatment, with fewer side effects and drop-out rates in the hypericum group. Overall, there are inadequate data regarding long-term use and efficacy in severe depression.

Safety:

Many commercial St. John's wort products are standardized extracts (0.3 percent hypericin) of which 300-900 mg are given daily in three divided doses. This is equivalent to approximately 2-4 mg of the dried herb. Adverse effects include photodermatitis, delayed hypersensitivity, gastrointestinal tract upset, dizziness, dry mouth, sedation, restlessness, and constipation. The use of St. John's wort during pregnancy is not advised until the efficacy of St. John's wort for the treatment of major depressive disorder is firmly established and its reproductive safety evaluated more thoroughly. The tricyclic antidepressants and fluoxetine appear to be safer pharmacological alternatives (3).

VALERIAN (*Valeriana officinalis*):

Uses:

It has a history of use throughout the world for a variety of indications with sedative, hypnotic, and anxiolytic benefits similar to the benzodiazepines.

Physiological basis:

Unclear

Efficacy:

Studies have not evaluated the efficacy of valerian as a treatment for insomnia. Some human studies have confirmed a mild sedative effect, although the exact effects on sleep quality and EEG are inconsistent.

Safety:

Dosages range from 200 mg to several grams per day taken at bedtime or in divided doses.

References: 1. Wong AH, Smith M, Boon HS. Herbal remedies in psychiatric practice. *Arch Gen Psychiatry* 55(11): 1033-44, Nov 1998.

2. Linde K, Ramirez G, Mulrow CD, Pauls A, et al. St John's wort for depression-an overview and meta-analysis of randomized clinical trials. *BMJ (Clinical Research Ed.)* 313(7052): 253-8, Aug 3, 1996.

3. Grush LR, Nierenberg A, Keefe B, Cohen LS. St John's wort during pregnancy [letter]. *JAMA* 280(18): 1566, Nov 11, 1998.

Adapted from: *Nutrition and the MD* 25(5), May 1999.

HERBAL USE AMONG PATIENTS WITH CANCER

Increasing interest in complementary/alternative medicine (CAM) use among patients with cancer is evident from the growth in the number of publications on this subject from a single article in the 1970s to 16 articles between 1990 and 1997. The most commonly used CAMs in the 1990s have included meditation, relaxation, hypnotherapy, visualization and other imagery techniques, reflexology, dietary approaches including food supplements, Chinese medications, botanical preparations, homeopathy, and spiritual healing. A total of 26 studies were found in the literature search on the prevalence of CAM use among patients with cancer (1).

These articles were based on studies conducted in thirteen countries. The studies came primarily from the US and Germany. However, the articles involving herbs and cancer were from Norway, Austria, Finland, Germany, New Zealand, and Switzerland. In adults with cancer, 50 percent of the studies reported up to 27 percent of respondents used CAMs, and the remaining studies found that greater than 25 percent of the respondents tried CAM therapies.

Prostate Cancer

Herbal mixtures are popular. Among patients with cancer, the use of unconventional medicines including herbal therapies, has been reported to be from 5-60 percent. For example, a commercially available combination of eight herbs (PC-SPES), an unregulated herbal supplement, is used as a nonestrogenic treatment for cancer of the prostate. The herbs in this product include chrysanthemum, isatis, licorice, Ganoderma lucidum, Panax pseudo-ginseng, Radosia rubescens, saw palmetto, and Scutellaria (skull cap).

In a recent study, it was found that PC-SPES had potent estrogenic activity in yeast, mice, and humans (2). In eight patients with prostate cancer, PC-SPES caused a clinically significant reduction in serum testosterone and prostate-specific antigen. Additionally, it resulted in side effects similar to pharmacologic doses of estrogen. All eight patients had breast tenderness and loss of libido, and one had venous thrombosis. The study results suggest that PC-SPES may prove useful in the treatment of hormonally sensitive prostate cancer. PC-SPES, when used concurrently with standard or experimental therapies, may alter the results of these therapies.

Leukemia

Low doses of arsenic trioxide induced complete remission in a study of 11 patients with acute promyelocytic leukemia (APL) (3). Adverse effects were relatively mild and included rash, light headedness, fatigue, and musculoskeletal pain. The median duration of therapy in the patients that responded to the treatment was 33 days. The median daily dose was 0.16 mg per kilogram. Most of the patients in this study had had disease that was resistant to conventional chemotherapy, retinoids, or bone marrow transplantation.

