Updated for April 2010

Nutritional Treatments for Chronic Hypertension

An Evidence-Based Review of Dietary, Nutritional, Exercise, and Integrative Treatments for **High Blood Pressure**

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"Every day is an opportunity to become healthier!"

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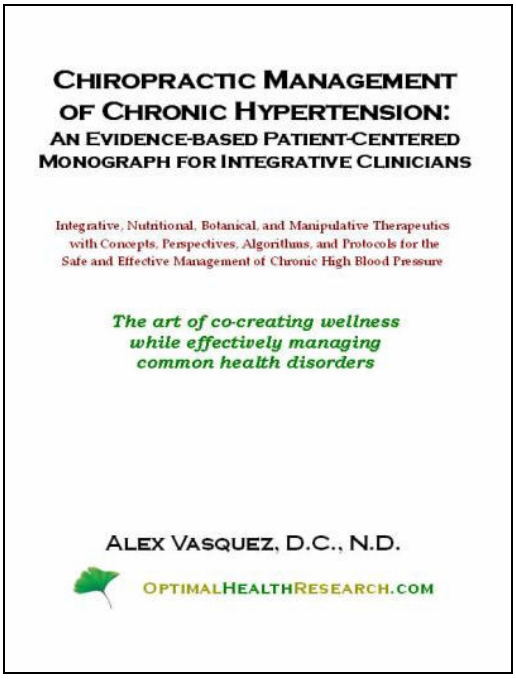
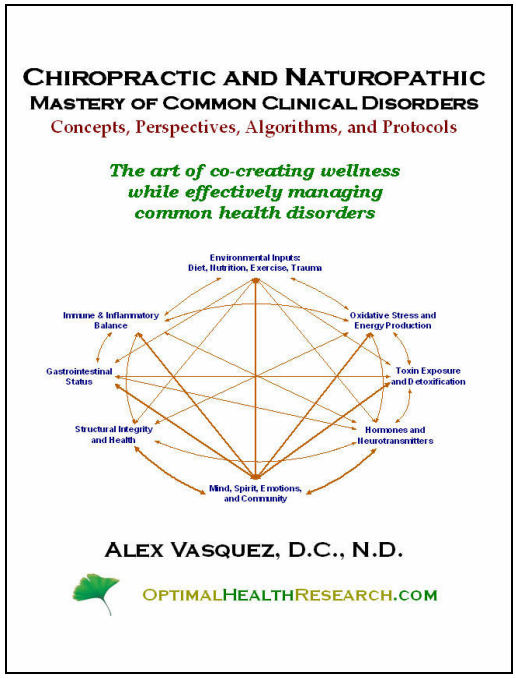
Notice to Readers: This book is written to inform the public of information and therapeutic options relevant to the treatment of primary hypertension, also known as chronic hypertension, and high blood pressure. This book is not a prescription for any individual person, and it is not a substitute for personalized professional care from a doctor. Information and treatments applicable to a specific *condition* may not be appropriate for or applicable to a specific *patient*; this is especially true for patients with concomitant illnesses and those taking pharmaceutical medications. This book has been carefully written and checked for accuracy by the author and professional colleagues. However, in view of the possibility of human error and new discoveries in the biomedical sciences, neither the author nor any party associated in any way with this text warrants that this text is perfect, accurate, or complete in every way, and we disclaim responsibility for harm or loss associated with the application of the material herein. Individual patients in the general public who use the information in this book do so at their own potential risk and benefit.

Notice to Doctors: The information in this book for patients is derived from a textbook for doctors written by Dr Alex Vasquez entitled "*Chiropractic Management of Chronic Hypertension: An Evidence-Based Patient-Centered Monograph for Integrative Clinicians*" available from
http://OptimalHealthResearch.com/monograph_hypertension_chiropractic.html
this monograph on hypertension is an update from the chapter on hypertension published in "*Chiropractic and Naturopathic Mastery of Common Clinical Disorders*" and available from **http://OptimalHealthResearch.com/**





Hypertension (HTN)[1]
High Blood Pressure (HBP)

Introduction & Description:

- Why is hypertension a problem?: Sustained HTN accelerates the development of cardiovascular disease (CVD), which includes heart attack, stroke, and heart failure.
- What are the symptoms?: Most patients have no symptoms and are diagnosed while in a doctor's office (or health fair or drug store).
- How common is it?: HTN is present in about 20-25% of American adults at any one time. The lifetime incidence of HTN is about 90%, meaning that 90% of Americans will have hypertension at some point in their lives. **50 million Americans have HTN**.[2]
- What can be done about it?: Patients diagnosed with hypertension basically have 3 options: ❶ Find the cause of the problem: In about 5-10% of cases, the hypertension is found to be due to another condition, such as kidney disease or a hormone imbalance; these patients are treated by a doctor by addressing the primary problem. ❷ Drugs: Most patients are offered only drugs for their health problems because their medical doctors don't have any training in other methods. It is not

How does hypertension contribute to the 3 types of cardiovascular disease?

Hypertension (HTN) stresses and damages the artery walls; this promotes thickening of the artery wall which results in occlusion of the artery's blood flow. HTN makes the heart overwork by constantly pumping against excess pressure; after many year.

1. **Heart attack**: When blood flow to the heart is interrupted, the result is injury to or "suffocation" of the heart muscle; this generally causes pain ("heart attack") and can cause the heart to stop pumping blood ("sudden heart death").
2. **Stroke**: The blockage of arteries to the brain, or rupture of these vessels due to arterial wall damage, contributes to "stroke", which is rarely referred to as a "brain attack" because it is physiologically analogous to a heart attack.
3. **Heart failure**: Heart failure is a clinical syndrome that results when the heart can no longer function as an efficient pump for blood; HTN causes heart failure by overstressing the heart over many years.

