

Vitamin Research News

Dedicated to the Scientific Pursuit of Better Health

SEPTEMBER 2005

Vol. 19, Number 8

\$29.95/Year U.S. (\$39.95/Year International)

Table of Contents

Neuroendocrine Theory of Aging, Part IIIb The Energy Homeostat

(Thyroid Complex) 1
Undiagnosed hypothyroidism is a common cause of fatigue and a host of other symptoms.

D-Mannose: Natural Treatment for Urinary Tract Infections 1
D-Mannose is a simple sugar that has been shown effective against 90 percent of all urinary tract infections.

President's Desk 3
Help Us Serve You Better and Earn a \$10 Credit

BREAKING NEWS
**Vitamin D:
Link Between Abnormal
Receptors and Parkinson's. 6**

**Lithium Orotate:
The Unique Safe Mineral with
Multiple Uses 7**
Lithium orotate's superior bioavailability means it offers effective and safe support to individuals with bipolar and unipolar disorders.

Customers' Corner. 8

- 5-HTP, L-Tryptophan and SSRI
- Post Traumatic Stress Disorder
- ADD/ADHD and Tourette's Syndrome
- Psoriasis
- Xylitol and H. Pylori
- CarnoSee® and Glaucoma
- Lipoic Acid and Weight Loss
- Memory Enhancement

**Cognitive Enhancers: Smart
Nutrients for Boosting Brain
Health 10**
Select nutrients enhance memory and help the brain function at its maximum capacity.

**Testing for Iodine Deficiency
Whole Body Levels Crucial for
Thyroid and Breast Health. . . . 12**
Oral loading tests offer an accurate way to detect deficiency of iodine, an element crucial for thyroid and breast health.

**Pet Care
Integrative Animal Health Care . . 14**
An integrative approach to pet care means nourishing our best friends with proper nutrition, exercise, training and stress reduction.

Featured Products 15

Neuroendocrine Theory of Aging, Part IIIb The Energy Homeostat (Thyroid Complex)

by Ward Dean, M.D.

The “Energy Homeostat” is the system responsible for regulating the body’s overall production and utilization of energy. The age-related dysfunction of the energy homeostat results in (1) diabetes, (2) obesity, (3) “essential” hypertension, (4) atherosclerosis, (5) depression and (6) fatigue. In the April 2005 issue of *Vitamin Research News*, I described how Prof. Vladimir Dilman hypothesized that the age-related loss of growth hormone contributed to the breakdown in one component of the energy homeostat — the growth hormone-insulin-glucose-free fatty acid complex. In this issue we examine another level of this system that involves the hypothalamus-pituitary-thyroid axis.

The thyroid gland, located in the front of the neck just below the “Adam’s apple,” is a

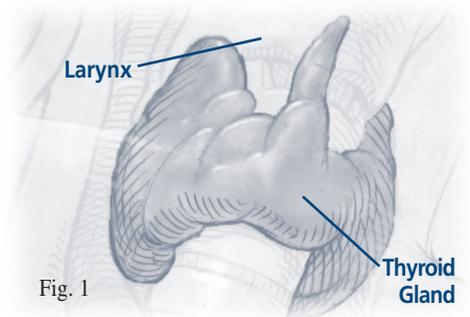


Fig. 1

major controller of metabolic activity in virtually every tissue in the body (Fig. 1). Thyroid hormone stimulates oxygen consumption, helps regulate lipid and carbohydrate metabolism, and is essential for normal growth and development. Inadequate thyroid activity (or impaired response to thyroid hormone) results in reduced resistance to cold

Continued on page 4

D-Mannose: Natural Treatment for Urinary Tract Infections

by Lane Lenard, PhD, and Jonathan V. Wright, MD

Urinary tract infection (UTI) is a common and distressing disease that affects up to 50 percent of all women and girls (and a much smaller number of men and boys) over the course of a lifetime. Each year, UTIs are responsible for 10 million doctor visits.^{1,4} Some people seem to be more susceptible than others; women who have suffered one UTI are very likely to experience a recurrence from time to time.

Some UTIs are merely painful (sometimes very painful) and annoying. However, other UTIs—especially if they’re chronic, recurrent, or not treated promptly and properly—can be quite dangerous. Under these conditions, bacteria may ascend to the kidneys, where infection can lead to serious damage and even kidney failure.

Conventional medical treatment of UTIs involves the use of antibiotics. While these drugs are usually – but not always – effective, curing most infections in a few days, they also have some important drawbacks:

- Antibiotics are equal-opportunity microbe killers. Although they usually make quick work of the UTI-causing bugs, they don’t just stop there. They also kill millions of other “friendly” bacteria that belong in the body where they serve numerous important functions.
- Because they kill off friendly bacteria living in the gastrointestinal (GI) tract, antibiotics can cause unwanted side effects, such as diarrhea, constipation, nausea, and occasionally, vomiting. If enough friendly bacteria are killed, “not-so-friendly” yeasts, molds, and bacteria—all

Continued on page 2

D-Mannose

Continued from front page

of which can produce unwanted toxins—are encouraged to take their places. Since friendly bacteria normally produce significant amounts of several vitamins—folic acid and vitamin K are the best-known examples—antibiotic use can contribute to long-term hidden vitamin deficiency.

- In addition, many women who take antibiotics (to treat UTI or any other infection) soon come to expect that they will develop a vaginal yeast infection requiring them to take yet another drug—this time an antifungal—to kill the yeast. The reason is that friendly bacteria that normally inhabit the vagina keep the yeast (usually *Candida albicans*) population under control. Once these friendly bacteria are taken out of the picture by the antibiotic, the yeast organisms are free to grow unchecked.

- Although most of us can tolerate antibiotics without immediate side effects, every year a few people are rushed to the hospital because of allergic reactions to these drugs.

- Lastly, the use of antibiotics promotes the development of bacterial species that are able to resist these drugs. Bacteria are very clever in their ability to mutate genes, making themselves “immune” to the effects of antibiotics. Those bacteria that have become immune then pass this ability on to their offspring or other bacteria. The likelihood that resistant bacteria will develop is enhanced by the misuse and overuse of antibiotics. The development of

antibiotic-resistant bacteria is a major problem in medicine today that has many experts fearing the inevitable arrival of a “superbug” resistant to all known antibiotic drugs.

D-Mannose: The Natural Alternative to Antibiotics for Urinary Tract Infections

D-mannose, a simple sugar and close cousin of glucose, can cure more than 90 percent of all UTIs within 1 to 2 days. Even more remarkably, D-mannose accomplishes this feat without killing a single bacterium! Exactly how it does this will be explained later. Suffice it to say that, because it gets rid of UTI-causing bacteria without committing “bacteria-cide,” people who use it suffer none of the unwanted side effects of antibiotics: no GI problems, no yeast infections, no resistant bacteria. In fact, D-mannose has no adverse side effects of any kind.

As a bonus, D-mannose actually tastes good. Where a “spoonful of sugar” helped the medicine go down in Mary Poppins’s day, with D-mannose, a spoonful of sugar *is* the medicine.

Because it is so effective and so benign, women (even pregnant women) who are susceptible to recurrent UTIs can safely take D-mannose as a preventive measure to head off future attacks. D-mannose is also ideally suited for children with UTIs. Because it tastes so good (it is a sugar, after all!), children actually enjoy taking it.

Although D-mannose is virtually unknown to practitioners of conventional medicine, many research reports have demonstrated its mode of action and effectiveness against *E. coli*, the microorganism that causes most UTIs. Moreover, nearly 15 years of clinical experience have shown that it is just about as effective at curing UTIs as antibiotic drugs.

At first glance, D-mannose may sound too good to be true: a “medicine” that’s highly effective, perfectly safe, pleasant to use, inexpensive, and available without a doctor’s prescription. Yet, it is true! Unlike virtually any conventional medication, and many natural or “alternative” treatments as well, D-mannose has no known drawbacks.

What Is UTI?

UTI is a bacterial infection (caused by the bacteria *E. coli* over 90 percent of the time) that affects the inside lining tissue of the urinary system (or tract). The urinary tract reacts to a bacterial infection in much the same way that the upper respiratory system reacts to a cold virus. The tissues become inflamed, irritated, and swollen. Just as it’s hard to breathe through swollen and inflamed

nasal passages, swollen and inflamed urinary ducts can partially obstruct normal flow, making it painful and difficult to pass urine.

Ordinarily, the urinary system is hostile territory for bacteria, viruses, or any other microorganisms. Bugs that do make their way into a healthy urinary tract are likely to find an inhospitable acidic environment (pH <5.5). They are also subject to attack by the body’s immune defenses. (Adult men have the added protection of a specific bacterial growth inhibitor squirted directly into the urinary system by their prostate gland.) Even if microorganisms manage to overcome these considerable obstacles, they would typically be flushed out with the normal flow of urine. So effective are these natural antibacterial defenses that in a study in which bacteria were instilled directly into the bladders of guinea pigs, simple urination expelled 99.9 percent of the bugs.⁵

Despite all these built-in safeguards, each year millions of people, overwhelmingly women, still develop UTIs. Most UTIs begin when bacteria originating in the bowels travel to and grow in the urethra. Infections limited to the urethra are known as “urethritis.” When bacteria travel upstream to the bladder, the infection is called “cystitis.” Infections that reach the kidneys are known as “nephritis” or “pyelonephritis.”

The *E. coli* that cause most UTIs are among the most common friendly bacteria in the GI tract, where they aid digestion, produce a few vitamins, and in general, behave themselves without bothering us. However, when *E. coli* and other bugs exit the lower GI tract, they may gain entry to the urinary tract via the urethra, where they may attach to the internal lining of the bladder, multiply, and spread.

Although up to 90 percent of UTIs are caused by *E. coli*, the remaining 10 percent are caused by bacteria known as *Chlamydia*, *Mycoplasma*, *Neisseria gonorrhoeae*, and others. Unlike *E. coli*, these bugs tend to be transmitted via sexual contact and rarely cause the more serious bladder and kidney infections. *Chlamydia*, *Mycoplasma* and *N. gonorrhoeae* infections do not respond to D-mannose treatment and will probably require antibiotic treatment. In addition, a few UTIs are caused by other bacteria, such as *Proteus* or *Staphylococcus* (“Staph”). Still, all of these non-*E. coli* infections combined amount to no more than 10 percent of all UTIs.

Treating UTI Naturally with D-Mannose

When faced with a potentially pathogenic germ like *E. coli*, conventional, pharmaceutically based medicine typically confronts

Volume 19 • Number 8

SEPTEMBER 2005



Vitamin Research News

Dedicated to the Scientific Pursuit of Better Health

Publisher

Robert Watson

Medical Editor

Ward Dean, MD

Editor

Linda Reeve

Contributors

Lane Lenard, Ph.D

Jonathan V. Wright, MD

Randy Aronson, VMD

Kimberly Pryor

Jim English

How to reach us: Call 1-800-877-2447; e-mail to: mail@vrp.com; visit our website at www.vrp.com; or write to: VRP, 4610 Arrowhead Drive, Carson City, NV 89706.

The information in this newsletter is not intended to provide personal medical advice, which should be obtained from a medical professional, and has not been approved by the U.S. FDA.

© 2005 by Vitamin Research Products, Inc. (VRP) The use of information found in Vitamin Research News for commercial purposes is prohibited without written permission from VRP. Subscriptions are available for \$29.95 per year (international \$39.95).



the problem by throwing the most potent poisons it can find at the bugs—antibiotics. While there's nothing essentially wrong with killing disease-causing bacteria, this approach does have some very serious drawbacks, as we have noted earlier. Happily, "bacteria-cide" is not the only possible avenue of attack.