The data suggests that arsenic trioxide is active in APL at doses ranging from 0.06 to 0.20 mg per kilogram per day. No relation between dose and efficacy was obvious. Severe toxic reactions, including flaccid paralysis and renal failure, have been observed with higher doses.

Conclusion

Patients with cancer may be more apt to use CAM, including herbs, when conventional therapies have been found ineffective or when there were side effects to conventional cancer treatments. Herbs, however, are not regulated by the US Food and Drug Administration, are not peer-reviewed by scientific panels, and do not undergo clinical trials before being made available to the public. Caution needs to be exerted when using CAM including unregulated herbs or herbal mixtures that may have biologic activity that can affect disease, standard medical therapy, and general health.

References: 1. Ernst E, Cassileth BR. The prevalence of complementary/alternative medicine in cancer: a systematic review. *Cancer* 83(4): 777-82, Aug 15, 1998.

2. DiPaola RS, Zhang H, Lambert GH, Meeker R, et al. Clinical and biologic activity of an estrogenic herbal combination (PC-SPES) in prostate cancer. *New Eng J Med* 339(12): 785-91, Sept 17, 1998.

3. Soignet SL, Maslak P, Wang ZG, Jhanwar S, et al. Complete remission after treatment of acute promyelocytic leukemia with arsenic trioxide. *New Eng J Med* 339(19): 1341-8, Nov 5, 1998.

Adapted from: *Nutrition & the MD* 25(5), May 1999.

USDA RECOMMENDS SAFEGUARDS FOR CONSUMERS AT INCREASED RISK FOR LISTERIOSIS

In a recent press release the US Department of Agriculture reminded consumers who are at increased risk of illness from a foodborne bacteria called *Listeria monocytogenes* to take extra precautions when eating certain foods including ready-to-eat foods such as lunch meats and hot dogs. People who face increased risks from listeriosis are pregnant women and newborns, older adults, and people with weakened immune systems caused by certain cancer treatments, AIDS, diabetes, and kidney disease. People who are at risk are more likely to become ill from bacteria that can be found in food and to suffer severe health problems as a result. According to Under Secretary for Food Safety Catherine Woteki, "If you feel you or someone in your family are at risk, we're advising that you reheat ready-to-eat foods like lunch meats, or avoid them." To help reduce the risk of illness, the USDA recommends that at-risk consumers and people who prepare their food should:

- Reheat the following types of ready-to-eat foods until steaming hot: hot dogs, luncheon meats, deli meats, cold cuts, fermented and dry sausage, and meat and poultry products. If you cannot reheat these foods, do not eat them.

- Wash hands with hot, soapy water for at least 20 seconds after handling these types of ready-to-eat foods. Also wash cutting boards, dishes, and utensils thoroughly. Washing helps eliminate any bacteria that might get on your hands or other surfaces from food before it has been reheated and keeps bacteria from spreading.

- Omit soft cheeses such as feta, Brie, Camembert, blue-veined varieties, or Mexican-style cheeses from the diet. At-risk consumers can eat hard cheeses, processed cheeses, cream cheese, cottage cheese, and yogurt.

- Omit raw, unpasteurized milk, or foods made from it such as unpasteurized cheese from the diet.

“ Observe all expiration dates for perishable items that are pre-cooked or ready-to-eat. In addition, Bessie Berry, manager of the USDA Meat and Poultry Hotline, advises all consumers to follow the four basic food safety rules that are part of the Partnership for Food Safety Education's Fight BAC! food safety education program:

“ Clean-Wash hands and surfaces often with hot, soapy water, rinse and dry. Periodically clean the refrigerator thoroughly. Wipe up spills in the refrigerator immediately. Always wash hands, cutting boards, dishes, and utensils with hot, soapy water after they come in contact with raw meat, poultry, seafood, and eggs.

“ Separate-Don't cross-contaminate. Raw meat, poultry, and seafood can contain dangerous bacteria. As a result, keep these foods separate from vegetables, fruits, breads, and other foods that are already prepared for eating.

“ Cook-Cook to safe temperatures. If you are at risk for illness from *Listeria monocytogenes*, reheat packaged luncheon meats, cold cuts, and other deli meats and poultry until they are steaming hot.