[1] This section on Hypertension was originally published in the first edition of "Chiropractic and Naturopathic Mastery of Common Clinical Disorders" in 2009 http://optimalhealthresearch.com/clinical_mastery.html and was later updated for subsequent editions and for a separate monograph published in print and in digital format: http://optimalhealthresearch.com/monograph_hypertension.

[2] Cordain L, Eaton SB, Sebastian A, Mann N, Lindeberg S, Watkins BA, O'Keefe JH, Brand-Miller J. Origins and evolution of the Western diet: health implications for the 21st century. *Am J Clin Nutr*. 2005 Feb;81(2):341-54 http://www.ajcn.org/cgi/content/full/81/2/341

because of a lack of "science" supporting nutritional treatments; medical doctors even today receive no training in nutrition, so they don't offer it to their patients. The drugs used for hypertension are effective at lowering blood pressure; but lowering blood pressure and improving overall health and longevity are two different things. Drugs are, however, the treatment of choice for acute hypertensive episodes that need to be treated in a hospital setting. ❸ Nutritional and lifestyle interventions: As a researcher and clinician using nutrition to help my patients for many years, I—and other researchers who stay current with the research trends—are convinced that that preventing and treating HTN with diet and nutrition is the best method for reducing the pain, suffering, early death, and high costs associated with hypertension and cardiovascular disease. This guide provides a quick glimpse into some of the nutritional and dietary solutions to the problem of cardiovascular disease and hypertension.

Clinical benefits from a Paleolithic hunter-gatherer diet

- ☑ **significant reductions in blood pressure**
- ☑ improved arterial distensibility
- ☑ **significant reduction in plasma insulin**
- ☑ large significant reductions in total cholesterol, low-density lipoproteins (LDL) and triglycerides
- ☑ consistently improved status of circulatory, carbohydrate and lipid metabolism/physiology

"Conclusions: Even **short-term consumption of a paleolithic type diet improves BP and glucose tolerance, decreases insulin secretion, increases insulin sensitivity and improves lipid profiles without weight loss in healthy sedentary humans**."

Frassetto LA, Schloetter M, Mietus-Synder M, Morris RC Jr, Sebastian A. Metabolic and physiologic improvements from consuming a paleolithic, hunter-gatherer type diet. *Eur J Clin Nutr*. 2009 Feb 11

Let's get right to it. If your goal is to treat *chronic* high blood pressure in the safest and most effective ways possible, then the treatment plan *must* include nutritional supplementation.

Several nutritional supplements have proven to be safer and more effective than drugs for the treatment of hypertension, as you can see in the following table from an article I published in 2006.

Table 2:	
General effectiveness of therapies for chronic essential hypertension	
Short-term supervised fasting:	-60/-17 for severe hypertension and -37/-13 for moderate hypertension
Healthy diet and exercise:	-17/-13
CoQ10 100-225 mg/day:	-17/-12
Sodium restriction:	top range 22/14 – 16/-9
Vitamin D and calcium:	-13/-7
Prescription drugs:	-12/-6 (Reductions of 20/10 require combination therapy.)
Exercise:	-7/-7
Fish oil:	-3/-2
Food allergy elimination:	Variable response, ranging from insignificant to curative.

Drugs—certainly **not** the most effective treatments for chronic hypertension

In the following pages, I review—treatment by treatment—each of the best nutritional interventions for chronic hypertension.

My perspective on this topic is founded upon ❶ my Nutrition training in chiropractic college, ❷ my even more extensive training in Clinical Nutrition in naturopathic medical school, ❸ working with patients for more than 10 years, ❹ performing thousands of patient examinations, lab tests, and treatment plans for thousands of patients, ❺ having published 75 professional articles and 5 textbooks

for doctors, ❻ being recognized internationally as an expert in nutrition and preventive medicine, ❼ successfully completing the coursework for my medical degree at one of the nation's best medical schools—graduation is May 15th, 2010—for my third doctoral degree.

For more information, please see my two main websites at **http://OptimalHealthRESEARCH.com** and **http://OptimalHealthNUTRITION.com**. ***Thank you!***

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The version of the document you are reading was updated on **Monday, March 22, 2010**; if more than 1-2 months have passed, please see our website for any updates. Updates to this information will be posted at our website:
http://OptimalHealthNutrition.com/**hypertension**.asp.

Please see the website for new information before using the information in this document—*thank you*.

Co-Enzyme Q-10: an important molecule already present in each of your cells

What?: All vitamins act as "co-enzymes" which is an abbreviation for the fact that they are "cofactors for enzymes." As such Co-Enzyme Q-10 could have been called "Vitamin Q", and this would have been a lot easier for patients to understand. Much of the early pioneering research on CoQ-10 was performed by Karl Folkers PhD at the University of Texas in Austin.

Co-enzyme Q-10 is also called "ubiquinone" (you'-bick-win'-öne), CoQ-10, and Co-Q. Here, we will refer to it as CoQ-10; it is found in every cell of the body, where it is produced from cholesterol. While it is available in limited amounts from food (average dietary intake of CoQ-10 is 2-5 mg/d), most CoQ-10 in the body is made endogenously, within the body. Some patients—particularly those with migraines, asthma, hypertension, allergies, heart failure and a heart disease called idiopathic dilated cardiomyopathy—may have an inborn or acquired error of metabolism that prevents them from making sufficient amounts of this vitally important substance. These patients tend to benefit from supplementation with CoQ-10. The standard dose for supplementation is 180-240 mg per day according to most studies; however doses ranging from 60 mg up to 1,500 mg can also be used.