Another, more natural way to eliminate *E. coli* infections from the urinary tract is to beat them at their own game. If they're going to cause trouble, bacteria usually have to find a way to adhere (stick) to the body tissue they're infecting. In UTI, *E. coli* attach to cells lining the bladder and urinary tract using filmy, hair-like projections called fimbria on their cell walls.⁶

At the tip of each fimbrium is a glycoprotein (a combination carbohydrate and protein) called a lectin that is programmed to bind to the first molecule of the sugar mannose that it encounters.⁷

It turns out that molecules of mannose (produced inside urinary tract lining cells) naturally dot the surfaces of these cells. Here they act as "receptors," inviting the fimbria of *E. coli* to attach, and allowing them to bind to the tissue in a tight, Velcro-like grip.⁷ If not for this attachment to the cell's mannose, any *E. coli* that had successfully ventured up the urethral river would be unable to stick to the slippery surface and would be washed right back out on the next tide of urination.

What happens when we take D-mannose to treat a UTI? Now imagine what would happen to *E. coli* in the urinary tract if those sweet little mannose molecules they crave were present not just on the surface of the epithelial cells but surrounding them in the urine as well. The *E. coli* couldn't turn around without bumping into D-mannose "just floating around" in the urine. Unable to resist the tasty bait they suddenly find themselves swimming in, they would latch onto the nearest mannose molecules, and happily sail off into the porcelain sunset. Those few *E. coli* left clinging to mannose molecules on cells then become easy prey for white blood cells and other agents of the immune system.⁸⁻¹⁰

How Taking D-Mannose can Treat or Prevent UTI.

In addition to its natural occurrence in the cells lining the epithelial tract, the sugar D-mannose is also found in relatively large quantities in fruit such as peaches, apples, oranges, and certain berries, like cranberries and blueberries. Extracted in the form of D-mannose, a white crystal sugar similar to glu-

cose, it can be easily dissolved in a liquid and swallowed. (Mannose can also be synthesized from other simple sugars.)

When someone with UTI consumes a dose of D-mannose, the sugar is absorbed in the upper GI tract, but at a much slower rate than most other sugars. (For example, glucose is absorbed more than eight times faster.) Moreover, unlike other sugars, D-mannose is not readily converted to glycogen (and stored) in the liver, but instead passes directly into the bloodstream largely unchanged.^{7,11,12}

As the D-mannose-laden blood passes through the kidneys, a considerable proportion of the sugar is extracted and added to the urine. The D-mannose-sweetened urine flows from the kidneys through the ureters to the bladder and on to the urethra, literally sugar-coating any free-floating *E. coli* it might encounter, so they can't stick to cells any more. It also unsticks most of the *E. coli* already "Velcro-ed" to the inner surface of the bladder and urinary tract, ultimately flushing them all down the drain.

How Do We Know That D-Mannose Really Works?

First, the "molecular mechanism" of the action of D-mannose on *E. coli* is scientifically proven. There's no argument at all about this among researchers who have studied it. Second, literally tens of thousands of women working with natural medicine doctors have successfully applied this science to their own UTIs.

Considerable circumstantial evidence, combined with common sense and over 15 years of clinical experience, makes a compelling case for the therapeutic value of D-mannose. In one laboratory study, for example, rats' urinary tracts were inoculated with *E. coli*. Within one day, those rats also given D-mannose were found to have significantly lower levels of bacteria in their urine.¹³ In another study, administering a mannose-like substance (*methyl α-D-mannopyranoside*) to *E. coli*-infected mice led to a 90 percent reduction in bacterial attachment to the urinary tract. Research in humans shows that ingesting D-mannose significantly elevates blood mannose levels, a prerequisite if urinary levels are to rise.¹⁴

Perhaps the best available evidence, though, comes from the experience of people who have used it. Natural medicine-oriented physicians have been recommending D-mannose to people with UTI since the mid-1980s with great success. For example, in one case, a 5-year-old girl had almost contin-

Continued on page 13

The President's Desk

Help Us Serve You Better and Earn a \$10 Credit

At Vitamin Research Products, we are always striving to improve. Over the years you have trusted us for the highest quality, research-based nutritional supplements. Quality, however, is something we strive for in every aspect of serving you and we would like to ask for your help in determining how we can make your experience with us even better.

In every order shipped in October you'll find a survey designed to ask your opinion on how we can better serve you. We are hoping that each and every one of you will fill out the survey. We understand your time is valuable and as a token of our appreciation for your completed survey, VRP will credit your account \$10 to use toward the nutritional supplements of your choice. If you are not placing an order in October and/or would prefer to complete the online version, simply go to www.vrp.com/survey anytime during the month of October.

Survey questions apply to everything from customer service to your on-line shopping experience. Are we prompt and courteous when you call in? Are there features that you enjoy online with other vendors that we should adopt?

We are asking for your feedback on the catalog and the newsletter. Would you like to see a catalog twice a year? Would you rather see shorter newsletter articles? Would you prefer a separate magazine that perhaps is written in less technical terms? Are you a subscriber to our Pet newsletter? If so, is the information helpful? We are even asking questions about packaging and labels, from the protective sleeve to the cotton.

Here at VRP research is our middle name and this time we are researching our customers. Our commitment to excellence starts with meeting your needs and your opinion really does count!



Robert Watson
President/CEO

The Energy Homeostat

Continued from front page

temperatures, impaired mental and physical performance, fatigue, and a wide range of seemingly unrelated symptoms and signs.

The thyroid hormones include T4 (thyroxine), T3 (tri-iodothyronin), “reverse” T3 (rT3), and very small amounts of T2 (diiodotyrosine) and T1 (mono-iodotyro-

from the severity of the symptoms. One reason for the apparent stability of blood levels of T3 and T4 (despite decreased production of T4 by the thyroid) is that the metabolic breakdown of these hormones decreases, as well—thus, helping to maintain stable blood levels of the hormones.

Another reason, Dilman postulated, is that the thyroid homeostat paradoxically becomes more sensitive to feedback inhibition with aging—i.e., smaller

(Interestingly, Prof. Dilman also did the majority of his work in Leningrad, although many years later).

From 1920 to 1945, Korenchevsky was senior researcher at the Lister Institute for Preventive Medicine, where he focused on research on vitamins and hormones. In 1945, he established the Oxford Gerontological Unit, one of the first aging research centers in the world. Korenchevsky, more than just about anyone else, is responsible for starting the modern scientific study of the aging process. He helped to organize gerontological research organizations around the world, and is recognized as the Founder of the *International Gerontological Association*, and has been justifiably designated “the father of gerontology” (Bourne, 1961).

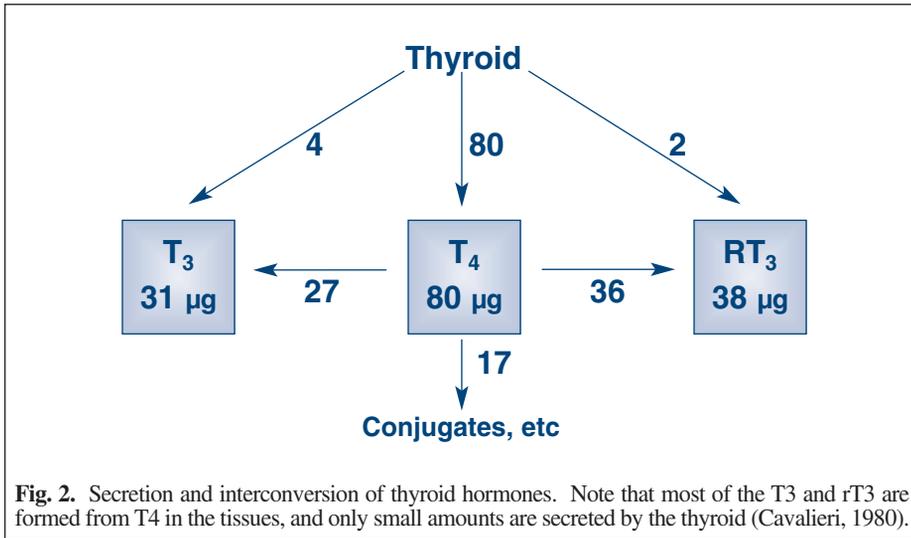


Fig. 2. Secretion and interconversion of thyroid hormones. Note that most of the T3 and rT3 are formed from T4 in the tissues, and only small amounts are secreted by the thyroid (Cavalieri, 1980).

sine). The human thyroid secretes about 80 mcg of T4, 4 mcg of T3, and 2 mcg of rT3 each day. T3 is the most active form, and rT3 is relatively inactive. T4 is converted peripherally (in other tissues of the body) into T3 and rT3, adding to the small amounts that are released from the thyroid itself (Fig. 2).

The hypothalamus-pituitary-thyroid axis operates in a similar fashion as other endocrine systems, based on the principal of negative feedback. As shown in Fig. 3, thyrotropin (TRH) released from the hypothalamus stimulates the release of thyroid stimulating hormone (TSH) from the pituitary. This in turn stimulates the thyroid to release T3 and T4. As levels of thyroid hormone in the blood rise to normal levels, this causes inhibition of TRH and TSH, keeping the system in balance.

Changes in Thyroid Function with Aging

As would be expected in an aging system, thyroid function decreases with aging. Levels of T3 and T4 may decline as we grow older, and levels of TSH may increase slightly (Fig. 4). However, although there is an increase in apparent hypothyroid-related symptoms as people get older, the change in blood levels of these hormones is often surprisingly much less than would be expected

amounts of T3 and T4 are capable of inhibiting the release of TRH. This is opposite to what occurs in the adaptive and reproductive homeostats with regard to estrogen, progesterone, testosterone, cortisol, and insulin. Thus, even though thyroid hormone levels might drop slightly with aging, there is reduced stimulus to produce more TRH (and consequently, reduced stimulus of TSH and thyroxine) due to the increased sensitivity of the hypothalamic thyroid receptors. (Fig. 5).

In addition, Dilman demonstrated that peripheral receptor sensitivity to thyroid hormone decreases with age—analogue to the loss of peripheral insulin receptor sensitivity (insulin resistance) characteristic of Syndrome X, or maturity onset diabetes. This is another reason why so many older people experience symptoms of hypothyroidism despite having normal or near-normal thyroid hormone blood levels.

One of the first scientists to document similarities between aging and hypothyroidism was Dr. Vladimir Korenchevsky. Korenchevsky was a Russian expatriate who emigrated to Great Britain in 1920. Prior to leaving Russia, Korenchevsky had been a professor of general and experimental pathology in the Imperial Military Medical Academy of Petrograd — now Leningrad

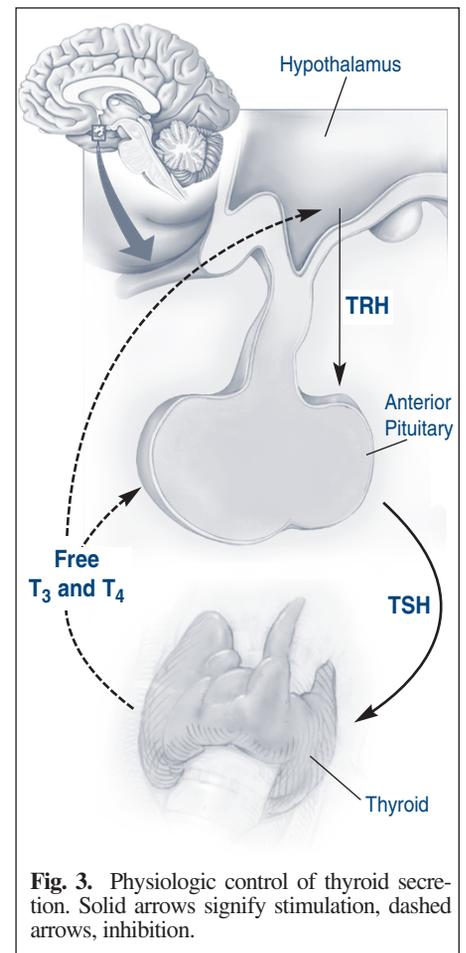


Fig. 3. Physiologic control of thyroid secretion. Solid arrows signify stimulation, dashed arrows, inhibition.

