FORTIFY YOUR LIFE by Tieraona Low Dog, M.D.
Book Report, by David G. Schwartz, M.D.

Dr. Low Dog is an internationally recognized expert in dietary supplements, herbs, women's health, and integrative medicine. She also has authored Life Is Your Best Medicine and Healthy At Home (see my previous article), and co-authored National Geographic Guide to Medicinal Herbs.

Fortify Your Life is rare, comprehensive, practical guide on the how to evaluate and use supplements safely, and an extremely valuable reference book for every family to have.

Dr. Low Dog begins the preface with the narrative of her 80 yr old father's health crisis that was precipitated by ignorance about minerals and other nutrients on the part of his medical care team. After diarrhea, weakness, and cramps, he had to be given intravenous fluids with magnesium and potassium twice before the causes were really understood. He had been taking a mild diuretic for blood pressure and a PPI (proton pump inhibitor for stomach acid) for several years. PPI's have been known to increase the risk of Clostridium difficile infection in the intestinal tract, which causes severe diarrhea and sometimes life-threatening colitis, and which is very difficult to eradicate. Her father had C. difficile infection as a cause of his diarrhea. The FDA put a "black box" warning on the PPI's prescribing information for health professionals to check magnesium levels periodically, because life-threatening magnesium deficiency can occur. The diuretic can also cause loss of magnesium. Her father's magnesium level had never been checked until this event, when it was dangerously low. Fortunately he survived the event and the problems were corrected. Unfortunately, for thousands of people, a drama similar to this unfolds all too often.

I would further comment that stomach acid has vital functions to kill pathogenic bacteria, to digest and assimilate minerals such as magnesium and calcium, to digest proteins so that we have amino acids to build protein, enzymes, and neurotransmitters such as serotonin, melatonin, dopamine, etc., so important for mental health and brain function. Vitamin B12 also depends on acid for absorption. Why do we suppose we have stomach acid in the first place, just to give us heartburn? You would think that the medical profession and the pharmaceutical industry assume that we are born with a PPI deficiency, otherwise why are they so available without a prescription and why are there so many Rx's written for them? PPI's increase risk of pneumonia (bacteria not destroyed), bone fractures (decreased absorption of minerals). Each month it seems we hear of another risk that PPI's cause. Recently they have been correlated with heart disease, and I would not be surprised of they will soon be linked strongly with depression and anxiety (due to neurotransmitter deficiency). This is one major example of drugs causing nutrient depletion.

The author points to the CDC (Centers For Disease Control) report that 10% of Hispanic children age 1-5, 13% of Hispanic women, and 16% of African Americans age 12-49 have iron deficiency, 16 million Americans are low in Vitamin C, women ages 20-

39 have borderline iodine deficiency, 30 million Americans are deficient in Vitamin B6, and 60 million have insufficient levels of Vitamin D. This is a direct quote from the CDC's NHANES (National Health and Nutrition Examination Survey): "Dietary deficiencies are well documented…less than optimal biochemical levels have been associated with risks of adverse effects. These health effects include cardiovascular disease, stroke, impaired cognitive function, cancer, eye disease, poor bone health, and other conditions."

Please note the phrase, "less than optimal." It does not say less than the Recommended Daily Allowance. My comment: Consuming the RDA amount can prevent someone from getting the "deficiency diseases," rickets, beriberi, pellagra, scurvy, etc. That appears to be all the medical profession is interested in. That is what doctors learn in medical school. Consuming sub-optimal amounts of nutrients is a whole area that is generally denied by modern medicine. "You don't need nutritional supplements if you eat a balanced diet." Well, that is true if you only want to avoid the "deficiency diseases" such as pellagra, etc., and if you're not interested in reducing risk for heart disease, cancer, etc.

How do people become deficient or sub-optimal in nutrients? People now do not get the recommended 4-5 cups of vegetables and fruit per day. Foods are bred for size, shape, visual appearance, fast growth, transport, and storage, not for nutrition. From 1950 to 1999, for 43 garden crops, protein decreased by 6%, Calcium, iron, B2, phosphorus, and Vitamin C decreased by 15-38%. Anti-nutrients such as sugar increased to 100 lbs per person per year, from 8 lbs 100years ago. Then the processing of foods also removes nutrients. Ancient peoples did very little processing of foods, and they supplemented with herbs. Pesticides and other pollutants increase leukemia, ADHD, prostate and breast cancer, early puberty, and early menopause. I would add to the list obesity, diabetes, and neurological, endocrine, and autoimmune conditions. Vitamins A, C, & E, and melatonin provide protection from organophosphates, dioxins, and PCB's, yet people are lacking these nutrients, and too much light at night shuts off melatonin production in the brain. Other changes in the food supply that may not be recognized is that flours are fortified with B-vitamins and iron, but many people with gluten sensitivity eat alternate seeds and grains that are not fortified. Table salt is iodized, but many people get their salt in processed foods and cut back on table salt. I would add that iodine used to be added to flour, but now it is substituted with bromine, which block iodine's function.