How does it work?: CoQ-10 has numerous functions in the body; at the very least these include:

1. **Antioxidant protection**: CoQ-10 protects cells against harmful free radicals that would otherwise promote cellular damage, tissue failure, and aging.
2. **Anti-inflammatory action**: CoQ-10 blocks a molecule called "NF-kappaB" which promotes inflammation. This is probably at least part of the reason why **CoQ-10 helps people with allergies**.
3. **Kidney protection**: Two studies have shown that CoQ-10 can protect and restore kidney function. In two studies among patients with renal failure, many patients were so helped by CoQ-10 that they were able to get off dialysis for their previously "irreversible" renal failure—no wonder the doctors hadn't told their patients about it! ☺
4. **Blood-pressure-lowering benefit**: The focus of this document and this section is to review the research showing that CoQ-10 lowers blood pressure more effectively than single-drug treatment for most patients.

Safety: Because it is present in every cell of the body and is required for life, CoQ-10 is very safe when taken as a dietary supplement. Hardly any risks are present for the vast majority of people. People taking the drug Coumadin (also known as warfarin) should take CoQ-10 a few hours away from their warfarin/Coumadin because CoQ-10 may interfere with the absorption of the drug; these patients should continue to have their regularly scheduled laboratory tests (ie, INR) in order to ensure that their medication continues to work properly. With very high doses of CoQ-10 in the ranges of 1,000 – 3,000 mg, some patients might show signs of mild liver involvement which is reversible when the dose is reduced; most patients don't need to take such high doses and therefore CoQ-10 is very safe for the vast majority of people.

Availability: **We currently use CoEnzyme Q-10 from Vital Nutrients with 100 mg per capsule.** For most patients with hypertension, we use 100-200 mg per day, preferably taken with a small amount of food containing fat (such as milk, eggs, nut butter, or olive oil) to improve absorption.

Click the link below for more details and updates:
http://OptimalHealthNutrition.com/coq10_100mg_60caps.asp

Clinical applications—Focus on High Blood Pressure (Hypertension): High blood pressure (increased pressure of the blood inside the arteries) causes damage to the artery walls and promotes occlusion of arteries; when the blood can no longer flow to the organ being serviced, the organ itself can be damaged

(partially or completely) due to lack of oxygen and nutrient delivery. Occlusion of an artery servicing the heart can result in heart attack, while occlusion of an artery servicing the brain can lead to a stroke; occlusion of an artery to a limb or the intestine can cause that part of the body to be damaged or die. In addition to *heart attack* and *stroke* and other forms of *peripheral vascular disease*, chronic HBP can also cause *heart failure* and *kidney damage*. **Effective lowering of blood pressure in patients with HBP is generally considered the single most important preventive measure in helping people avoid cardiovascular disease (any one of the triad of heart attack, stroke, or heart failure), hypertensive kidney damage, and peripheral vascular disease.**

In hypertensive patients, CoQ-10 doses of 60-120 mg/d can typically lower BP by about -15/-9 mm Hg. CoQ-10 can be safely used with antihypertensive medications and is generally safer than antihypertensive medications. This is not necessarily to say that CoQ-10 is superior in all clinical situations when managing HTN; fast-acting drugs are needed in urgent and emergency situations. However, CoQ-10's numerous collateral benefits and its superior safety make CoQ-10 a very reasonable treatment option for many people with HBP. In the paragraphs that follow here, various representative examples of published research will be reviewed to present CoQ-10's beneficial effects on cardiovascular health.

Research Article #1: Role of coenzyme Q10 (CoQ10) in cardiac disease, hypertension and Meniere-like syndrome: In this excellent review that covers the role of CoQ-10 in the treatment of various cardiovascular diseases (heart failure, HTN, heart attack, arrhythmia, Kumar et al[3] review the research literature to conclude that CoQ-10 provides major clinical benefit in all of these conditions and without adverse effects. Cardioprotective properties of CoQ-10 include its role as an antioxidant, vasodilator, and membrane stabilizer in addition to its ability to decrease blood viscosity (i.e., CoQ-10 makes blood flow more easily), proinflammatory chemicals called cytokines, insulin resistance (i.e., CoQ-10 makes insulin work better; this is very important for diabetics), and to help the heart function as a more efficient pump. According to this review article, **blood pressure reduction with use of CoQ10 can be as high as -18/-11,** depending on the dose and the attained blood levels. To improve effectiveness, other common nutritional deficiencies such as magnesium, potassium, and vitamin D can also be addressed to improve

[3] Kumar A, Kaur H, Devi P, Mohan V. Role of coenzyme Q10 (CoQ10) in cardiac disease, hypertension and Meniere-like syndrome. *Pharmacol Ther*. 2009 Dec;124(3):259-68

effectiveness and to promote further normalization of blood pressure. Maximal improvement might take 4-8 weeks; however, some patients will respond more quickly—within the first week. Patients with HBP who are taking medications need to monitor their blood pressure on a regular basis so that once CoQ-10 begins to take effect (perhaps as soon as the first week), their drug doses can be reduced so that blood pressure does not become *too low*. By itself, CoQ-10 never causes blood pressure to get too low; however, if someone has high blood pressure due to CoQ-10 deficiency and then that deficiency is corrected, blood pressure lowering drugs—if still being used—could cause the blood pressure to get too low. Low blood pressure can contribute to a feeling of fatigue, but it can also cause dizziness and faintness.