Hypothyroidism - Clinical Picture

Some of the most common symptoms caused by hypothyroidism include poor concentration, mental confusion, memory disturbances, cold hands and feet, obesity, difficult weight loss, menstrual problems, dry skin, thin hair, and low energy levels. Other symptoms include migraine headaches, hypertension, depression,

hypoglycemia, atherosclerosis, diabetes, infertility, and even acne.

Korenchevsky's list of similarities between aging and hypothyroidism included:

- Regressive changes in the thyroid and gonads
- Low basal metabolism
- Impaired temperature regulation
- Low body temperature
- Chilliness—cold hands and feet
- Obesity
- Elevated cholesterol
- Atherosclerosis
- Poor skin elasticity with increased wrinkling
- Dry skin
- Constipation
- Infertility
- Early graying and hair loss
- Brittle nails
- Poor muscle tone
- Arthritis
- Easy fatigability (physical and mental)
- "Weak heart"
- Depression

Diagnosing Hypothyroidism

Undiagnosed hypothyroidism is one of the most common causes of a variety of seemingly unrelated symptoms. Although many people exhibit symptoms of hypothyroidism, they usually don't receive treatment for this condition if they have normal blood test readings. Their physicians often tell them that their symp-

were later given thyroid replacement therapy, they improved dramatically.

In the 1940s, in the United States, Dr. Broda Barnes, a brilliant, intuitive physician and scientist, discovered a "low tech" but perhaps more accurate method of evaluating thyroid function than the "sophisticated" blood tests most physicians use today. In his book, *Hypothyroidism: The Unsuspected Illness*, Dr. Barnes described over 47 symptoms that may be related to poor thyroid function.

Using his diagnostic criteria, Dr. Barnes estimated that 40 percent of the adult population suffers from subclinical or overt hypothyroidism. Dr. Barnes found that body temperatures immediately upon awakening in the morning (while still in bed) are in the range of 97.8 to 98.2 degrees Fahrenheit. He believed that a temperature below 97.8 indicated hypothyroidism.

Based on Dr. Barnes' criteria, I advise my patients to take their temperature and resting pulse immediately upon awakening in the morning as a guide to diagnosing and treating hypothyroidism. The pulse rate should be between 65-75. If a patient exhibits hypothyroid symptoms and the temperature is below 97.8 Fahrenheit, I start them on one half grain (30 mg) of Armour Desiccated Thyroid daily. If no improvement is noted in three-four weeks, I increase the dose by

increase the dosage every three-four weeks, provided that the heart rate goes no higher than the mid-70s, and no symptoms of hyperthyroidism — agitation, anxiety, poor sleep, hand tremors, or palpitations — are evident. Occasionally, it may be necessary to go to 4 grains daily (which is full replacement therapy!) — to obtain relief of symptoms. I don't think it is necessary to perform periodic blood tests. I believe it is more important to treat the patient rather than just the blood test. However, blood tests are wise from a medical-legal perspective.

Treatment of subclinical hypothyroidism with thyroid hormone is very safe. There is little risk of excessive thyroid dosage if: (1) the patient feels well; (2) the morning temperature remains below 98.2; (3) the pulse remains less than 75 beats per minute (or whatever is normal for the patient); and (4) the T3 and T4 blood levels remain normal. TSH may be significantly less than normal in adequately treated patients. I have found that most hypothyroid patients feel best with "sub-normal" TSH levels.

Armour Natural Thyroid?

Synthroid, the most commonly-prescribed hormone for hypothyroidism, contains only one fraction of thyroid hormone - T4. As mentioned above, T4 is normally converted by the body into T3, the active form. I believe that many hypothyroid patients are unable to efficiently perform this conversion. Armour thyroid, on the other hand, is a desiccated preparation of porcine thyroid that provides all thyroid hormone factors - T2, T3, and T4. I've found that it is very difficult to provide adequate thyroid supplementation with Synthroid without causing patients to become thyrotoxic. On the other hand, most patients who switch from Synthroid to Armour thyroid report that they feel much better with the Armour product.

Another Choice— Supplementation with Iodine and Iodide

Another approach to treating hypothyroidism is to use iodine (I). Thanks to the work of Dr. Guy Abraham (2004), and a new book largely based on Abraham's research, by Dr. David Brownstein (2004), there is a growing awareness that many thyroid-related diseases and syndromes are due to a chronic deficiency of iodine. Dr. Abraham determined that the optimal daily Iodine (I) intake for

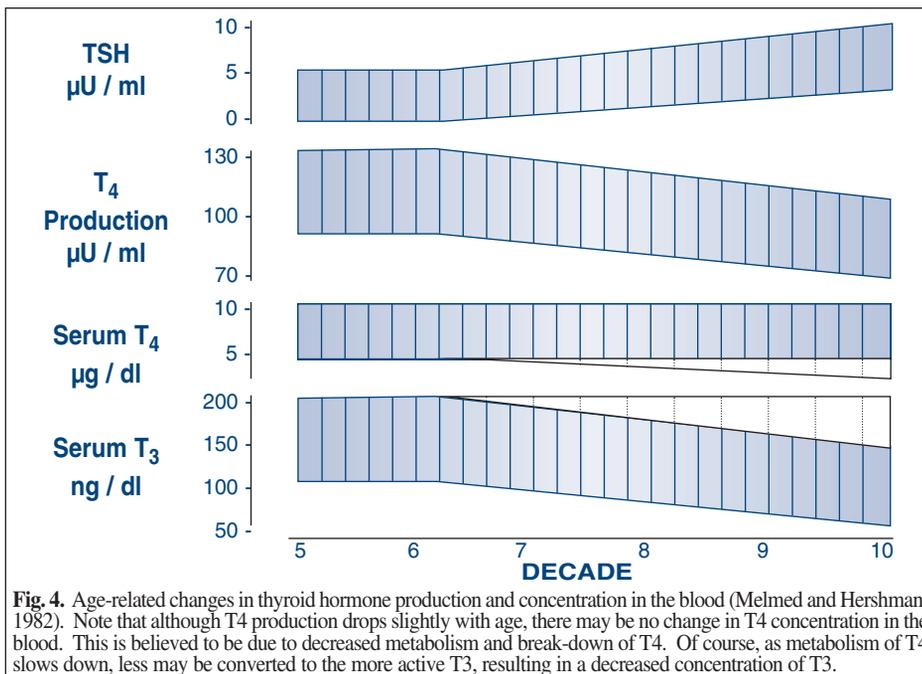


Fig. 4. Age-related changes in thyroid hormone production and concentration in the blood (Melmed and Hershman, 1982). Note that although T4 production drops slightly with age, there may be no change in T4 concentration in the blood. This is believed to be due to decreased metabolism and break-down of T4. Of course, as metabolism of T4 slows down, less may be converted to the more active T3, resulting in a decreased concentration of T3.

toms are due to other causes or that their problem is all in their head. I have known many patients who were referred to psychiatrists to treat their so-called psychosomatic problems. However, when they

another half grain. At each step, we monitor morning temperature and heart rate.

If the suspected hypothyroid symptoms are still present and the temperature is still sub-normal, it is safe to continue to

The Energy Homeostat

Continued from page 5

humans is about 12.5 mg per day. This is just slightly less than the average daily intake in Japan—but is far higher than the 150 mcg that is generally recommended in this country. Dr. Abraham has used *Lugol's solution* — a 5% solution of 50 mg iodine and 100 mg potassium iodide per milliliter — as an ideal form of iodine supplementation. Two drops of Lugol's solution per day provides 5 mg of iodine, and 7.5 mg of potassium iodide, totaling 12.5 mg per day of iodine. Lugol's solution is available from compounding pharmacies. An alternative to

increased metabolic requirements caused by the replacement thyroid hormone.

The dramatic improvements that previously undiagnosed and untreated hypothyroid patients achieve on thyroid therapy often appear miraculous. It is very gratifying to hear a patient who has suffered for decades express how his or her life has been totally turned around by a few cents worth of thyroid (and/or iodine). Brownstein reports that many of his patients who he believed were adequately treated for hypothyroidism improved even more once adequate iodine supplementation was begun, in many cases, enabling the patients to reduce their thyroid replacement dosage.

BREAKING NEWS

Vitamin D: Link Between Abnormal Receptors and Parkinson's

by VRP Staff

Abnormalities in vitamin D receptors may increase the body's susceptibility to developing Parkinson's disease, a recent study indicates.

In past studies, the biologically active form of vitamin D, 1,25-dihydroxyvitamin D3 (1,25(OH)₂ D₃), produced in the body after exposure to sunlight or after consumption of vitamin D3 supplements, demonstrated anti-inflammatory effects and prevented experimental Parkinson's disease (PD) in animals. However, this biologically active form of vitamin D is only effective if it is able to bind to its specific nuclear receptors in the body.

In the current study, researchers wanted to determine whether abnormalities in vitamin D receptors known as polymorphisms were markers for an increased susceptibility to Parkinson's disease in Korean patients. The study included 85 Parkinson's patients (30 men and 55 women) and a control group of 231 healthy subjects.

Researchers evaluated the relationship between the abnormal polymorphisms in the vitamin D receptor genes and the clinical manifestations of Parkinson's. The results showed that Parkinson's patients with the polymorphism reacted differently than those in the control group, making them more vulnerable to the disease.

These variations in the vitamin D receptor gene may play a role in the development of Parkinson's, indicating that vitamin D may have a supportive role to play in Parkinson's.

Reference:

Kim JS, Kim YI, Song C, Yoon I, Park JW, Choi YB, Kim HT, Lee KS. Association of Vitamin D Receptor Gene Polymorphism and Parkinson's Disease in Koreans. *Journal of Korean Medical Science*. June 2005;20(3):495-98.

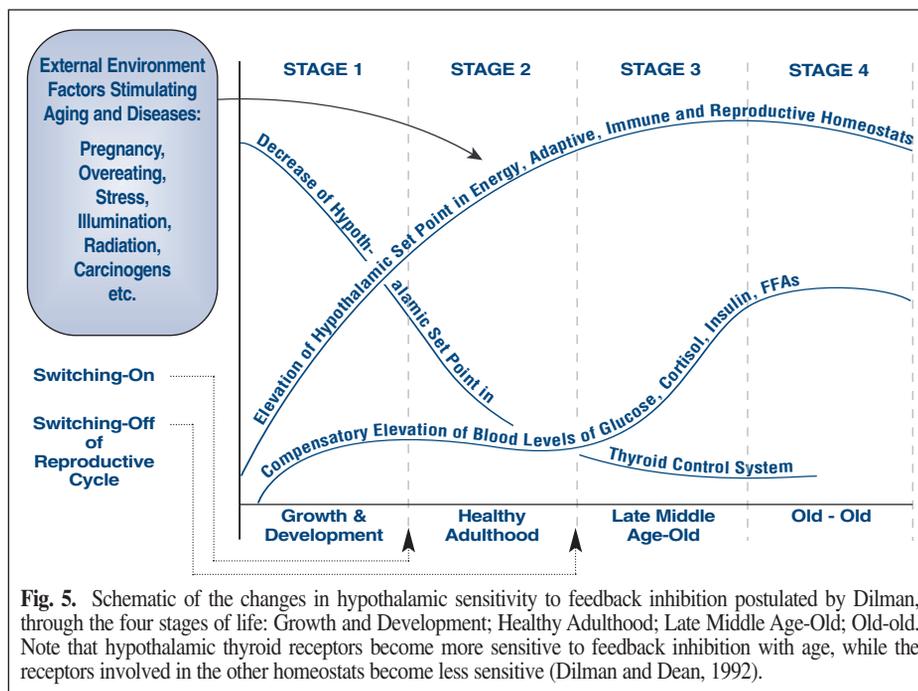


Fig. 5. Schematic of the changes in hypothalamic sensitivity to feedback inhibition postulated by Dilman, through the four stages of life: Growth and Development; Healthy Adulthood; Late Middle Age-Old; Old-old. Note that hypothalamic thyroid receptors become more sensitive to feedback inhibition with age, while the receptors involved in the other homeostats become less sensitive (Dilman and Dean, 1992).