“ Chill-Refrigerate or freeze perishable foods, including ready-to-eat foods, within 2 hours of purchase or preparation.

Berry reminded consumers not to eat food that is recalled or ordered off grocery store shelves. "Consumers should return the food to the place where they bought it," Berry said. Consumers with questions can call the USDA Meat and Poultry Hotline at 1-800-535-4555.

Source: Food Safety and Inspection Service USDA Press Release, May 25, 1999.

NEW PROCESSING METHODS TO REDUCE LISTERIOSIS CONTAMINATION

More than 1,000 US meat-packing plants that produce hot dogs and luncheon meats must start using new processing methods to guard against potentially deadly listeria bacteria. Carol Tucker Foreman of the Consumer Federation of America was quoted as saying, "By requiring companies to handle this as part of their own hazard control programs, the USDA is assuring that some action will be taken immediately." Mike Doyle, a food safety expert at the University of Georgia, was quoted as saying, "I'm not convinced that this is going to be very valuable because listeria coming off the assembly line is most likely to be present in very small amounts. The listeria organism is unusual because it can grow from just a few cells to millions of them during a few weeks in the refrigerator." Doyle added that it's also a difficult bacteria to control because it thrives on the inside walls of refrigerators, where it can easily spread to other foods, and that a better approach, he said, might be for food-makers to offer single-serve packages of meat products that are thrown away after use.

The National Food Processors Association was cited as saying that irradiation of ready-to-eat foods is another way to fight listeria and the group is preparing a petition asking the USDA to expand a current ruling designed to allow irradiation of raw meat. J. Patrick Boyle, head of the American Meat Institute, which represents packers and processors, which recently agreed to raise \$5 million in special funds for food safety research, was quoted as saying, "Like the government, the meat and poultry industry is redoubling its efforts to battle this elusive pathogen."

Adapted from: Food Safety and Inspection Service USDA Press Release, May 25, 1999.

DIETARY ZINC RECOMMENDATIONS FOR LACTATION AND GROWTH

There is increasing recognition of the role that micronutrient deficiency plays in children's cognitive performance and motor development. Although iron and iodine deficiencies are more commonly known, recent evidence suggests that zinc deficiency may also be associated with deficits in activity, attention, and motor function (1).

Children may be particularly vulnerable during periods of rapid growth and development. This is especially true of children at risk, such as those who are born prematurely or who have chronic diseases that interfere with absorption or growth. Inner-city children have been found to have low concentrations of plasma zinc during infancy and adolescence, and the dietary reports from middle-income families suggest moderate zinc deficiency during infancy.

Lactation Levels of Zinc

Lactation poses a burden on maternal zinc homeostasis, particularly when the mother has a chronically low dietary zinc intake (2). The zinc requirements during lactation are even greater than those during pregnancy, especially during the early weeks postpartum when excretion in the milk is 2-3 mg of zinc/day, declining to 1 mg by 2-3 months postpartum. Evidence suggests that women generally increase their dietary zinc intake by only a modest amount when lactating. However, these intakes are much less than the current RDA for lactating women of 19 mg/day for the first six months postpartum.

Marginal zinc status at any time may have functional consequences, including milk consumption and optimization of infant growth, development, and immune function. Although breast-fed infants generally fare well in each of these areas, it is difficult to assess to what extent marginal zinc deficiency may compromise an infant's health and development.

Zinc Supplementation During Infant Feeding

Because breast milk does not supply an abundant amount of zinc, supplementation in conjunction with other micronutrients may be beneficial in some situations, especially when a child's diet is low in animal products, which are a good bioavailable source of dietary zinc (3). Supplementation should also be considered when a child's plasma zinc concentration is found to be low or during episodes of persistent diarrhea. The World Health Organization has proposed the following safe upper limits for zinc: for 0.5-1 year of age, 13 mg/day; for 1-6 years of age, 23 mg/day; for 6-10 years of age, 28 mg/day; and for 10-12 years of age, 32 and 34 mg/day, respectively, for girls and boys (4).

Reference: 1. Black, MM. Zinc deficiency and child development. *Am J Clin Nutr*, 68(2S): 464-9, Aug 1998.