Research Article #2: Randomized, double-blind, placebo-controlled trial of coenzyme Q10 in isolated systolic hypertension: Twice daily administration of 60 mg of oral CoQ-10 (total dose per day = 120 mg) was given to 46 men and 37 women with isolated systolic hypertension in a 12-week randomized, double-blind, placebo-controlled trial. The authors of this study published in *Southern Medical Journal* concluded, "RESULTS: The mean reduction in systolic blood pressure of the CoQ-treated group was -17.8 mm Hg. None of the patients exhibited orthostatic blood pressure changes [This means that the patients did not get dizzy or faint]. CONCLUSIONS: Our results suggest **CoQ may be safely offered to hypertensive patients as an alternative treatment option**."[4]

Research Article #3: Clinical trial with water-soluble CoQ-10: Effect of hydrosoluble coenzyme Q10 on blood pressures and insulin resistance in hypertensive patients with coronary artery disease: In this randomized double-blind placebo-controlled trial among 59 patients receiving antihypertensive medication and with coronary artery disease, patients received oral coenzyme Q10 (60 mg twice daily = 120 mg per day) for 8 weeks. **In the coenzyme Q10 group, beneficial reductions were noted in systolic and diastolic blood pressures. The average blood pressure of 168/106 was reduced by CoQ-10 to 152/97 for a drop of -16/-9.** Other benefits included a reduction in heart rate (ie, heart rate was reduced because the heart was working more efficiently), reduction in waist–hip ratio (ie, better body fat distribution), insulin and glucose levels (ie, better diabetic control), reduction in triglyceride levels (ie, reductions in the amount of fat in the blood) and reductions in angina (ie, less chest pain).

[4] Burke BE, Neuenschwander R, Olson RD. Randomized, double-blind, placebo-controlled trial of coenzyme Q10 in isolated systolic hypertension. *South Med J*. 2001 Nov;94(11):1112-7

An additional benefit is that CoQ-10 supplementation raised the "good cholesterol" known as HDL-cholesterol. The authors of this research, published in *Journal of Human Hypertension*, concluded, "These findings indicate that **treatment with coenzyme Q10 decreases blood pressure** possibly by decreasing oxidative stress and insulin response in patients with known hypertension receiving conventional antihypertensive drugs."[5]

Research Article #4: Open trial using average dose of CoQ-10 225 mg/d for the treatment of essential hypertension with coenzyme Q10: This is an important study because it is one of the few studies that actually tailored the dose of the CoQ-10 to the patient's response by monitoring CoQ-10 levels in the blood. Researchers customized the dose to attain blood CoQ10 levels of at least 2 mcg/ml. The authors of this study, published in a medical journal named *Molecular Aspects of Medicine*, describe the design and findings of their study as follows: "A total of 109 patients with symptomatic essential hypertension presenting to a private cardiology practice were observed after the addition of **CoQ10 (average dose, 225 mg/day by mouth)** to their existing antihypertensive drug regimen. … **A definite and gradual improvement in functional status was observed** with the concomitant **need to gradually decrease antihypertensive drug therapy within the first one to six months.** Thereafter, clinical status and cardiovascular drug requirements stabilized with a **significantly improved systolic and diastolic blood pressure**. Overall New York Heart Association (NYHA) functional class improved from a mean of 2.40 to 1.36 ($P < 0.001$) and **51% of patients came completely off of between one and three antihypertensive drugs at an average of 4.4 months after starting CoQ10**. … In the 9.4% of patients with echocardiograms both before and during treatment, we observed a highly significant improvement in left ventricular wall thickness and diastolic function."[6]

Research Article #5: Open trial with low-dose CoQ-10 reduced BP -18/-12, reduced total cholesterol -9, and raised HDL +2: In this open trial with no comparative placebo group (*just like clinical practice*!), 26 patients with essential hypertension received oral CoQ-10 50 mg twice daily (100 mg per day) for 10 weeks. For this study published in *Molecular Aspects of*

[5] Singh RB, Niaz MA, Rastogi SS, Shukla PK, Thakur AS. Effect of hydrosoluble coenzyme Q10 on blood pressures and insulin resistance in hypertensive patients with coronary artery disease. *J Hum Hypertens*. 1999 Mar;13(3):203-8
[6] Langsjoen P, Langsjoen P, Willis R, Folkers K. Treatment of essential hypertension with coenzyme Q10. *Mol Aspects Med*. 1994;15 Suppl:S265-72

Medicine[7], major findings were as follows: systolic blood pressure (SBP) decreased from 164.5 to 146.7 mmHg and diastolic blood pressure (DBP) decreased from 98.1 to 86.1 mmHg; thus **the blood pressure reduction by CoQ-10 was -17.8/-12.** Serum total cholesterol decreased from 222.9 mg/dl to 213.3 mg/dl and the good HDL cholesterol increased from 41.1 mg/dl to 43.1 mg/dl. In a subset of patients for whom appropriate measures were obtained, total peripheral resistance decreased from 2,283 to 1,627 dyne/sec/cm-5—this means that their artery walls were more distensible, and arterial wall distensibility is an important marker for cardiovascular health. These anti-hypertensive results, the collateral benefits, and the absence of adverse effects make CoQ-10 appear superior to drug treatment for chronic HTN.

Research Article #6: Correlational study: CoQ-10 is an independent predictor of mortality in chronic heart failure: Plasma samples from 236 patients admitted to the hospital with heart failure were assayed for LDL and total cholesterol, and total CoQ-10. Authors of this study, published in *American Journal of Cardiology*, wrote, "CONCLUSIONS: Plasma CoQ-10 concentration was an independent predictor of mortality in this cohort. The **CoQ-10 deficiency might be detrimental to the long-term prognosis of CHF [chronic heart failure],** and there is a rationale for controlled intervention studies with CoQ-10."[8]

Common dose: 100-300 mg per day; generally we use 200 mg per day; some studies have used up to 500 or 1,000 mg per day.