Lugol's is a tableted form of Lugol's called Iodoral®.

Abraham and Brownstein have found that supplementation with iodine/iodide improved a wide variety of conditions. Abraham (2004) also noted improved peripheral T3 receptor responsiveness, reflected by a decreased need for T3 in some patients previously receiving this hormone.

Conclusion

Although Korenchevsky stated that thyroid hormone replacement was no "cure" for aging, it was often highly effective in reversing many of the above-listed aging and thyroid-related signs and symptoms. Korenchevsky believed that thyroid hormone replacement was not effective by itself, but required "liberal amounts of vitamins to be given simultaneously," due to the

References:

- Abraham, G. E. The safe and effective implementation of orthiodosupplementation in medical practice. *The Original Internist*, 2004, 11(1): 17-36.
- Barnes, B., Galton, L. Hypothyroidism: the Unsuspected Illness. New York: Thorruss Y. Crowell Co., 1976.
- Bourne, G.H. Preface to *Physiological and Pathological Aging*, by V. Korenchevsky, S. Karger, Basel, 1961.
- Brownstein, D. *Iodine—Why You Need it; Why You Can't Live Without It*. Medical Alternative Press, 4173 Fieldbrook, West Bloomfield, Michigan 48323, 2004.
- Cavalieri, R. Peripheral metabolism of thyroid hormones. *Thyroid Today*, 3:7, 1980.
- Dilman, V., and Dean, W. *The Neuroendocrine Theory of Aging and Degenerative Disease*, The Center for BioGerontology, Pensacola, FL, 1992.
- Korenchevsky, V. *Physiological and Pathological Aging*, S. Karger, Basel, 1961.
- Langer, S., Scheer, J. *Solved: The Riddle of Illness*. New Canaan, CT: Keats, 1984.
- Melmed, S., and Hershman, J. The thyroid and aging, in: *Endocrine Aspects of Aging*, by Stanley Korenman (ed), Elsevier Biomedical, New York, 1982.

Lithium Orotate: The Unique Safe Mineral with Multiple Uses

by Ward Dean, M.D. and Jim English

Lithium is a mineral with a cloudy reputation. It is an alkali metal in the same family as sodium, potassium and other elements. Although lithium is highly effective in the treatment of manic depressive illness (X4 DI), its pharmaceutical (prescription) versions, lithium carbonate and lithium citrate, must be used with caution. The reason for the caution with prescription lithium is because lithium in these forms is poorly absorbed by the cells of the body — and it is within the cells that lithium's therapeutic effects take place. Lithium ions are believed to act only at particular sites on the membranes of intracellular structures like mitochondria and lysosomes.

Consequently, because of this poor intracellular transport, high dosages of pharmaceutical forms of lithium must be taken in order to obtain a satisfactory therapeutic effect. Unfortunately, these therapeutic dosages cause blood levels to be so high that they border on toxic levels. Consequently, patients taking prescription lithium must be closely monitored for toxic blood levels. Serum lithium and serum creatinine levels of prescription lithium-treated patients should be monitored every 3-6 months.

Toxic effects of lithium may include hand tremors, frequent urination, thirst, nausea, and vomiting. Even higher doses may cause drowsiness, muscular weakness, poor coordination, ringing in the ears, blurred vision, and other symptoms.

There has been concern that long-term lithium treatment may damage kidney function, but data in this regard are equivocal. Renal insufficiency without a known cause has occurred in the general population, and the incidence of renal failure among manic-depressive patients not treated with lithium remains unknown.

Most patients treated with lithium are also taking other medications, and it is just as likely that the few known cases of renal failure in patients taking lithium were due to other medications that they were simultaneously taking.^{2,5}

Nevertheless, with potential side effects like this, why in the world would anyone

want to take lithium? It is because lithium has been found to be one of the most effective treatments for manic-depressive illness (bipolar disorder).

Bipolar Disorder

Bipolar disorder is a severe mood disorder characterized by manic or depressive episodes that usually cycle back and forth between depression and mania. The depressive phase is characterized by sluggishness (inertia), loss of self-esteem, helplessness, withdrawal and sadness, with suicide being a risk. The manic phase is characterized by elation, hyperactivity, over-involvement in activities, inflated self-esteem, a tendency to be easily distracted, and little need for sleep. In either phase there is frequently a dependence on alcohol or other substances of abuse. The disorder first appears between the ages of 15 and 25 and affects men and women equally. The cause is unknown, but hereditary and psychological factors may play a role. The incidence is higher in relatives of people with bipolar disorders. A psychiatric history of mood swings, and an observation of current behavior and mood are important in the diagnosis of this disorder.⁷

Orthodox Treatment

Hospitalization may be required during an acute phase to control the symptoms. Antidepressant drugs may be given; anticonvulsants (Carbamazepine, Valproic acid, Depakote) may also be used. (These substances deplete body stores of L-carnitine and Taurine. Supplementation with several grams daily of these supplements greatly ameliorates adverse side effects of these drugs).

Lithium, however, is the treatment of choice for recurring bipolar (manic/depressive) illness, serving as an effective mood enhancer in 70-80 percent of bipolar patients.

Mortality-lowering, Anti-suicidal Effect of Lithium

The mortality of manic-depressive patients is markedly higher than that of the general population. The increased mortality is mainly, but not exclusively, caused by sui-

cide. Studies have shown that the mortality of manic-depressive patients given long-term lithium treatment is markedly lower than that of patients not receiving lithium. The frequency of suicidal acts among treated patients is significantly lower than patients given other antidepressants or carbamazepine. The results of mortality studies are consistent with the assumption that lithium-treatment protects against suicidal behavior.⁸⁻¹³

Unipolar Disorder

In addition to its well-recognized benefits in the management of bipolar disorder, trials have conclusively demonstrated that lithium is also an effective treatment for recurrent unipolar depressive illness (recurrent major affective disorder).¹⁴⁻¹⁶ Although physicians in Europe have successfully used lithium for this indication for many years, American psychiatrists do not share their appreciation of lithium's safety and effectiveness for conditions other than MDI. Perhaps it is due to a difference in the lithium preparations they have at their disposal.

Superiority of Lithium Orotate

The lithium salt of orotic acid (lithium orotate) improves the specific effects of lithium many-fold by increasing lithium bio-utilization. The orotates transport the lithium to the membranes of mitochondria, lysosomes and the glia cells. Lithium orotate stabilizes the lysosomal membranes and prevents the enzyme reactions that are responsible for the sodium depletion and dehydration effects of other lithium salts. Because of the superior bioavailability of lithium orotate, the therapeutic dosage is much less than prescription forms of lithium. For example, in cases of severe depression, the therapeutic dosage of lithium orotate is 150 mg per day. This is compared to 900-1800 mg of the prescription forms. In this dosage range of lithium orotate, there are no adverse lithium side reactions and no need for monitoring blood serum measurements.¹⁷

Continued on page 13



CUSTOMERS' CORNER

by **Ward Dean, MD**
VRP Medical Director

5-HTP, L-Tryptophan and SSRI

Dear Dr. Dean,

Given the facts as stated below in the *HyperHealth CD*, why does any one take an SSRI pharmaceutical (such as Prozac®, Zoloft®, Effexor®, and others) when 5-Hydroxytryptophan (5-HTP) is better and directly increases the amount of serotonin in the brain?

The *HyperHealth CD* refers to the amino acid Tryptophan. My understanding is that 5-HTP is Tryptophan in the form of 5-Hydroxytryptophan, i.e., an hydroxy group (-OH) has been added to the Tryptophan molecule.

I would be very interested in hearing your answer to my question above: why does any one take an SSRI pharmaceutical instead of 5-HTP?

Thank you for your assistance.

Mr. C.

Dear Mr. C.,

The answer is: We're all different, and respond to different things differently.

For example, if everyone reacted exactly the same to the various drugs in a certain class (in this case, the SSRIs) there would probably be only one drug—i.e., the one that everybody responded to the best. However, in practice, we find that certain people respond to one drug (or nutrient) "better" or differently than others. The trick is to find out what works best for you.

Likewise, 5-HTP and L-Tryptophan affect different people differently. For example, 5-HTP converts directly to serotonin. Tryptophan converts to 5-HTP plus other metabolites. Since only a fraction of these other metabolites is 5-HTP, it is necessary to take only a fraction of the dose of 5-HTP that would be required if one were taking L-Tryptophan. For example, the effective sleep-inducing dose of 5-HTP is about 150-200 mg, but about 1,500 - 2,000 mg of L-Tryptophan.

Some people find that they are able to completely replace their antidepressant SSRI with either 5-HTP or L-Tryptophan. Others find that by combining an SSRI with 5-HTP or L-Tryptophan, they are able to greatly

reduce their SSRI dosage, but get best results with the combination.

There is no magic formula for determining what combination will work the best for everyone. However, understanding these principles should help you to adjust your dosages/combinations of these substances.

Ward Dean, M.D.

Post Traumatic Stress Disorder

Dear Dr. Dean,

I am a survivor of severe complex PTSD (Post Traumatic Stress Disorder). I am also a devoted VRP customer.

I have studied the effects of PTSD on the brain and found that it is generally accepted at this time that the stress of trauma causes shrinkage of the hippocampus.

Douglas Bremner in his book "*Does Stress Damage the Brain*" states "Consistent with the idea that stress-induced hippocampus damage contributes to these disabling symptoms is the finding that, in traumatized patients, the greatest decreases in volume of the hippocampus are associated with the most pronounced symptoms of dissociation."

The hypothalamus & amygdala & cingulate are also areas of the brain affected by PTSD.

Do you have any knowledge of supplements or supplement protocols which could help re-grow or stabilize this sort of situation?

Ms. R.

Dear Ms. R.,

You'll be very interested in the second installment of the *Neuroendocrine Theory of Aging* ("*The Adaptive Homeostat*") which appeared in the March 2005 issue of *Vitamin Research News*. This article describes the age-accelerating effects of severe and chronic stress.

I think VRP's adaptogenic formulas, *AdaptaPhase® I*, *AdaptaPhase® II*, and *Cortisol Control Formula*, plus *DHEA* and

Phosphatidylserine are products that should help counteract the chronic, damaging effects of PTSD.

Ward Dean, M.D.

ADD/ADHD and Tourette's Syndrome

Dear Dr. Dean,

I find your site very helpful. I am interested in ADD/ADHD and Tourette's Syndrome. My daughter has very bad tics and is very moody. My son has a pretty good attitude and his Tourette's is not very noticeable but he is hyper and he can get on people's nerves. I have tried to go natural but I haven't stayed on anything for a long time. I was wondering what combination would be the best for the two of them. Tourette's is caused by a neurotransmitter misfiring which makes one twitch uncontrollably. Ritalin in children with Tourette's makes the tics worse and possibly cause tics if one doesn't have them. Please help, my children are in high school and things are getting harder for them. We are aware that diet is important, but you know kids.

Thank You. — Mr. M.

Dear Mr. M.,

Sorry, but I don't have any "silver bullets" for Tourette's — especially when combined with ADD/ADHD.

Although I've had good success with *DMAE* in ADD/ADHD, since Ritalin is making things worse, *DMAE* may not be helpful in your situation.

I've used *Lithium Orotate* in many nerve-related conditions. It seems to act as a "nerve stabilizer." It may help, and certainly won't hurt.

Anhydrous betaine (TMG) is very beneficial in many cases of autism. Since Tourette's is a variant, it may help. A beneficial aspect of TMG is that it actually is pleasant tasting, and mixes well in just about any beverage, so it's easy to administer. Hope these suggestions help.