2. Krebs, NF. Zinc supplementation during lactation. *Am J Clin Nutr*, 68(2S): 509-1S, Aug 1998.

3. Allen, LH. Zinc and micronutrient supplements for children. *Am J Clin Nutr*, 68(2S): 495-8, Aug 1998.

4. World Health Organization. *Trace Elements in Human Nutrition and Health*. Geneva: WHO, 1996.

Adapted from: *Nutrition & the MD* 25(4), April 1999.

BREAKFAST AND COGNITION IN CHILDREN

The decline in breakfast consumption over the last 25 years has become a significant public health issue. Increasing numbers of individuals younger than age 10 regularly care for themselves and are more likely to be responsible for their own meal preparation. Skipping breakfast is a likely outcome if the child is responsible for himself or herself, or if there is a lack of money to purchase food. Given the association between obesity, which is increasing in children, and less frequent breakfast consumption among persons of this age group, a renewed emphasis on the importance of breakfast has been advocated.

Breakfast Programs

Many countries, both developing and developed, have invested money in school feeding programs to improve school attendance, student achievement levels, nutritional status, and sometimes to provide extra income for poor families indirectly by reducing the amount of money they must spend on food. Increasing numbers of children in developing countries are enrolled in school, however, their achievement levels are often disappointing. It has been suggested that poor health, hunger, and inadequate nutrition may hinder these children's ability to learn.

New Research

A recent randomized controlled study was conducted to determine what effect providing school breakfast might have on children's attendance, nutritional status, and achievement in school, and whether nutritional status or age of the children modified the effect (1).

The undernourished group included 407 Jamaican nursery school children with weight-for-age more than one standard deviation (SD) below the National Center for Health Statistics reference mean. Four hundred and seven adequately nourished children (weight-for-age no more than one SD below the mean) were matched for school and class. Children from both groups were randomly assigned to breakfast or control groups. Breakfast was provided every school day for one year, and consisted of a cheese sandwich or spiced bun, cheese, and flavored milk, supplying 576-703 kcal and 27.1 g protein. The control group was given one-quarter of an orange, supplying 18 kcal and 0.4 g protein.

Both groups made poor academic progress as measured by the Wide Range Achievement Test scores. Younger children in the breakfast group improved in arithmetic. The provision of a school breakfast produced small benefits in children's nutritional status and school attendance. Children in this study were not severely under-nourished, however. Since their nutritional status improved somewhat while receiving breakfast, the results suggest that school feeding programs could be an effective way of improving nutritional status in countries where undernutrition is a serious problem.

A Breakfast Symposium

An International Symposium on Breakfast and Performance held in 1995 was summarized and integrated with data published since that time by E. Pollitt and R.

Mathews (2). The data suggest that children perform certain tasks of cognition more successfully after eating breakfast than after fasting overnight. The pooled data suggest that omitting breakfast interferes with cognition and learning, an effect that is more easily observed in nutritionally at-risk children than in well nourished children. At the very least, breakfast consumption improves school attendance and enhances the quality of the students' diets.

Fasting as Metabolic Stress

Three separate experiments tested the effects of an overnight and morning fast on cognition among 9- to 11-year-olds. These experiments tested the hypothesis that such an extended fast interferes with attention and memory. The first two experiments were on well nourished, middle-class boys and girls in the US; the third involved boys in Peru from low-income families with and without nutritional risk. The children were admitted to a research center on two different evenings, about seven days apart. After arrival, they ate dinner. The next morning they were all awakened at 7:30 am and, by design, they were or were not served a ~540-kcal breakfast. At 11 am they were given psychological testing to assess recall from working memory and competence in discriminating visual stimuli.

The consequence of the overnight and morning fast, particularly among the children who were nutritionally at-risk, included slower stimulus discrimination, increased errors, and slower memory recall. The authors concluded that these alterations were a result of a state of metabolic stress in which homeostatic mechanisms work to maintain circulating glucose concentrations. However, the authors did not find evidence of an association between blood glucose concentration and memory function. The authors concluded that the nutritionally at-risk children were more vulnerable to the adverse effects of fasting than well nourished children, which concurs with the previous report of Jamaican children (3).

Reference: 1. Powell CA, Walker SP, Chang SM, Grantham-McGregor SM. Nutrition and education: a randomized trial of the effects of breakfast in rural primary school children. *Am J Clin Nutr* 68(4): 873-9, October 1998.