The author points out other sources of nutrient deficiency. Perchlorate used by NASA and the military contaminate ground water and blocks iodine in the thyroid gland. I would add that fluoride, chlorine, and bromine in the food and water also blocks iodine's function. Iodine deficiency previously mentioned in women of reproductive age, results in low iodine in the offspring and lower IQ. The American Thyroid Association recommends all pregnant or lactating women take a supplement of 150mcg potassium iodide. Widespread use of Rx drugs and non-prescription drugs cause depletion of nutrients. Besides the PPI's covered earlier, metformin can deplete B12, ACE inhibitors

and diuretics for blood pressure can deplete zinc. These are a few of many examples listed in Appendix 4 of the book.

Besides these factors, nutritional needs vary according to age, gender, and health conditions, and I would add, genetic variations. For example, the MTHFR genetic polymorphisms that are common in the population, increase the need for B12, folate, B6, etc. I would add, "If you live on a planet that has no pollution, if you have no health issues and have perfect genetics, if you are not pregnant or a child or elderly, if you eat the perfect diet always fresh, organically grown, never processed, little or no sugar or alcohol, if you exercise regularly, always get adequate rest and sleep, experience little or no toxic stress, then maybe you don't need supplements."

So how can we make sense of proper use of supplements? First of all, it is important to recognize that although supplements can make up for some of the deficiencies, caused by modern lifestyle, they are no substitute for good food, exercise, sleep, social support, stress management, and avoiding poisons (including smoking). There are many more factors at play than the few nutrients we know about. Our bodies are much more complex than that. There are many unknowns we have not yet discovered about the major impact of a healthful lifestyle. It goes far beyond anything we can discuss about nutrients. Relying entirely on supplements is like speeding, driving drunk, texting, with the headlights off at night and relying on seat belts to save us. Next, anyone with kidney or liver failure should not take any supplements without careful consultation with a hepatologist or nephrologist, and a nutritionist. Any substance ingested can quickly build up to toxic levels.

In obtaining supplements, how to make sense of all the confusing information, labels, advertising, etc. is a major issue. There is little consistency in daily dosage, and how much is a serving size, and then there is often "fluff," that is, many ingredients listed that are in too small quantities to be significant. According to my sources of information, all supplement manufacturers are required by the FDA to have GMP (Good Manufacturing Practices), a detailed, rigorous system of selection and certification of raw ingredients, production, monitoring, purity, consistency, bio-availability, etc. There are too many manufacturers for the FDA to inspect every one of them, so many do not have GMP. Many manufactures have been using GMP for years and decades long before the FDA got involved, so I think it is important to look for that seal of approval. Other seals of approval are also valuable, such as United States Pharmacopoiea (USP), or NSF International.

The book devotes a whole chapter to reading and understanding labels on supplement containers, including product name, manufacturer's name, manufacturers claims, method of delivery, main ingredients, serving information, units of measurement, % of Daily Value, other ingredients, suggested use, cautions and warnings, manufacturer's contact info, lot #, expiration date, and quality seals. Reading labels can be confusing unless one understands the meaning and purpose of each item on the label.

One chapter describes each individual vitamin and mineral, describing what each one is, what it does, food sources, signs of deficiency, risks for deficiency, Recommended Daily Allowance, Daily Value, Safe Upper Limits, partner nutrients, special populations, and special warnings for special circumstances and conditions.

Dr. Low Dog gives general recommendations for supplements, in various stages in life, for example, pregnancy, lactation, children, and the elderly. Then the unhealthy conditions of diabetes, heart disease, esophageal reflux, all could be slowed with use of the right kinds of supplements.

She also recommends that before using large doses of any supplement to help with any chronic condition, it is important to partner with a competent health professional who has working knowledge and experience with nutritional supplements. If prescription or non-prescription drugs are taken, it is important to consult Appendix 4, "Drug-Nutrient Depletions and Interactions." To use herbal supplements, it is recommended to see the author's other books, Healthy At Home, and National Geographic Guide to Medicinal Herbs. I would add, consult with a competent and experienced practitioner of herbal medicine for anything more complicated than home remedies for common ailments.

The author has a chart of 56 health conditions or situations with a list of supplements to consider for each condition, and instructions for how to use them.

Her chapter on making sense of health information recommends that we educate our selves well in this area from good sources, so that we are not so easily thrown off by the conflicting info, the noise and hype, and the flip-flops in nutritional recommendations in the news media.

Finding a medical doctor to partner with in this area is not easy, as most MD.'s and Nurse Practitioners know very little practical information about nutritional supplements or herbs. So it is important to be your own health advocate, to not shift the responsibility to a health professional to tell you what to do.