Ward Dean, M.D.

Continued on page 9

Psoriasis

Dear Dr. Dean,

I have chronic psoriasis and I've been reading about *Fumaric Acid* and need a doctor in my area who understands this product and can help me get started. Can you refer me to a doctor in my area or as close as possible. Thank you very much.

Mr. S.

Dear Mr. S.,

I don't know of any physicians in your area. However, *Fumaric Acid*, in the recommended dosages, is very safe, and may be used without physician monitoring. Just start with one capsule per day, and increase the dose according to the schedule on the label, until you find a dosage that works for you.

Also, although I have never seen dramatic results, Evening Primrose Oil (*GLA*) has been reported to be of benefit in psoriasis. Let me know how you do.

Ward Dean, M.D.

Xylitol and H. Pylori

Dear Dr. Dean,

If I may I'd like to ask four questions about *Xylitol*:

- 1) How much *Xylitol* should I consume daily to help kill *H. Pylori*?
- 2) Should the *Xylitol* be consumed on an empty stomach to combat *H. Pylori*?
- 3) Will *Xylitol* feed my candida overgrowth problem?
- 4) Why does a natural substance (*Xylitol*) cause bowel disturbance if consuming over 50 grams daily?

Thank you for your time,

— Mr. M.

Dear Mr. M.,

I don't know that the amount of *Xylitol* required to kill *H. Pylori* has ever been quantified. *Xylitol* doesn't "kill" micro-organisms (like the bacteria in the mouth that cause periodontal disease, or candida) in the sense that other anti-microbials kill these organisms. It is lethal to these microbes because they consume *Xylitol*, and assume it is sugar (like we do). If it is their only source of "sugar," they don't metabolize it (like we don't) and literally "starve to death."

If *Xylitol* is the only source of "carbohydrate," it will inhibit the growth of candida.

Many "natural" substances cause bowel disturbances. Magnesium, and MCT oil, are just two of the best known. Usually, with continued use, tolerance develops to the diarrhea induced by excess *Xylitol*.

Ward Dean, M.D.

CarnoSee® and Glaucoma

Dear Dr. Dean,

Before I buy the *CarnoSee*® I have questions.

I have an open angle glaucoma in one eye and the pressure has increased to 37. I have tried all prescription medications available to lower the pressure with no success and my doctor wants to do laser. I had it several years ago in half the eye and they want to do it again.

Do you think the *CarnoSee* will help prevent the laser? I know if I have this procedure done it will be only so long before the next step of surgery which really scares me. The directions are so vague on these eye drops and with the pressure at 37, I do not know how often and how many drops I should use.

Please respond ASAP as if this product is not for me I need to schedule the laser. If it will help, I need to buy it ASAP in order to give it a try before I go back to my doctor.
Thanks. — Mrs. S.

Dear Mrs. S.,

CarnoSee® may help with glaucoma, and may help reduce intraocular pressure. Such effects have been reported in the clinical literature. However, the effects may take some time, and may not be significant in everyone.

Glaucoma is a serious condition, and one of the leading causes of blindness in the elderly. If you have tried all of the available topical prescription drops for glaucoma, you have nothing to lose by adding *CarnoSee* — there are no adverse effects, other than some temporary stinging.

However, because of the potential consequences of inadequately treated glaucoma, and the fact that no nutritional regimen known will reliably reverse glaucoma, I would not delay some other procedure such as the laser that might be indicated now to prevent further deterioration in your vision.

In addition to *CarnoSee*, I suggest *N-Acetyl-Cysteine* or oral *Glutathione* itself, to prevent oxidative damage in the eye, as well as *Forskolin Extract*, and *Lithium Orotate*

both of which have been reported to reduce elevated intraocular pressure.

Ward Dean, M.D.

Lipoic Acid and Weight Loss

Dear Dr. Dean,

Your article on alpha lipoic acid/weight loss didn't mention the dosage. I imagine it was in the many grams per day range. Could you elaborate? Thank you very much for all your good work.

Dr. T.

Dear Dr. T.,

Durk Pearson and Sandy Shaw hypothesize that the dose of *Lipoic Acid* that would be required to replicate the weight loss benefits in the animal studies would be a not-insurmountable dose of 2.5 gm per day.

Ward Dean, M.D.

Memory Enhancement

Dear Dr. Dean,

I am a 79-year-old woman and would like to try *Huperzine-A* for short term memory enhancement. I am also taking medication for high blood pressure as well as *Paxil*® and *Tegretol* for trigeminal neuralgia. Are there any drug interactions I need to be aware of before taking the *Huperzine*? Thanks so much for your time and help.

Mrs. B.

Dear Mrs. B.,

I think you can safely and beneficially take *Huperzine-A*. I would start with a low dose, such as 50 micrograms per day, and increase the dose over a span of several weeks, to a maximum of 200 mcg per day.

A comprehensive formula, that contains *Huperzine-A*, as well as a number of other synergistic cognitive enhancing nutrients, is VRP's premier "smart" formula, *Extension IQ*.

Also, I suggest you try *Lithium Orotate*, as well. *Lithium Orotate* in doses of 1 to 3 capsules twice daily may not only help your trigeminal neuralgia, over the short term, but may result in cognitive enhancement, over the long term, as well.

Ward Dean, M.D.

Cognitive Enhancers: Smart Nutrients for Boosting Brain Health

by Kimberly Pryor

The brain is mission control on our journey through life, sending sensory impulses through nerves that register as sensations. The brain is the driving force behind who we are, the center of consciousness, thought, memory, reason, judgment and emotion.

This large, soft nerve tissue mass cradled within the cranium is the primary center for regulating and coordinating body activities. Anyone who has lost his or her car keys or forgot to pay the power bill is reminded of the importance of this bundle of neurons sitting atop our heads. Loved ones of Alzheimer's disease or dementia patients also are all too aware of the vulnerability of the aging brain.

Clearly, as we grow older, supporting optimal brain health is a priority. Consequently, implementing nutritional strategies to nourish our mental resources can prove helpful.

Acetyl-L-Carnitine

Acetyl-L-Carnitine (ALC) enhances production of the memory-enhancing neurotransmitter acetylcholine and participates in cellular energy production, a process especially important in neurons. Animal studies show that ALC reverses the age-related decline in the number of neuron membrane receptors.

Cognitive function is controlled by the central nervous system, which in turn is controlled by the cholinergic system, a collection of cells that either produce or are stimulated by the neurotransmitter acetylcholine. Two types of receptors respond to acetylcholine to trigger intracellular communication, memory processing and higher cognitive functions. The enzyme acetylcholinesterase rapidly breaks down acetylcholine, which is why a class of drugs known as acetylcholinesterase inhibitors are frequently used to treat cognitive decline. By blocking acetylcholinesterase, these inhibitors stop acetylcholine breakdown, an action thought to improve cognitive health.

ALC may work together with acetylcholinesterase inhibitors to increase their effectiveness in patients normally unresponsive to these drugs. Italian researchers performed an open study to evaluate ALC's effect (2 grams per day orally for 3 months) combined with one of two acetylcholinesterase inhibitors in 23 patients with mild Alzheimer's disease.¹

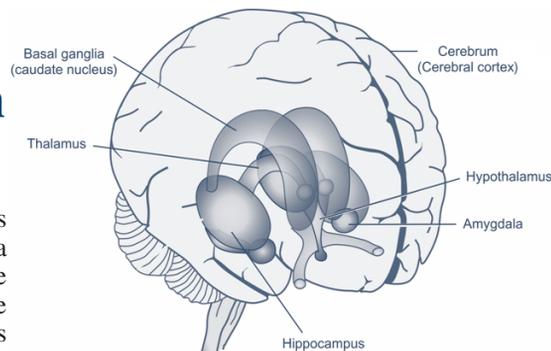
When the acetylcholinesterase inhibitors were given alone, the patients experienced a 38 percent response rate to the drugs. The response rate rose to 50 percent when the patients were also treated with ALC. This led the researchers to conclude that the combination of ALC with the drugs may be "a useful therapeutic option in Alzheimer's disease patients."

In another evaluation of ALC's effects, Stanford researchers reanalyzed data from a 1996 double-blind, placebo-controlled study that included 334 subjects diagnosed with probable Alzheimer's disease.² Both the ALC group and the placebo group exhibited the same mean rate of change on the Alzheimer Disease Assessment Scale. However, when the researchers analyzed the patients by age group, younger subjects experienced a significant benefit from ALC treatment. Patients 61 years of age and younger appeared to benefit most from ALC. The researchers concluded, "ALC slows the progression of Alzheimer's disease in younger subjects."

In a meta-analysis investigating the double-blind, randomized, controlled clinical trials of acetyl-L-carnitine versus placebo researchers concluded that ALC can benefit Alzheimer's patients.³ They looked at studies that used subjects with mild cognitive impairment and mild Alzheimer's disease. All the studies included in the analysis lasted from 3 to 12 months and the daily dose varied between studies from 1.5 to 3 grams per day. The analysis showed that subjects treated with acetyl-L-carnitine experienced significant improvement on various measures of disease symptoms compared to subjects taking a placebo. ALC's beneficial effects included improvement in intelligence, aptitude, behavior, and emotional reactions. The researchers noted ALC's benefits at the first, three-month assessment and the benefits increased over time.

Vinpocetine

Vinpocetine increases the brain's blood circulation. Animal studies have shown vinpocetine can reduce the loss of neurons due to decreased blood flow. In three studies of older humans with memory problems associated with poor brain circulation or dementia-related disease, vinpocetine produced significantly more improve-



ment than a placebo in attention, concentration, and memory.⁴

In a 2003 review of double-blind, randomized vinpocetine studies, researchers assessed vinpocetine's efficacy and safety in the treatment of patients with cognitive impairment due to vascular disease, Alzheimer's disease, mixed (vascular and Alzheimer's disease) and other dementias.⁵

The three studies included in the review—all performed before the 1990s—involved 583 people with dementia treated with vinpocetine or placebo. The results showed that vinpocetine treatment did exert some benefits at 30 mg per day and 60 mg per day compared with placebo. Because the number of patients treated for 6 months or more was small, and only one study extended treatment to one year, the reviewers stated that they would like to see longer term, larger studies to validate vinpocetine's potential benefit.

Vinpocetine's ability to protect neurons is well researched. In Hungary, vinpocetine has become a reference compound in the pharmacological research of cognitive deficits caused by low oxygen (hypoxia) and ischemia. Early experiments with vinpocetine indicated five main actions: (1) selective enhancement of brain circulation and oxygen use without significant alteration in systemic circulation, (2) increasing the brain's tolerance toward hypoxia and ischemia, (3) anticonvulsant activity, (4) inhibitory effect on phosphodiesterase, an enzyme critical for the breakdown of cyclic adenosine monophosphate, a nucleotide important in a variety of metabolic responses to cell stimuli and (5) improvement of blood properties and inhibition of "sticky" platelets. Later studies in various laboratories confirmed the above effects, suggested vinpocetine also works by influencing sodium and calcium-dependent communication between neurons and clearly demonstrated that vinpocetine offers significant and direct neuroprotection both under in vitro and in vivo conditions.⁶

Huperzine-A

Huperzine-A is a potent inhibitor of acetylcholinesterase, the enzyme that breaks down the memory-boosting neuro-

transmitter acetylcholine. Huperzine-A crosses the blood-brain barrier smoothly, and tends to gravitate toward acetylcholinesterase. It has been approved as the drug for Alzheimer's disease treatment in China. Clinical trials of huperzine-A in elderly patients with age-associated memory loss are underway in the U.S.⁷

Extracted from club moss, huperzine-A (*Huperzia serrata*) has demonstrated both memory enhancement and neuroprotective effects in animal and clinical trials. Recently it has undergone double-blind, placebo-controlled clinical trials in patients with Alzheimer's disease, significantly improving cognitive function and the quality of life.^{8,9}

In one study, 202 patients with the diagnosis of possible or probable Alzheimer's disease were randomly divided into two groups. One group of 100 subjects received 400 micrograms huperzine-A per day for 12 weeks; another group of 102 subjects received a placebo. The results indicated that huperzine-A-treated patients experienced a significant improvement of cognition, behavior, mood and quality of life compared to subjects on the placebo. Mild adverse effects such as insomnia were reported in three percent of the patients.¹⁰

Pyroglutamic Acid

Pyroglutamic acid is an amino acid present in large amounts in the human brain, cerebrospinal fluid, and blood. Pyroglutamic acid is known to support cognitive function and improves memory and learning in rats.