2. Pollitt E, Mathews R. Breakfast and cognition: an integrative summary. *Am J Clin Nutr* 67(4S): 804-13, April 1998.

3. Pollitt E, Cueto S, Jacoby ER. Fasting and cognition in well- and undernourished schoolchildren: a review of three experimental studies. *American Journal of Clinical Nutrition* 67(4S): 779-84, April 1998.

Adapted from: *Nutrition & the MD* 25(4), April 1999.

EARLY DIETING PREDICTS EATING DISORDERS

Eating disorders usually appear during mid-adolescence. Lifetime risk in women is estimated to be 8 percent for bulimic syndromes, and 3 percent for anorexic syndromes. An Australian prospective cohort study examined risk factors for the development of these syndromes (1). A total of 1,947 students, aged 14 to 15 years at study entrance, were enrolled. Students completed a questionnaire and were interviewed and briefly examined every six months during the ensuing three years.

The overall rate of development of new eating disorders per 1,000 person-years of observation was 21.8 for females and 6.0 for males. About 8 percent of girls dieted at a severe level and 60 percent at a moderate level. A high level of dieting was associated with a 16-fold increase in risk for developing an eating disorder and moderate dieting was associated with a nearly sevenfold increase in risk. Psychiatric morbidity was an independent predictor of developing an eating disorder. Students in the highest morbidity category had a nearly sevenfold increase in risk for developing an eating disorder. Body-mass-index, extent of exercise, and sex did not predict increased risk, after adjustment for dieting and psychiatric morbidity.

Dieting was the most important predictor of an eating disorder in this study. Adolescents expressing concern about their weight should be advised to focus on exercise, which did not appear to impart a risk for subsequent problems.

Reference: 1. Patton GC, Selzer R, Coffey C, Carlin JB, et al. Onset of adolescents eating disorders: population based cohort study over 3 years. *BMJ* 318: 765-8, March 20, 1999. Source: *Journal Watch* 19(9): 75, May 1, 1999.

MEDIA EDUCATION OFFERS HELP ON CHILDREN'S BODY IMAGE PROBLEMS

As pediatricians see increasing numbers of children and teens with eating disorders, including anorexia nervosa, bulimia, and obesity, they should be gravely concerned about the influence of the media on youth perception of ideal body shape and size. A new study reinforces the concern that young girls are suffering from negative body image and are engaging in unhealthy behaviors as a result (1). In the study, *Exposure to the Mass Media and Weight Concerns Among Girls*, the authors use a cross-sectional survey of 548 girls in 5th through 12th grades to assess the influence of the media on weight concerns, weight control behaviors, and perceptions of body weight and shape. A majority of girls, 59 percent, reported dissatisfaction with their body shape, and 66 percent expressed the desire to lose weight. The prevalence of overweight in this study was 29 percent.

Girls were asked about their frequency of reading women's fashion magazines. Sixty-nine percent reported that appearance of models in the magazines influenced their image of a perfect female body, and 47 percent desired to lose weight because of the magazine pictures. Frequent readers of women's fashion magazines (2-7 times a week) were more likely to have dieted or exercised to lose weight because of a magazine article.

The article presents a concise review of these devastating health problems and rightfully suggests that the print media aimed at young girls could serve a public health role by refraining from relying on models who are severely underweight and printing more articles on the benefits of physical activity. As fervently as one might hope for the media to "do the right thing," and deliver socially conscious and health conscious images and messages to youth, media education offers a simpler and more effective response. Inclusion of media education as a powerful tool for countering the negative, unattainable, unhealthy images in fashion magazines would have given this valuable article more relevance.

The goal of media education is to understand the meaning and intent behind the media images and messages seen and heard, every day, everywhere. With this in mind, the American Academy of Pediatrics over the past many months has embarked on an ambitious, exciting campaign for national media education: Media Matters. Its goal is media-educated families, including parents, children and adolescents, who limit the amount of media used, and proactively, purposefully, choose positive or educational offerings when a program or activity is desired.

The Academy of Pediatrics is developing a new policy statement and guide for parents that will suggest ways families can promote media education in the home, including:

- recommending no television in a child's bedroom.
- prohibiting media use during meals.
- encouraging parents to be positive media role models, and
- encouraging children to pursue a variety of other activities during leisure time, especially reading.