Drug interactions: CoQ-10 appears to reduce the effectiveness of the anticoagulant drug coumadin/warfarin; we suspect that this is due to reduced absorption of the drug.

Dr Vasquez's Summary: Except for the rare drug interaction with coumadin/warfarin mentioned above, **I believe all patients with hypertension and heart disease of any kind should be taking CoQ-10 at 200 mg per day.** The safety, effectiveness, and numerous benefits are well proven.

[7] Digiesi V, Cantini F, Oradei A, Bisi G, Guarino GC, Brocchi A, Bellandi F, Mancini M, Littarru GP. Coenzyme Q10 in essential hypertension. *Mol Aspects Med*. 1994;15 Suppl:s257-63

[8] Molyneux SL, Florkowski CM, George PM, Pilbrow AP, Frampton CM, Lever M, Richards AM. Coenzyme Q10: an independent predictor of mortality in chronic heart failure. *J Am Coll Cardiol*. 2008 Oct 28;52(18):1435-41

Click the link below for more details and updates:
http://optimalhealthnutrition.com/details_coq10.asp

Laboratory testing: Laboratory testing is not required before the use of CoQ-10 supplementation, and certainly the vast majority of people who have benefited from and who have use CoQ-10 supplementation have done so without the use of laboratory testing. As mentioned previously certain diseases are associated with low blood levels of CoQ-10. Whether this deficiency causes the disease or results from the disease is sometimes not clear; but what is clear is that these patient groups tend to benefit from CoQ-10 supplementation. The conditions with the best research support for showing benefit from CoQ-10 supplementation are migraine headaches, asthma (particularly in children), high blood pressure (chronic hypertension), allergies, heart failure and a heart disease called idiopathic dilated cardiomyopathy. New research has also shown benefit for patients with chronic renal failure, including patients requiring dialysis. Typical blood levels of CoQ-10 range from 0.7-1 mcg/ml; however clinical benefit in the treatment of cardiovascular disease may require serum levels of 2-3 and up to 4

mcg/ml to attain maximal clinical benefit.[9] While testing of serum CoQ-10 levels is not necessary before starting treatment; patients who do not benefit as expected should have their CoQ-10 levels measured and supplementation increased to attain optimal serum levels before deciding that treatment is ineffective. While clinical benefit may occur within the first week of supplementation, maximal improvement generally takes 4-8 weeks in order to obtain tissue saturation and beneficial changes in cell physiology.

Want to test your blood level of CoQ-10 to see if you need or are benefiting from your CoQ-10 supplementation? ***WE CAN DO THAT!*** The blood test for total CoQ-10 levels costs about $90 for our patients and customers; see our website at http://optimalhealthnutrition.com/lab_tests.asp for details and ordering information.

To order lab tests, see http://optimalhealthnutrition.com/lab_tests.asp

[9] Kumar A, Kaur H, Devi P, Mohan V. Role of coenzyme Q10 (CoQ10) in cardiac disease, hypertension and Meniere-like syndrome. *Pharmacol Ther*. 2009 Dec;124(3):259-68

Vitamin D3: Clearly, most people are deficient in this vitamin because of lack of full-body sun exposure due to living indoors and due to always being "protected" from the sun.

What?: "Vitamin D" is more accurately know as vitamin D3, to distinguish it from vitamin D2, which is made from yeast and fungi and should generally not be used as a human nutrient.

Vitamin D3 is produced in the skin following sun exposure, and it is also available in very small amounts from some foods. The problem is that we cannot practically get enough from foods, and we all generally live indoors or well-clothed most of the time, so we don't get enough sun exposure on our skin to produce enough vitamin D to keep us optimally healthy.

Essentially every study ever published has shown that vitamin D3 deficiency is pervasive throughout America and most industrialized nations. This is also true in the southern United States where the prevalence of vitamin D deficiency is up in the range of greater than 90%. I recall working with a patient in Houston Texas whose blood vitamin D level was so low that it was **UNDETECTABLE** by the medical laboratory.

How does it work?: Like CoQ-10 mentioned previously, vitamin D has many functions, including antiinflammatory and antihypertensive roles. Vitamin D helps to regulate the level of calcium in blood vessel walls so that the walls relax more easily and thus take the pressure off the blood volume.

Safety: Vitamin D is very safe for most people when used at doses ranging from 2,000 – 10,000 units per day. A powerful review article published in 1999 strongly showed that vitamin D is very safe and that previous "cautions" against appropriate dosing were scientifically unfounded; you can read this article at http://www.ajcn.org/cgi/content/full/69/5/842

Common dose: The physiologic requirement for vitamin D3 in adult men is 3,000 – 5,000 units per day, so generally we use 4,000 units per day for most adults. This is the dose that is commonly being used in most studies these days. For example, you can see this article showing that people who take 4,000 units per day have more energy and an improved sense of wellbeing: http://www.nutritionj.com/content/3/1/8

Drug interactions: There are very few drug interactions with vitamin D, because vitamin D is a normal part of human physiology. Patients taking hydrochlorothiazide or statin drugs should probably check with their doctor and/or have blood tests to measure calcium and cholesterol levels, respectively, after about 1 month of taking vitamin D.