In a randomized, double-blind trial, pyroglutamic acid was compared with a placebo for assessing its efficacy in treating memory deficits in 40 aged subjects.¹¹ Twenty subjects were treated with pyroglutamic acid and 20 with placebo over 60 days. Memory functions were evaluated at baseline and after 60 days of treatment by evaluating performance on six memory tasks. Pyroglutamic acid subjects experienced significant improvement. According to the researchers, "The results suggest that pyroglutamic acid is effective in improving some verbal memory functions in subjects affected by age-related memory decline."

Galantamine

One of the newest and most promising cognitive-enhancing substances is galantamine. Studies have indicated galantamine can offer cognitive support to Alzheimer's disease and dementia patients.

In one study investigating galantamine's effect on behavioral symptoms in Alzheimer's disease, researchers ana-

lyzed data from 2,033 subjects with mild-to-moderate AD who had participated in one of three randomized, double-blind, placebo-controlled trials.¹² In these trials, which lasted from 3, 5, and 6 months, 686 subjects had received treatment with placebo and 1,347 subjects received treatment with 16 mg, 24 mg, or 32 mg of galantamine per day.

After analyzing the data, researchers determined that, compared to placebo-treated subjects, galantamine-treated subjects experienced statistically significant improvements in such symptoms as hallucinations, anxiety, apathy and aberrant motor behaviors.

Galantamine also may alleviate some of the cognitive symptoms of schizophrenia, according to a small study, although larger trials are needed to confirm these results.¹³

Choline and Phosphatidylserine

Because the neurotransmitter acetylcholine plays an important role in brain health, supplementing with substances that boost acetylcholine levels may support healthy memory. CDP-choline and phosphatidylserine have both been shown to boost acetylcholine levels.

A review of cognitive enhancing substances in the November-December 2003 issue of the journal *Nutrition*, noted that, in animals, phosphatidylserine attenuated many neuronal effects of aging and restored normal memory on a variety of tasks.¹⁴ In older adults with probable Alzheimer's disease, a single study failed to demonstrate positive effects of phosphatidylserine on memory performance. For older adults with moderate cognitive impairment, however, phosphatidylserine has produced consistently modest increases in recall of word lists. Phosphatidylserine also produced consistent benefits on a number of memory tests in a subset of normal adults who performed more poorly than their peers at baseline.

Most of the earlier research, conducted with bovine phosphatidylserine, showed phosphatidylserine could indeed alleviate some of the cognitive decline seen in dementia patients. A more recent, smaller study using soy-derived phosphatidylserine yielded similar results.¹⁵

Phosphatidylserine also has been shown to act as a powerful cortisol-lowering agent. High cortisol levels, often seen as we age and with exposure to chronic stress, have been implicated in cognitive decline, so phosphatidylserine's cortisol-lowering properties can play an important role in alleviating the negative effects stress can have on memory.¹⁶

Conclusion

A discussion of every cognitive enhancing nutrient is beyond the scope of this article. The nutrients profiled above are some of the most effective memory supporting natural substances available. Combining the nutrients mentioned above with other cognitive enhancers such as DMAE, phenylalanine, and ginkgo biloba may help the brain function at its maximum capacity.

References

1. Bianchetti A, Rozzini R, Trabucchi M. Effects of acetyl-L-carnitine in Alzheimer's disease patients unresponsive to acetylcholinesterase inhibitors. *Curr Med Res Opin.* 2003;19(4):350-3.
2. Brooks JO 3rd, Yesavage JA, Carta A, Bravi D. Acetyl L-carnitine slows decline in younger patients with Alzheimer's disease: a reanalysis of a double-blind, placebo-controlled study using the trilinear approach. *Int Psychogeriatr.* 1998 Jun;10(2):193-203.
3. Montgomery SA, Thal LJ, Amrein R. Meta-analysis of double blind randomized controlled clinical trials of acetyl-L-carnitine versus placebo in the treatment of mild cognitive impairment and mild Alzheimer's disease. *Int Clin Psychopharmacol.* 2003 Mar;18(2):61-71.
4. McDaniel MA, Maier SF, Einstein GO. "Brain-specific" nutrients: a memory cure? 2003 Nov-Dec;19(11-12):957-75.
5. Szatmari SZ, Whitehouse PJ. Vinpocetine for cognitive impairment and dementia. *Cochrane Database Syst Rev.* 2003;(1):CD003119.
6. Kiss B, Karpati E. [Mechanism of action of vinpocetine] [Article in Hungarian]. *Acta Pharm Hung.* 1996 Sep;66(5):213-24.
7. Jiang H, Luo X, Bai D. Progress in clinical, pharmacological, chemical and structural biological studies of huperzine A: a drug of traditional chinese medicine origin for the treatment of Alzheimer's disease. *Curr Med Chem.* 2003 Nov;10(21):2231-52.
8. No authors listed. Huperzine A. *Drugs R D.* 2004;5(1):44-5.
9. Zangara A. The psychopharmacology of huperzine A: an alkaloid with cognitive enhancing and neuroprotective properties of interest in the treatment of Alzheimer's disease. *Pharmacol Biochem Behav.* 2003 Jun;75(3):675-86.
10. Zhang Z, Wang X, Chen Q, Shu L, Wang J, Shan G. [Clinical efficacy and safety of huperzine Alpha in treatment of mild to moderate Alzheimer disease, a placebo-controlled, double-blind, randomized trial]. [Article in Chinese]. *Zhonghua Yi Xue Za Zhi.* 2002 Jul 25;82(14):941-4.
11. Grioli S, Lomeo C, Quattropani MC, Spignoli G, Villardita C. Pyroglutamic acid improves the age associated memory impairment. *Fundam Clin Pharmacol.* 1990;4(2):169-73.
12. Herrmann N, Rabheru K, Wang J, Binder C. Galantamine Treatment of Problematic Behavior in Alzheimer Disease: Post-Hoc Analysis of Pooled Data From Three Large Trials. *Am J Geriatr Psychiatry.* 2005 Jun;13(6):527-534.
13. Bora E, Veznedaroglu B, Kayahan B. The effect of galantamine added to clozapine on cognition of five patients with schizophrenia. *Clin Neuropharmacol.* 2005 May-Jun;28(3):139-41.
14. McDaniel MA, Maier SF, Einstein GO. "Brain-specific" nutrients: a memory cure?. *Nutrition.* 2003 Nov-Dec;19(11-12):957-75.
15. Schreiber S, Kampf-Sherf O, Gorfine M, Kelly D, Oppenheim Y, Lerer B. An open trial of plant-source derived phosphatidylserine for treatment of age-related cognitive decline. *Isr J Psychiatry Relat Sci.* 2000;37(4):302-7.
16. Hellhammer J, Fries E, Buss C, Engert V, Tuch A, Rutenberg D, Hellhammer D. Effects of soy lecithin phosphatidic acid and phosphatidylserine complex (PAS) on the endocrine and psychological responses to mental stress. *Stress.* 2004 Jun;7(2):119-26.

Testing for Iodine Deficiency

Whole Body Levels Crucial for Thyroid and Breast Health

by VRP Staff

Iodine is essential for health, although it has been unjustly maligned throughout much of the 20th century. Iodine plays an important role in thyroid and breast health as well as protecting against certain forms of cancer.

Organic iodine is toxic to cells (cytotoxic) and produces severe side effects. The inorganic form, however, is not only safe, but also highly beneficial. Unfortunately, the severe side effects of iodine-containing drugs have been attributed to inorganic iodine/iodide, even though published studies demonstrate that the organic molecule is cytotoxic, not the inorganic iodine bound to this molecule.¹

The last national nutritional survey showed a trend of decreasing iodine intake by the US population.^{2,3} Currently 15 percent of the US adult female population excreted in their urine less than 0.05 mg iodide/L, a level classified by the World Health Organization (WHO) as iodine deficiency. As iodine levels in the United States declined, autoimmune thyroid disorders and breast, prostate, thyroid, endometrial and ovarian cancers increased.²

Daily iodine intake levels set by the WHO were recommended with the goal of preventing simple goiter and not for nourishing the whole body with the amount of iodine it needs. This approach can be disastrous because of the 50 mg of iodine found in the human body, only 10 to 15 mg is found in the thyroid.

Surprisingly, the breast is a substantial reservoir for iodine. When iodine is ingested, the thyroid uses 6 mg and the rest of the body uses 8 mg. The breasts use about 5 mg of the non-thyroid amount. Countries with the highest iodine consumption have the lowest breast cancer incidence.² Researchers have estimated that in both women and female rats, the amount of iodine required for protection against breast cancer and fibrocystic breast disease is at least 20 to 40 times the amount required for control of goiter.^{4,5}

Modern day humans are exposed to an onslaught of goitrogens—substances that block iodine absorption and inhibit the thyroid gland. In the early 1960s, iodine was added to bread as a dough conditioner. But in the 1980s, bromine replaced iodine in the bread-making process.⁶

Bromide is known to cause goiters, the term for enlarged thyroid glands, because it competes with iodine for use by the body, producing a relative iodine deficiency even when iodine intake is sufficient.⁷ Sangster, et al reported a decreased ability to concentrate and sleepiness in normal male subjects ingesting sodium bromide.⁸ These symptoms are consistent with hypothyroidism caused by iodine deficiency.

Iodine was first added to sodium chloride (table salt) in the 1920s in the US. That practice gave a false sense of iodine sufficiency and resulted in the public relying on iodized salt for supplementation instead of the previously used forms of iodine and iodide found in the Lugol solution, a 5 percent solution of 50 mg iodine and 100 mg potassium iodide per milliliter that was commonly used by medical practitioners. However, by the 1950s, most physicians forgot their predecessors were using amounts of iodine/iodide two orders of magnitude greater than the amounts present in the average daily consumption of table salt. In addition, although supplementation with both iodine and iodide produces the most desirable effects, table salt supplies only iodine.

Hypothyroidism

Iodine deficiency is likely one of the causes of the current hypothyroid epidemic. In several communities worldwide, an increased incidence of chronic autoimmune thyroiditis (inflammation of the thyroid gland) was reported following the adding of iodine to table salt.⁹ Mayo Clinic researchers studied the average annual incidence of Hashimoto's thyroiditis (a type of autoimmune thyroiditis that causes hypothyroidism) among women of Olmsted County, Minnesota during three consecutive periods from 1935 to 1967.¹⁰ They found there was a progressive increase in the incidence of Hashimoto's thyroiditis after the introduction of iodinated table salt.

Prior to the iodination of salt, autoimmune thyroiditis was almost nonexistent in the US although Lugol solution and potassium iodide were used extensively in medical practice in amounts two orders of magnitude greater than the average daily amount ingested from iodized

salt. This suggests that inadequate iodine intake aggravated by goitrogens, not excess iodide, was the cause of this condition.^{9,11}

In addition, the Japanese, who consume plenty of iodine-rich seaweed, have an extremely low incidence of iodine-deficiency goiter and hypothyroidism.¹²

Graves' Disease

Graves' disease represents up to 90 percent of hyperthyroidism. Today, goitrogenic drugs and radioactive iodine are used to manage this condition. However, iodine was used in the treatment of toxic goiter as early as 1840.¹³ Thompson, et al, in a 1930 publication, quoted several authors in the late 1800s and early 1900s who used Lugol solution alone successfully in Graves' disease, with complete remission, eliminating the need for surgery.^{14,15}

Iodine Testing

A user-friendly, oral loading test can detect iodine deficiencies. Inorganic iodine is an ideal element for this test because it is absorbed by the gastrointestinal tract and is highly bioavailable with most of the ingested inorganic iodine/iodide excreted in the urine.¹⁶

Testing involves collecting urine immediately upon arising in the morning to use in what's called a spot test. Then, 50 mg. of potassium iodide and iodine is ingested. Urine is collected throughout the day until the first urine of the next morning. The samples, including the baseline spot test, are shipped to the lab.