She gives 10 questions to ask whenever reading health information about supplements:

1. Do the findings contradict or support other studies?
2. Why is the news? What relevance does it have in the way people take supplements?
3. Does the story pass the common-sense test?
4. Was the study a meta-analysis of existing studies?
5. How similar to me were the participants in the study?
6. What nutrient and what form and dose were studied?
7. Was it a longitudinal study?
8. What are the unique challenges for vitamin research? Many other variables affect the result, such as how much of a nutrient was already present in foods. Nutrients act synergistically. How valuable is studying a single nutrient?
9. Who paid for the research?

10. Are their reputable websites for dietary supplement information?

The author recommends the CDC's NHANES report, mentioned earlier, and these websites:
NHANES: http://www.cdc.gov/nchs/nhanes.htm
CDC's nutrition report: http://www.cdc.gov/nutritionreport/
USDA nutrient Database: http://ndb.nal.usda.gov/
NIH office of Dietary Supplements: http://ods.od.nih.gov/
Linus Pauling Institute: http://lpi.oregonstate.edu/

Appendix 3 details laboratory tests for various nutrients and various laboratories where consumers can order their own tests without going to a doctor. Some tests are available through standard laboratories, through which doctors usually order, and some others require special labs that are more expensive and may not be covered by insurance. My addition: Some labs can measure how each of many nutrients is functioning in the metabolism of the body, not just the level in the blood. That gets more expensive.

In my opinion, this book is sorely needed by the public to give a sensible, authoritative source of info that is not readily found, as well as referrals to other good sources. It offsets much of the confusion and conflicting information in the press.

On the one hand, there are supplements on the market that are adulterated with drugs and are dangerous, especially ones that claim sexual enhancement, athletic prowess, and weight loss. The public needs to be alerted to these hazards.

On the other hand, there is a lot of "supplement-bashing" in the mainstream media (heavily influenced by the pharmaceutical-medical-hospital industry). I recently saw a Frontline report on PBS presenting alarming reports of these supplements contaminated with drugs, which was appropriate. It emphasized that there is poor regulation of the supplement industry, but left it at that. No mention was made of the fact that Rx and non-Rx drugs (regulated) cause close to 1 million deaths every year, whereas, only a handful of deaths are ever caused by supplements and herbs. The famous supplement basher Dr. Paul Offit was interviewed extensively, but Dr. Andrew Weil, Dr. Mehmet Oz, and Dr. Joseph Mercola were invited, chose not to be interviewed, probably knowing the report was already biased against their points of view. The report gave no helpful info about a how to choose supplements wisely and what seals of quality to look for, and what categories are most dangerous to steer clear of. This is one example of mainstream misinformation about supplements.

Another example is that several sources over and over continue to quote one single study about one vitamin for years on end, to show that a particular vitamin is harmful (the Finnish smoker's study). Another example is the claim that Vitamin C causes kidney stones. One study of a jar of urine sitting, forming oxalate crystals was quoted by one source, then other sources quoted that source, etc, and it became almost common knowledge, when in fact, consuming Vitamin C has not been shown to actually cause kidney stones. In contrast, thousands of studies show positive results for supplements

that never make news. Former Virginia Governor Bob McDonnell is in prison for financial ties to a supplement company. How many other government officials have ties to pharmaceutical companies, and who never get prosecuted, or if they did, would get plenty of financial support to keep their appeals forever tied up in litigation?

I concur mostly with Dr. Low Dog's recommendations for supplement doses. For a few I would put the safe upper limits a little higher. When making a source of reference information for the general public, it is better to err on the side of caution on dosages, because not everyone fits the same mould. When we develop more proficiency in genetic variations and personalized health care, we will probably have varying doses for different people in similar circumstances. She makes the safe upper limit for Vitamin D at 2000 i.u., but I sometimes have to give people 10,000 iu/ day to get the blood level up to optimal range, (50ng/ml). Also I tend to recommend Vitamin C and Magnesium up to bowel tolerance, that is, as much as tolerated without diarrhea. For some people, that may be up to 800mg/day of Magnesium, and others 300mg/day, and for some 10,000mg/day or more of Vitamin C. In general, there is much more flexibility with nutritional supplements than with drugs. Even a gross error in dosage is not likely to cause injury, but small errors in drug usage can be fatal. Large numbers of cases of liver failure occur every year with people taking just a little more acetaminophen than the maximum recommended, especially if alcohol is consumed.

It is important to recognize that it is empowering to people to order their own lab tests and to make nutritional treatment plans, but that it is foolish to self-diagnose diseases without the assistance of a health professional.

Dr. Low Dog's book is an unparalleled reference book and guide to the consumer to makes sense of how to use supplements in an intelligent fashion, and to clear up much confusion that currently exists. Every household could benefit from keeping this book available for use.