We use vitamin D in the form of either capsules or liquid, and we have plenty of information and articles located here:

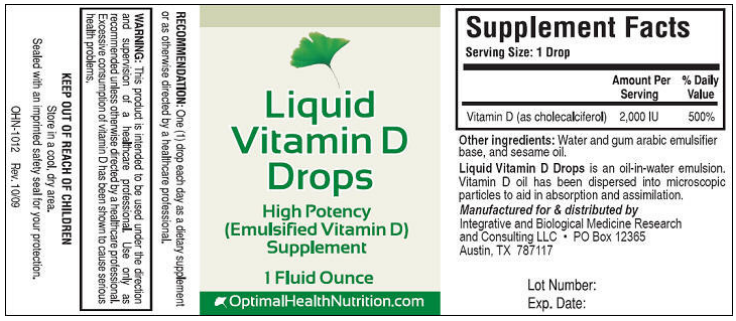
Supplement Facts

serving size: 1 capsule
servings per container: 90

	amount per serving
Vitamin D3 (Cholecalciferol from Lanolin)	2000iu

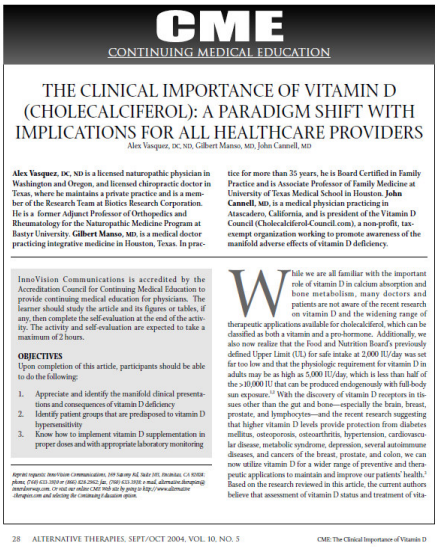
Independently tested for authenticity, potency, stability and bacteria, yeast and mold counts.

http://optimalhealthnutrition.com/vitamin_d_caps_90_capsules_2000_iu.asp



http://optimalhealthnutrition.com/proddetail.asp?prod=03a_Vitamin-D_liquid

Dr Vasquez's Summary: I've run vitamin D blood tests on hundreds of people in the southern USA and have seen nearly every test result come back showing deficiency. In fact, I've only seen one patient ever have a normal result in the optimal range, and she was a 18-year-old soccer player. We use vitamin D supplementation in essentially every patient we see. Benefits include anti-depressant actions, alleviation of chronic pain, suppression of excess inflammation, and lowering of blood pressure. **For more details, see my review article:** The Clinical Importance of Vitamin D (Cholecalciferol). *Alternative Therapies in Health and Medicine* 2004.



CME
CONTINUING MEDICAL EDUCATION

THE CLINICAL IMPORTANCE OF VITAMIN D (CHOLECALCIFEROL): A PARADIGM SHIFT WITH IMPLICATIONS FOR ALL HEALTHCARE PROVIDERS

Alex Vasquez, DC, ND, Gilbert Manso, MD, John Cannell, MD

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OBJECTIVES

Upon completion of this article, participants should be able to do the following:

1. Appreciate and identify the manifold clinical presentations and consequences of vitamin D deficiency
2. Identify patient groups that are predisposed to vitamin D hypersensitivity
3. Know how to implement vitamin D supplementation in proper doses and with appropriate laboratory monitoring

While we are all familiar with the important role of vitamin D in calcium absorption and bone metabolism, many doctors and patients are not aware of the recent research on vitamin D and the widening range of therapeutic applications available for cholecalciferol, which can be classified as both a vitamin and a pro-hormone. Additionally, we also now realize that the Food and Nutrition Board's previously defined Upper Limit (UL) for safe intake at 2,000 IU/day was set far too low and that the physiologic requirement for vitamin D in adults may be as high as 5,000 IU/day, which is less than half of the >10,000 IU that can be produced endogenously with full-body sun exposure.[1,2] With the discovery of vitamin D receptors in tissues other than the gut and bone—especially the brain, breast, prostate, and lymphocytes—and the recent research suggesting that higher vitamin D levels provide protection from diabetes mellitus, osteoporosis, osteoarthritis, hypertension, cardiovascular disease, metabolic syndrome, depression, several autoimmune diseases, and cancers of the breast, prostate, and colon, we can now utilize vitamin D for a wider range of preventive and therapeutic applications to maintain and improve our patients' health.[3] Based on the research reviewed in this article, the current authors believe that assessment of vitamin D status and treatment of vita-

28 ALTERNATIVE THERAPIES, SEPT/OCT 2004, VOL. 10, NO. 5 CME: The Clinical Importance of Vitamin D

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Correction of vitamin D deficiency can alleviate hypertension: Vitamin D3 (cholecalciferol) and calcium supplementation can reduce blood pressure in cholecalciferol-deficient hypertensive patients by approximately -13/-7.[10] As I have discussed in extensive detail elsewhere, a reasonable dose of vitamin D3 for adults is in the range of 4,000-10,000 IU per day, and doctors new to vitamin D therapy should read our clinical monograph published in 2004 and available on-line.[11] The most important drug interaction with vitamin D is seen with hydrochlorothiazide, a commonly-used antihypertensive diuretic that promotes hypercalcemia; vitamin D therapy in patients taking hydrochlorothiazide must be implemented slowly, with professional supervision, and with weekly laboratory monitoring of serum calcium. The goal of vitamin D3 supplementation is for serum 25-OH-vitamin D levels to reach the optimal range of 50-100 ng/ml.