If the body has sufficient iodine, at least 90 percent will be excreted in the urine. In iodine deficiency, however, the body will hold on to some of the iodine to compensate for the deficiency. The more iodine that remains in the body, the more a person is iodine deficient and needs to begin supplementation.

After determining an iodine deficiency, supplementation should begin gradually, because iodine mobilizes toxic metals and goitrogenic substances from their storage sites potentially increasing peripheral levels high enough to cause symptoms. Testing should be repeated every three to four months to monitor proper iodine doses.

Continued on page 14

D-Mannose

Continued from page 3

uous UTIs for her entire life that had failed to respond to every antibiotic therapy her physicians tried (72 doctors in all!). At the end of their rope, her doctors were now considering a kidney transplant, since her kidneys were starting to fail due to years of chronic infection. Since urine culture showed her UTI was due to *E. coli*, she was started on D-mannose (1 tsp in a glass of water every 2-3 hours). Within 48 hours, her infection had vanished, and her kidneys were saved!

D-mannose can also be very effective in cases of "honeymoon cystitis." It's not uncommon for women to avoid sex because they get a bladder infection nearly "every time" they have intercourse. If a urine culture shows the presence of *E. coli*, taking D-mannose, 1 teaspoon 1 hour prior to intercourse—will mostly likely completely eliminate further infections.

Physicians experienced with D-mannose report that women prone to very frequent recurrent UTIs that are not necessarily related to sexual intercourse can also often benefit

from taking D-mannose preventively. To save expense, some women have been able to "taper down" their dosage and dose frequency.

By far the most frequent success with D-mannose has been achieved by the thousands of women who have suffered single (non-recurrent) episodes of bladder infection. In over 90 percent of such cases, 1 teaspoon of D-mannose every 2 to 3 hours usually clears the infection in 1 to 3 days.

Try D-Mannose First!

Ninety percent of the time, UTI is caused by *E. coli* and will respond to D-mannose treatment with significant symptom reduction within 24 hours. (Even though symptoms are improved within 24 hours, D-mannose should be continued for 2 to 3 days after the last symptom is gone, just to "make sure.")

A Word of Caution

If a UTI treated with D-mannose does not show significant improvement within 24 hours (about 10 percent of cases), it is likely that the causative organism is not *E. coli*, and a visit to the doctor for a conventional antibiotic may therefore be in order.

References

- Harrington RD, Hooton TM. Urinary tract infection risk factors and gender. *J Genit Specif Med*. 2000;3:27-34.
- Kunin CM. Urinary tract infections in females. *Clin Infect Dis*. 1994;18:1-10; quiz 11-2.
- Ikaheimo R, Siitonen A, Heiskanen T, et al. Recurrence of urinary tract infection in a primary care setting: analysis of a 1-year follow-up of 179 women. *Clin Infect Dis*. 1996;22:91-9.
- Foxman B. Recurring urinary tract infection: incidence and risk factors. *Am J Public Health*. 1990;80:331-3.
- Norden CW, Green GM, Kass EH. Antibacterial mechanisms of the urinary bladder. *J Clin Invest*. 1968;47:2689-700.
- Fowler JE, Jr, Stamey TA. Studies of introital colonization in women with recurrent urinary infections. VII. The role of bacterial adherence. *J Urol*. 1977;117:472-6.
- Ofek I, Goldhar J, Eshdat Y, Sharon N. The importance of mannose specific adhesins (lectins) in infections caused by *Escherichia coli*. *Scand J Infect Dis Suppl*. 1982;33:61-7.
- Ofek I, Crouch E, Keisari Y. The role of C-type lectins in the innate immunity against pulmonary pathogens. *Adv Exp Med Biol*. 2000;479:27-36.
- Ofek I, Beachey EH. Mannose binding and epithelial cell adherence of *Escherichia coli*. *Infect Immun*. 1978;22:247-54.
- Bar-Shavit Z, Goldman R, Ofek I, Sharon N, Mirelman D. Mannose-binding activity of *Escherichia coli*: a determinant of attachment and ingestion of the bacteria by macrophages. *Infect Immun*. 1980;29:417-24.
- Herman RH. Mannose metabolism. I. *Am J Clin Nutr*. 1971;24:488-98.
- Deuel H, Hallman L, Murray S, Hilliard J. Studies on ketosis: XV. The comparative metabolism of d-mannose and d-glucose. *J Biol Chem*. 1938;125:79-85.
- Michaels E, Chmiel J, Plotkin B, Schaeffer A. Effect of D-mannose and D-glucose on *Escherichia coli* bacteriuria in rats. *Urol Res*. 1983;11:97-102.
- Alton G, Kjaergaard S, Etchison JR, Skovby F, Freeze HH. Oral ingestion of mannose elevates blood mannose levels: a first step toward a potential therapy for carbohydrate-deficient glycoprotein syndrome type I. *Biochem Mol Med*. 1997;60:127-33.

Lithium

Continued from page 7

Other Uses for Lithium Orotate

Lithium orotate has also been used with success in alleviating the pain from migraine and cluster headaches, low white blood cell counts, juvenile convulsive disease, alcoholism and liver disorders.¹⁸ Nieper also reports that patients with myopia (nearsightedness) and glaucoma often benefit from the slight dehydrating effect of lithium on the eye, resulting in improvement in vision and reduction of intraocular pressure.¹⁷

References:

- Aronson JK, Reynolds DJM. ABC of monitoring drug therapy: lithium. *BMJ*. 1992;305: 1273-1276.
- Schou M. Effects of long-term lithium treatment on kidney function: an overview. *J Psychiat Res*. 1988;22:287-296.
- Waller DG, Edwards TG. Lithium and the kidney: an update. *Psychiol Mod*. 1989; 19:825-831.
- Gitlin MJ. Lithium-induced renal insufficiency. *J Clin Psychopharmacol*. 1993; 13:276-279.
- Kallner G, Petterson IJ. Renal, thyroid and parathyroid function during lithium treatment: laboratory test in 207 people treated for 1-30 years. *Acta Psychiatr Scand*. 1995;91:48-51.
- Baastup PC, Schou M. Lithium as a prophylactic agent: its effect against recurrent depressions and manic-depressive psychosis. *Arch Gen Psychiatry*. 1967; 16:162-172.
- Goodwin FK, Jamison KR. *Manic-Depressive Illness*. Oxford, England: Oxford University Press; 1990.
- Mueller-Oerlinghausen D, Ahrens B, Volk J, Grof P, Grof E, Schou M, Vestergaard P, Lenz G, Simhandl C, Tlau K, Wolf R. Reduced mortality of manic-depressive patients in long-term

lithium treatment, an international collaborative study by IGSLL. *Psychiatry Res*. 1991;36:329-331.

- Ahrens B, Mueller-Oerlinghausen B, Schou M, Wolf T, Alda M, Grof E, Grof P, Lejiz G, Simhandl C, Thau K, Vestergaard P, Wolf R, Moeller H. Cardiovascular and suicide mortality of affective disorders may be reduced by lithium prophylaxis. *J Affect Dis*. 1995;33:67-75.
- Mueller-Oerlinghausen B, Mueser-Causemam B, Volk J. Suicides and parasuicides in a high-risk patient group on and off lithium long-term medication. *J Affect Dis*. 1992;25: 261-270.
- Felber NV, Kyber A. Suizide und Parasuizide wachrend und abetadserhalb einer Lithiumprophylaxe. In: Mueller-Oerlinghausen B, Berghoef A, eds. *Ziele und Ergebnisse der medikagivitoeseeyi I-i-opiylalce affektiver Psychoseii*. Stuttgart, Germany, Thieme; 1994:53-59.
- Thies-Flechner K, Seibert W, Walther A, Greil W, Mueller-Oerlinghausen B. Suizide bei rezidivprophylaktisch behandelten Patienten mit affektiven Psychosen. In: Mueller-Oerlinghausen B, Berghoef A, eds. *Ziele und Ergebnisse der medikamentoesen Prophylaxe offekkliver Psychosen*. Stuttgart, Germany, Thieme; 1994:61-64.
- Schou M. Mortality-lowering effect of prophylactic lithium treatment, a look at the evidence. *Pharmacopsychiatry*. 1995;28: 1.
- Souza FGM, Goodwin GM. Lithium treatment and prophylaxis in unipolar depression: a meta-analysis. *Br J Psychiatry*. 1991; 158:666-675.
- Johnstone EC, Owens DGC, Lambert MT, Crow TJ, Frith CD, Done DJ. Combination tricyclic, antidepressant and lithium maintenance medication in unipolar and bipolar depressed patients. *J Affect Dis*. 1990;20:225-233.
- Prien RF, Kupfer DJ, Mansky PA, Small JG, Iuason VB, Voss CB, Johnson WE. Drug therapy in the prevention of recurrences in unipolar and bipolar affective disorders. *Arch Gen Psychiatry*. 1984;41:1096-1104.
- Nieper HA. The clinical application of lithium orotate. *Agressologie* 14(6). 407-411, 1973.
- Sartori RE. Lithium orotate in the treatment of alcoholism and related conditions. *Alcohol* 1986 Mar; 3 (2): 97-100.
- Nieper HA. The curative effect of a combination of Calcium-orotate and Lithium orotate on primary and secondary chronic hepatitis and primary and secondary liver cirrhosis. From lecture Intl Acad of Prevent Med, Washington, DC March 9, 1974.

Customers' Corner Supplement Index

From pages 8-9

Product	Code
5-HTP	5765
AdaptaPhase® I	1910
AdaptaPhase® II	1920
Betaine Free Base	1412
CarnoSee®	9126
Cortisol Control	7373
DHEA	6371
DMAE 100 Plus	1320
Extension I.Q.	2193
Forskolin Extract	5881
Fumaric Acid	6671
GLA	3250
Glutathione Plus	4341
Huperzine-A	5451
HyperHealth® CD-ROM	9820
L-Tryptophan	0874
Lipoic Acid	3455
Lithium Orotate	7241
N-Acetyl-Cysteine (NAC)	4155
Phosphatidylserine 100 Plus	3386
Unique Sweet® (Xylitol Crystals) ..	9303

Integrative Animal Health Care

by Randy Aronson, VMD

The integrative approach for me can best be summarized in the mnemonic P.E.T.S. “P” standing for proper nutrition, “E” for exercise, “T” for training, and “S” for stress reduction.

The building block for great health is nutrition and thus we have created many core nutritional supplements at *Vitamin Research Products* just to bring your pet’s nutritional levels to the healthiest they can be. I have written about the importance of feeding your pet a super premium kibble and/or canned food, home cooking, or a raw food diet. I always emphasize avoiding byproducts, meals and excess grains in our pets’ foods. Also, our soils have been depleted of many of the essential vitamins, minerals, amino acids and fatty acids that we need to include for a healthy pet diet. In my veterinary practice I speak to my clients about core supplementation with *Dog or Cat Vites*, *Natural Whole Food Concentrate*, and one of the fatty acid supplements like *Ethyl EPA*, *Neptune Krill Oil*, or *Flax Seed*. For my geriatric patients I will also add *Rejuva-Pet*.