Critical thinking and critical viewing habits are integral components of media education. Adults can use bothersome media portrayals for conversation and discussion. "Do you think that Wiley Coyote could really jump up after being hit in the head with a boulder?" "Why does a beer company use little frogs to encourage people to buy and drink beer?" "Does this fashion model look healthy? Energetic? Why would a clothing company use a model like this to sell clothing?"

Media-educated children and youth should understand that behind all media products are potent political, social and economic forces. Children feel very powerful when they understand that all media products are constructed-carefully created for a purpose-to sell, to persuade, to manipulate, to create a feeling.

Pediatricians continue to be concerned about the public health risks posed by mass media images and messages for children and adolescents. Scores of studies teach about the impact of viewing violence in the media. The outcomes range from increased aggressive behavior, to desensitization to violence, to fear about living in a "mean, scary, world." It is also known, through experience and research, that the media may teach and model unhealthy sexual behaviors and normalize and glamorize use of tobacco, alcohol, and illicit drugs. Heavy viewers and users of media tend to have problems in school. Excessive time spent with media limits the valuable time a child spends in active play, creative pursuits, socializing with family and friends, and reading.

Rather than depending on the media industry to self-correct, pediatricians and parents must embrace media education as the best and simplest solution to the public health risks presented by the media. More information and ideas on implementing media education activities in homes, offices, clinics, schools, and communities are available from the AAP Division of Public Education. For details, contact Jennifer Stone at (800) 433-9016, ext. 7870, or e-mail jstone@aap.org.

Adapted from: AAP News 15(5): 2, May 1999.

CLIPSHEET FOR CONSUMERS: OVERCOME YOUR OBSTACLES TO EXERCISE

What is stopping you from being more physically active? Below are some of the most common obstacles to getting in shape, along with some tried-and-true-and a few new-tactics for getting over the hurdles.

The test of time

Perhaps the most common excuse not to exercise is that there is just no time. Even short bouts of exercise-10 minutes here or there-can help you stay in good health. It is an exceptionally busy person who can not find 10 minutes to take a quick walk at lunch time.

If you are busy, work exercise into your life through daily activities such as taking the stairs, walking the dog, cleaning the house, carrying the groceries, and raking the yard. Or, find a workout that is both enjoyable and convenient. Walking can be done with little planning and no special equipment, except for a pair of comfortable shoes. Many gyms promote a thirty minute workout that combines cardiovascular exercise with weight training. Finally, put a little pep into your leisure time. Instead of watching a movie with a companion, why not walk together? You will be able to talk and get some exercise at the same time.

Battling boredom

There seems to be two kinds of exercisers. Those who like to have a set routine and those who get bored easily. If you fall into the latter category, try building variety into your workout. Plan a week's worth of different workouts and switch the days around the next week. Or, join a class such as water aerobics, yoga or dance that meets two or three days a week and fill in other days with walks, bike rides or weight training. Try taking lessons for a sport you find interesting. Focusing on improving skills at golf or tennis can make you forget you are exercising.

Waiting on the weather

The change of seasons can provide either an excuse to stop exercising or an opportunity to try something new. One way to make the transition from one season to the next is by exercising through gardening. In the spring, prepare the soil and plant seeds, tend your garden in the summer, and harvest in the fall. You can also look at a local community calendar to get seasonal exercise ideas. There may be a spring planting activity, a summer litter pick-up, a fall apple-picking outing, and a winter caroling expedition. Overcome your obstacles and make this your season to get fit!

Adapted from: American Institute for Cancer Research Newsletter 63, Spring 1999.

CLIPSHEET FOR CONSUMERS: HOW MUCH FIBER IS ENOUGH?

Most health organizations agree that adults should consume between 20 and 35 grams of dietary fiber each day. If, like many Americans, you have not been consuming enough fiber, it is probably best to gradually increase your intake. This should eliminate minor problems some people experience with a rapid increase in fiber intake, including stomach and intestinal discomfort, and gas.

With a little planning, it is easy to reach your dietary fiber intake goal. The dietary fiber content of packaged foods is listed on the Nutrition Facts Panel. By taking a minute to read food labels, you can begin to make good dietary fiber choices. Adding a serving of red kidney beans (half cup) to your chili adds 6.5 grams of fiber. A wheat bran-rich cereal can provide as much as 15 grams of fiber per serving. If you do not enjoy high-fiber choices, mixing a high-fiber cereal with a low-fiber cereal is one way to get some of the benefits of both.