[10] "A short-term supplementation with vitamin D(3) and calcium is more effective in reducing SBP than calcium alone. Inadequate vitamin D(3) and calcium intake could play a contributory role in the pathogenesis and progression of hypertension and cardiovascular disease in elderly women." Pfeifer M, Begerow B, Minne HW, Nachtigall D, Hansen C. Effects of a short-term vitamin D(3) and calcium supplementation on blood pressure and parathyroid hormone levels in elderly women. *J Clin Endocrinol Metab*. 2001 Apr;86(4):1633-7

[11] Vasquez A, Manso G, Cannell J. The clinical importance of vitamin D (cholecalciferol): a paradigm shift with implications for all healthcare providers. *Altern Ther Health Med.* 2004 Sep-Oct;10(5):28-36 http://optimalhealthresearch.com/monograph04

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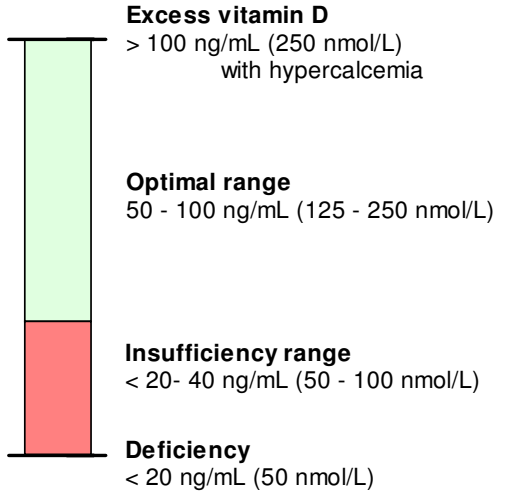

Interpretation of serum 25(OH) vitamin D levels.
Modified from Vasquez et al, *Alternative Therapies in Health and Medicine* 2004 and Vasquez A. *Musculoskeletal Pain: Expanded Clinical Strategies* (Institute for Functional Medicine) 2008.

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Dr Vasquez's "Supplemented Paleo-Mediterranean Diet"

What?: We've already mentioned the importance of vitamin D, but now let's talk about the other 4 parts of my "5-part nutrition protocol" which I originally described in 2005. Here, we will look at the diet in terms of its application to the prevention and supportive treatment of high blood pressure.

In 2005, I published the following article[12] in *Nutritional Wellness*, a nutrition magazine for doctors. In this "revisitation" of that article, I review the original article and provide some updates based on research that has been published since that time.

When I am lecturing here in the U.S., as well as in Europe, doctors often ask if I will share the details of my protocols with them. Thus, in 2004, I published a 486-page textbook for doctors that includes several protocols and important concepts for the promotion of wellness and for the treatment of musculoskeletal disorders.[13] In this article, I will share with you what I consider a basic *foundational* protocol for wellness promotion. I've implemented this protocol as part of the treatment plan for a wide range of clinical problems.

Nutrients are required in the proper amounts, forms, and approximate ratios for essential physiologic function; if nutrients are lacking, the body cannot function normally, let alone optimally. Impaired function results in subjective and objective manifestations of what is commonly labeled as "disease." Thus, a powerful and effective alternative to treating diseases with drugs is to re-establish normal/optimal physiologic function by replenishing the body with essential nutrients.

Of course, many diseases are *multifactorial* and therefore require *multicomponent* treatment plans, and some diseases actually require the use of drugs. However, while only a relatively small portion of patients actually need drugs for their problems, I am sure we all agree that **everyone needs a foundational nutrition plan**, as outlined and substantiated below.

1. **Health-promoting diet**: Following an extensive review of the research literature, I developed what I call the "supplemented Paleo-Mediterranean diet," which I have described in greater detail elsewhere.[14] In essence, this diet plan combines the best of the **Mediterranean diet** with the best of the

[12] This article was originally published in *Nutritional Wellness* http://www.nutritionalwellness.com/archives/2005/sep/09_vasquez.php
[13] **Vasquez A**. *Integrative Orthopedics: The Art of Creating Wellness While Managing Acute and Chronic Musculoskeletal Disorders*. First Edition, 2004,
[14] **Vasquez A**. The Importance of Integrative Chiropractic Health Care in Treating Musculoskeletal Pain and Reducing the Nationwide Burden of Medical Expenses and Iatrogenic Injury and Death: A Concise Review of Current Research and Implications for Clinical Practice and Healthcare Policy. *The Original Internist* 2005; 12(4): 159-182

Paleolithic diet, the latter of which has been detailed most recently by Dr. Loren Cordain in his book, *The Paleo Diet*, and his numerous scientific articles.[15] This diet places emphasis on fruits, vegetables, nuts, seeds, and berries that meet the body's needs for fiber, carbohydrates, and most importantly, the 8,000+ phytonutrients that have additive and synergistic health benefits.[16] Preferred protein sources are lean meats such as fish and poultry. In contrast to Cordain's Paleo diet, I also advocate soy and whey for their high-quality protein and anticancer, cardioprotective, and mood-enhancing benefits. Rice and potatoes are discouraged due to their relatively high glycemic indexes and high glycemic loads, and their lack of fiber and phytonutrients (compared to other fruits and vegetables). Generally speaking, grains such as wheat and rye are discouraged due to the high glycemic loads/indexes of most breads and pastries, as well as the allergenicity of gluten, a protein that appears to help trigger disorders such as migraine, celiac disease, psoriasis, epilepsy, and autoimmunity. Sources of simple sugars such as high-fructose corn syrup (e.g., cola, soda) and processed foods (e.g., "TV dinners" and other manufactured snacks and convenience foods) are strictly forbidden. Chemical preservatives, colorants, sweeteners and carrageenan are likewise prohibited. In summary, this diet plan provides plenty of variety, as **most dishes comprised of poultry, fish, soy, fruits, vegetables, nuts, berries, and seeds are allowed.** The diet also provides plenty of fiber, phytonutrients, carbohydrates, potassium, and protein, while simultaneously being low in fat, sodium, arachidonic acid, and "simple sugars." The diet must be customized with regard to total protein and calorie intake, as determined by the size, status, and activity level of the patient, and individual food allergens should be avoided. Regular consumption of this diet has shown the ability to reduce hypertension, alleviate diabetes, ameliorate migraine headaches, and result in improvement of overall health and a lessening of the severity of many common "diseases." This diet is supplemented with vitamins, minerals, and fatty acids as described below.