It is critical for your pet to have a regular, well thought about exercise program. The benefits of taking walks, jogs, and runs with your dog or using bottle caps or making aluminum foil balls to exercise your cat are immeasurable. Not only will this keep your pet happy but will avoid the ever increasing problem of pet obesity. Associated with the state of obesity, comes the problems of diabetes,

Cushing’s disease and fatty liver syndrome. Participating in exercise with your pet will also have innumerable health benefits for you and allow for some great quality time together.

Ninety-four percent of all animals in shelters and humane societies across the United States, two years or older, have had no formal training of any kind. I recommend puppy kindergarten and basic obedience classes to all of my clients. This establishes the alpha person in your pets’ life and makes the pet experience so much more enjoyable. These classes not only teach your dog the importance of listening to specific instructions but also allows incredible socialization with other dogs and their pet parents. There are also classes in advanced obedience, agility and field trials that you may participate in with your pet.

With the increase in stress in both your pet’s life and yours, comes huge cortisol releases. This increase in body cortisol will lower your immunity, create hormonal diseases, and cause weight loss or gain. I have actually seen cases with my fiber-optic endoscope of stress ulcers in the stomach of a dog living in a very abusive household. In canine and feline domestication we have asked our pets to live their lives sharing in ours, so it is very important to try to minimize the stressors that they are exposed to. Many of the sixteen formulated products in our pet line help alleviate and go to correct the imbalances in our pets’ lives. For

“Integrative animal healthcare is an innovative approach that unites the best of holistic, natural techniques with the best of conventional veterinary medicine to offer a new comprehensive form of compassionate healthcare services.”

—Dr. Allen Schoen
author of “Kindred Spirits”

example, *Pet Glucose Control* helps to maintain healthy glucose levels in our dogs’ and cats’ bodies with a human grade array of ingredients.

Thus having an integrative veterinary practice, medically I can combine the best of western or allopathic medicine with acupuncture, chiropractic, Traditional Chinese Medicine, western herbology and nutrition including diets, nutraceuticals and supplements. This allows me and my clients to be proactive not reactive with their best friend’s healthcare.

Dr. Aronson is Director of VRP’s Veterinary Division. By blending Eastern and Western philosophies, he has helped animals and animal-lovers for more than 20 years in his veterinary practice, as well as through his radio call-in show and published columns. To submit a pet question to Dr. Aronson or to subscribe to VRP’s free electronic (e-mail) pet newsletter, visit www.vrppet.com.

Iodine Deficiency

Continued from page 12

References

1. Phillippou G, Koutras DA, Piperinos G, et al. The effect of iodide on serum thyroid hormone levels in normal persons, in hyperthyroid patients, and in hypothyroid patients on thyroxine replacement. *Clin Endocr.* 1992; 36:573-578.
2. Abraham GE, Flechas JD, and Hakala JC. Orthoiodosupplementation: Iodine sufficiency of the whole human body. *The Original Internist.* 2002; 9:30-41.
3. Pennington JA and Schoen SA. Total diet study: Estimated dietary intakes of nutritional elements, 1982-1991. *Internat J Vit Nutr.* 1996; 66:350-362.
4. Eskin B, Grotkowski CE, Connolly CP, et al. Different Tissue Responses for Iodine and Iodide in Rat Thyroid and

Mammary Glands. *Biological Trace Element Research.* 49:9-19, 1995.

5. Roti E, Vagenakis AG. Effect of Excess Iodide: Clinical Aspects. In *Werner and Ingbar’s The Thyroid – Braverman LE and Utiger R-D. Ed. Lippincott, 316-329, 2000.*

6. Pennington JA and Schoen SA. Total diet study: Estimated dietary intakes of nutritional elements, 1982-1991. *Internat J Vit Nutr.* 1996; 66:350-362.

7. Veličky J, Titlbach M, Duskova J, et al. Potassium bromide and the thyroid gland of the rat: morphology and immunohistochemistry, RIA and INNA analysis. *Ann Anat.* 1997; 179:421-431.

8. Sangster B, Blom JL, Sekhuis VM, et al. The influence of sodium bromide in man: A study in human volunteers with special emphasis on the endocrine and the central nervous system. *Fd Chem Toxic.* 1983; 21:409-419.

9. Gaitan E, Nelson NC, and Poole GV. Endemic goiter and endemic thyroid disorders. *World J Surg.* 1991; 15:205-215.

10. Furszyfer J, Kurland LT, Woolner LB, et al. Hashimoto’s

thyroiditis in Olmsted County, Minnesota, 1935 through 1967. *May Clin Proc.* 1970; 45:586-596.

11. Weaver DK, Batsakis JG, and Nishiyama RH. Relationship of iodine to ‘lymphocytic goiters.’ *Arch Surg.* 1968; 98:183-186.

12. Thomas BS, Bulbrook RD, Russell, MJ, et al, Thyroid function in early breast cancer. *Enrop. J Cancer clin, Oncol.* 1983;19:1213-1219.

13. Von Basedow GA. Exophthalmos durch Hyperphorie des Zell gewebca in der Augenhoehle. *Wschrh Ges Heilk.* 1840; 6:197.

14. Thompson Wo, Thompson PK, Brailey AG, et al. Prolonged treatment of exophthalmic goiter by iodine alone. *Arch Int Med.* 1930; 45:481-502.

15. Starr P, Walcott HP, Segall HN, et al. The effect of iodine in exophthalmic goiter. *Arch In Med.* 1924; 34:355-364.

16. Underwood, EJ. *Trace Elements in Human and Animal Nutrition.* Academic Press, New York, NY, p. 271-296, 1977.

Featured Products

Extension I.Q.

For individuals who want to improve or maintain cognitive performance and reduce the effects of stress and aging on the brain, *Extension IQ™* provides select nutrients, vitamins and herbs known to help.* Ingredients in *Extension IQ™* support cerebral circulation, memory, mental acuity and healthy brain functioning.* Acetylcholine is an important cognitive neurotransmitter, and nutrients which promote and protect acetylcholine levels are included.* Other ingredients, such as vinpocetine and ginkgo biloba (standardized to 24 percent ginkgoflavonglycosides), support cerebral microcirculation and help prevent cellular damage.* *Extension IQ™* is formulated for use along with a Vitamin Research Products' daily multiple vitamin and mineral formula. **Recommended dosage:** four to eight capsules per day in divided doses.

• 2193 120 capsules \$23.95

D-Mannose Plus

D-mannose is a naturally occurring simple sugar, closely related to glucose. *D-Mannose Plus* combines d-mannose with cranberry extract to enhance its effectiveness. **Recommended dosage:** one level teaspoon (4.7 grams) in four to six ounces of cold water.

• 5504 141 grams \$34.95

Lithium Orotate

Lithium orotate is 20 times more bio-active than other lithium salts, thereby allowing the individual to take smaller amounts.* Each capsule provides 4.8 mg of elemental lithium. **Recommended dosage:** one capsule twice per day with meals.

• 7241 120 capsules (120 mg) \$11.95

Questions? Call Us!

If you have questions about a product, dosage or how to take it, please call us at **1-800-877-2447**.

Galantamine

Debilitating neurological conditions are challenging for those afflicted and for those who love them. *Galantamine* is a naturally occurring plant extract that has been shown to support and maintain cognitive function and activities of daily living, particularly among seniors.* *Galantamine* helps sustain balanced levels and healthy functioning of acetylcholine, a key neurotransmitter, which is important for optimal memory and cognitive functioning.* Found in nature in the flowering snowflake plant galantamine has such positive and compelling research, that the compound is now being synthetically produced by others at a much higher cost. Vitamin Research Products provides the original, naturally derived plant extract. **Recommended dosage:** one to three capsules per day or as directed by your healthcare professional.

• 8810 60 capsules (4 mg) \$29.95
• 8811 180 capsules (4 mg) \$69.95

Acetyl-L-Carnitine

One of the most effective nutrients used to enhance mental quickness, acetyl-L-carnitine (ALC) has been used for years in Europe.* Studies suggest ALC can improve memory and learning, improve cerebral blood flow and elevate mood.* Clinical research shows the combination of acetyl-L-carnitine with alpha lipoic acid can increase energy levels and improve memory in aging laboratory rats. Researchers attribute this to the quenching of free radicals inside mitochondria the "power plants" of cells.* *Proceedings of the National Academy of Sciences*. Feb. 19, 2002:99: 2264-2269. **Recommended dosage:** one to six capsules per day in divided doses on an empty stomach.

• 4911 60 capsules (500 mg) \$24.95
• 49117 Tri-pack (3 of 4911) \$64.95

Vinpocetine

Research indicates that Vinpocetine increases cerebral ATP function and enhances oxygen and glucose production because of its selective effects on improving cerebral circulation.* It also aids in relaxing smooth muscles (vascular wall), increasing blood flow.* **Recommended dosage:** one capsule three times per day with meals.

• 7141 90 capsules (10 mg) \$19.95

Iodine Test Kit NEW!

This is a 2 part test. The SPOT test is the first urine void of the morning. From this first void, the level of iodide is measured in the urine, to establish a baseline.

The LOADING test is a measurement of whole body sufficiency for iodine. 50 mg of Iodine/Iodide supplement (Iodoral®) is provided with the kit and is ingested (after the spot test) and a 24-hour collection is started at the next void. From the 50 mg ingested for the loading test, the LOADING EXCRETION results will show how many milligrams of iodide are excreted, and what percentage of the 50 mg ingested, is excreted.

Kit includes all collection materials and the means to ship the specimen to the lab free of charge. Full collection instructions are included. Results are provided within 10-15 days from the time the test was received at the lab.

• 9137 2 part test kit \$100.00

Iodoral®

NEW!

Iodoral® is a tablet containing 5 mg iodine and 7.5 mg iodide as the potassium salt. To prevent gastric irritation, the iodine/iodide preparation is absorbed into a colloidal silica excipient; and to eliminate the unpleasant taste of iodine, the tablets are coated with a thin film of pharmaceutical glaze.

After testing deficient in Iodine the suggested dosage to gain whole body sufficiency is 2 *Iodoral* tablets in the morning and 2 in the evening. A retest is suggested after 3 months. Once whole body sufficiency is gained the *Iodoral* maintenance dosage is 1 tablet daily. Persons with thyroid disorders should work closely with their health care professional.

• 9139 90 tablets \$26.00

Pyroglutamic Acid

Found naturally in vegetables, dairy products, meat and fruit, this amino acid is synergistically more effective when teamed with choline. We suggest VRP's *Choline Chloride* for a nutritional one-two punch. **Recommended dosage:** one to three capsules per day.

• 4261 120 capsules (500 mg) \$16.95

*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.



**Vitamin
Research
Products**

Since 1979

4610 Arrowhead Drive, Carson City, NV 89706

PRSRST STD
U.S. POSTAGE
PAID
PERMIT #625
RENO, NV

In This Issue:

SEPTEMBER 2005

Vol. 19, Number 8

\$29.95/Year U.S. (\$39.95/Year International)

Dedicated to the Scientific Pursuit of Better Health

Vitamin Research News



The Energy Homeostat
(Thyroid Complex)
Neuroendocrine Theory of Aging, Part III



D-Mannose: Natural Treatment for
Urinary Tract Infections



Testing for Iodine Deficiency
Whole Body Levels Crucial for Thyroid
and Breast Health



Customers' Corner
• 5-HTP, L-Tryptophan & SSRI • Psoriasis
• CarnoSee® & Glaucoma
• Xylitol & H. Pylori
• Lipic Acid & Weight Loss
• Memory Enhancement
• Post Traumatic Stress Disorder
• ADD/ADHD & Tourette's Syndrome



BREAKING NEWS
Vitamin D: Link Between Abnormal
Receptors and Parkinson's



Lithium Orotate: The Unique Safe
Mineral with Multiple Uses



Cognitive Enhancers: Smart Nutrients
for Boosting Brain Health



PET CARE
Integrative Animal Health Care