Source: Food Insight, March/April 1999.

BOOK REVIEWS:

THE COMPLETE GERMAN COMMISSION E MONOGRAPHS: THERAPEUTIC GUIDE TO HERBAL MEDICINES

Assuming that "natural" remedies must be safe, 60 million Americans spent \$3.24 billion medicating themselves with herbals in 1996. Yet there are reports within the last two decades of more than 100 herbiogenic deaths and dozens of serious complications including those that required renal dialysis, renal transplantation, or liver transplantation after taking botanicals. Dangerous herbs are less likely to be sold in Germany, thanks to strict surveillance by the German Commission E, founded in 1978. Of the 129 herbal drugs disapproved in Germany, the risky ones were immediately withdrawn, while others deemed nontoxic without "plausible evidence of efficacy" will be phased out by 2004.

This book documents how phytotherapy in Germany has become rational, responsible, and well integrated with conventional medicine. Herbal medicines comprise 30 percent of all drugs sold in German pharmacies. More than half of these botanicals are prescribed by physicians and paid for by health insurance. By January 1996, 254 herbals had been approved. Two thirds of Germans pooled in 1997 used these products, and of that group 72 percent had at least some college education. Similar demographics and attitudes toward natural remedies in the United States have prompted US physicians and pharmacists to anticipate this English translation of 380 monographs as the Holy Grail of herbal medicine. Is it? Certainly worth studying, the Commission E Monographs detail which herbs are approved or disapproved, along with their uses, dosages, contraindications, adverse effects, drug interactions, and pharmacologic actions. The therapeutic, taxonomic, and chemical indexes are helpful, as is the glossary. The 62-page introduction surveys market trends, regulatory issues, behind-the-scenes information gleaned directly from Commission E members, and developments (or lack thereof) at the US Food and Drug Administration.

While the real Holy Grail was said to have disappeared because its keepers were impure, the fact that 49 phytopharmaceutical companies sponsored preparation of this text does not seem to have tainted its contents. Toxic side effects, however, are less extensively documented here than in The Lawrence Review of Natural Products or Ellenhorn's Medical Toxicology. Although some Commission E monographs state or imply that certain herbs can kill us (yellow jessamine, tansy, saffron, rue, male fern, citronella, jimsonweed, delphinium flower, berberine, and oleander), others omit mentioning the possible fatal reactions to arnica, eucalyptus oil, nutmeg, ephedra, monkshood, squill,

mistletoe, mate, comfrey, senecio, and mayapple. Thus, no matter how this book excels, it is not the final source. Many monographs are briefer than terse. All lack literature references, which denudes their value as believable wisdom. Such opacity is perplexing when one reads, for instance, that *Echinacea pallida* root is contraindicated in patients with HIV. No reason is given, let alone a reference, for this counterintuitive statement. Also missing is exactly which brands were tested-an important detail when a monograph warns readers, for example, regarding Ginkgo biloba leaf extract, that the extrapolation of experimental results to extracts other than those investigated might not be valid.

Fortunately, the US editors have corrected some deficiencies. When the monograph on ginger root states that it should not be administered "for morning sickness during pregnancy," the US editors add: "A review of clinical literature could not justify this claim. There is no evidence that ginger causes harm to the mother or fetus." Certainly, as medicine goes back into the future, physicians must re-study Galenicals along with Goodman and Gilman. This didactic guide can serve as a useful foil to the recent caveat emptor approach to botanicals in the United States. It might even stimulate the Food and Drug Administration to emulate Commission E. But for now, it needs to be added to the ready reference shelves of outpatient clinics, hospitals, and pharmacies.

Source: Marty AT. Herbal medicines. JAMA 281(19): 1852-3, May 19, 1999.

THE PDR FOR HERBAL MEDICINES

Physicians have come to expect the Physicians' Desk Reference (PDR) to provide all the information essential for intelligent and informed decision making. But the PDR for Herbal Medicines does not meet such expectations. No brand-name particulars are given, so that prescribers can evaluate crucial data about herbal efficacy, quality, and safety. The text does cover generic information about more than 600 phytomedicines, and its focus on Latin names gives it a scientific aura. But the latinophilia becomes a nuisance when one tries to look up popular natural remedies by their common names. Cats claw, dong quai, kudzo, and grape seed extract are not mentioned, nor are any fixed-combination herbal products. Even Saint John's wort is hard to find because it appears unalphabetically, 45 pages beyond where "saint" should be (under "St").

Physicians could also question why detailed discussions are given about 300-odd botanicals that the German Commission E either disapproved of or ignored. The PDR for Herbal Medicines actually prides itself on discussing not only "scientifically verified applications but also uninvestigated folk uses with varying degrees of promise." How poison hemlock (*Conium maculatum*) was used in folk medicine might interest some readers, for example, but a book that also gives its imprimatur to hemlock by describing what the daily dose "should" be runs the risk of becoming an encyclopedia of misinterpretable messages.

The authors, however, view inclusion of such details differently. They see their text as "the product of one of the most thorough and inclusive examinations of the herbal literature ever undertaken." Perhaps they are not aware of the Lawrence Review of Natural Products, a more comprehensive compendium that backs up its statements with several specific reference citations. In comparison, the PDR's bibliographies are more

like ornamental displays: they do not really cite articles or clearly document the points made. Furthermore, the PDR's publisher "does not guarantee that every possible hazard, adverse effect, contraindication, precaution, or consequence of overdose is included." This admonition is stated with good reason, because much more is known about herbal toxicology than is provided here (1). The PDR's drug-herb interaction index, for example, only lists two herbs that interact with warfarin. Yet, as least 11 such herbs are known to so interact, and still other botanicals either contain coumarin constituents, inhibit platelet aggregation, or exhibit hemolytic activity (2, 3).

This PDR, to be sure, does have many positive features. It contains a superb identification guide with clearly labeled, full-color photographs of 380 medicinal plants. Seventy different botanicals that have caused fatalities in humans are detailed, along with their lethal doses. And appropriate caution is also expressed about 27 other possibly lethal botanicals. Perhaps best of all, this book challenges currently held rubrics about single-molecule drugs and ultraspecific receptors. Garlic, for example, is here said to help not just one but 15 different conditions. Such "indication pluralism" tweaks the reader by contradicting conventional ideas about how drugs work. In the absence of a data-driven editorial perspective, however, use of herbal medicine, as outlined here, lacks credibility. More research and perhaps more regulation of phytomedicinals are needed.

References: 1. Miller LG, Murray WJ, editors. *Herbal Medicinals: A Clinician's Guide*. New York, NY: Pharmaceutical Products Press; 1998.

2. Miler LG. Herbal medicinals: Selected clinical considerations focusing on known or potential drug-herb interactions. *Arch Intern Med* 158: 2200-11, May 19, 1999.

3. Newall CA, Anderson LA, Phillipson JD. *Herbal Medicines: A Guide for Health Care Professionals*. London, England: The Pharmaceutical Press; 1996: 21, 45, 63, 282.

Source: Marty AT. Herbal medicines. *JAMA* 281(19): 1853-4, May 19, 1999.

RESOURCE: HERB-RELATED ORGANIZATIONS AND TRADE ASSOCIATIONS

American Botanical Council PO Box 144345, Austin, Texas 78714-4345; (512) 926-4900; www.herbalgram.org

American Herb Association PO Box 1673, Nevada City, CA 95959; (530) 265-9552

American Herbal Pharmacopoeia PO Box 5159, Santa Cruz, CA 95063; (831) 461-6317; www.herbal-ahp.org

American Herbalists Guild (for professional herbalists) PO Box 70, Roosevelt, UT 84066; (435) 722-8434; www.healthy.net/herbalists

Herb Research Foundation 1007 Pearl Street, Suite 200, Boulder, CO 80302; (303) 449-2265; www.herbs.org

Herb Society of America 9019 Kirtland Chardon Rd., Mentor, OH 44094; (440) 256-0514; www.herbsociety.org

US Pharmacopeia 5645 Fishers Lane, Rockville, MD 20852; (301) 881-0666; www.usp.org

Trade Associations:

American Herbal Products Association 8484 Georgia Ave. # 370, Silver Spring, MD 20901; (301) 588-1171; www.ahpa.org

International Herb Association PO Box 206, Mechanicsburg, PA 17055; (717) 697-1500;

www.herb-pros.com/index.html
The Herb Growing and Marketing Network PO Box 245, Silver Spring, PA 17575; (717)
393-3295; www.herbnet.com

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