2. **Multivitamin and multimineral supplementation**: Vitamin and mineral supplementation finally received endorsement from "mainstream" medicine when researchers from Harvard Medical School published a review article in *Journal of the American Medical Association* that concluded, "Most people do not consume an optimal amount of all vitamins by diet alone. ... **It appears prudent for all adults to take vitamin supplements.**"[17] Long-term nutritional insufficiencies experienced by "most people"

[15] Cordain L. *The Paleo Diet*. (John Wiley and Sons, 2002). Also: Cordain L. Cereal grains: humanity's double edged sword. *World Rev Nutr Diet* 1999;84:19-73
[16] Liu RH. Health benefits of fruit and vegetables are from additive and synergistic combinations of phytochemicals. *Am J Clin Nutr* 2003;78(3 Suppl):517S-520S
[17] Fletcher RH, Fairfield KM. Vitamins for chronic disease prevention in adults: clinical applications. *JAMA* 2002;287:3127-9

promote the development of "long-latency deficiency diseases" such as cancer, neuroemotional deterioration, and cardiovascular disease.[18] Impressively, the benefits of multivitamin/multimineral supplementation have been demonstrated in numerous clinical trials.

Multivitamin/multimineral supplementation has been shown to improve nutritional status and reduce the risk for chronic diseases[19], improve mood[20], potentiate antidepressant drug treatment[21], alleviate migraine headaches (when used with diet improvement and fatty acids[22]), improve immune function and infectious disease outcomes in the elderly[23] (especially diabetics[24]), reduce morbidity and mortality in patients with HIV infection[25,26] alleviate premenstrual syndrome[27,28] and bipolar disorder[29], reduce violence and antisocial behavior in children[30] and incarcerated young adults (when used with essential fatty acids[31]), and improve scores of intelligence in children.[32] Vitamin supplementation has **anti-inflammatory benefits**, as evidenced by significant reduction in C-

[18] Heaney RP. Long-latency deficiency disease: insights from calcium and vitamin D. *Am J Clin Nutr* 2003;78:912-9
[19] McKay DL, Perrone G, Rasmussen H, Dallal G, Hartman W, Cao G, Prior RL, Roubenoff R, Blumberg JB. The effects of a multivitamin/mineral supplement on micronutrient status, antioxidant capacity and cytokine production in healthy older adults consuming a fortified diet. *J Am Coll Nutr* 2000;19(5):613-21
[20] Benton D, Haller J, Fordy J. Vitamin supplementation for 1 year improves mood. *Neuropsychobiology* 1995;32(2):98-105
[21] Coppen A, Bailey J. Enhancement of the antidepressant action of fluoxetine by folic acid: a randomised, placebo controlled trial. *J Affect Disord* 2000;60:121-30
[22] Wagner W, Nootbaar-Wagner U. Prophylactic treatment of migraine with gamma-linolenic and alpha-linolenic acids. *Cephalalgia* 1997;17:127-30
[23] Langkamp-Henken B, Bender BS, Gardner EM, Herrlinger-Garcia KA, Kelley MJ, Murasko DM, Schaller JP, Stechmiller JK, Thomas DJ, Wood SM. Nutritional formula enhanced immune function and reduced days of symptoms of upper respiratory tract infection in seniors. *J Am Geriatr Soc* 2004;52:3-12
[24] Barringer TA, Kirk JK, Santaniello AC, Foley KL, Michielutte R. Effect of a multivitamin and mineral supplement on infection and quality of life. A randomized, double-blind, placebo-controlled trial. *Ann Intern Med* 2003;138:365-71
[25] Fawzi WW, Msamanga GI, Spiegelman D, et al. A randomized trial of multivitamin supplements and HIV disease progression and mortality. *N Engl J Med* 2004;351:23-32
[26] Burbano X, Miguez-Burbano MJ, McCollister K, Zhang G, Rodriguez A, Ruiz P, Lecusay R, Shor-Posner G. Impact of a selenium chemoprevention clinical trial on hospital admissions of HIV-infected participants. *HIV Clin Trials* 2002;3:483-91
[27] Abraham GE. Nutritional factors in the etiology of the premenstrual tension syndromes. *J Reprod Med* 1983;28(7):446-64
[28] Stewart A. Clinical and biochemical effects of nutritional supplementation on the premenstrual syndrome. *J Reprod Med* 1987;32:435-41
[29] Kaplan BJ, Simpson JS, Ferre RC, Gorman CP, McMullen DM, Crawford SG. Effective mood stabilization with a chelated mineral supplement: an open-label trial in bipolar disorder. *J Clin Psychiatry* 2001;62:936-44
[30] Kaplan BJ, Crawford SG, Gardner B, Farrelly G. Treatment of mood lability and explosive rage with minerals and vitamins: two case studies in children. *J Child Adolesc Psychopharmacol* 2002;12(3):205-19
[31] Gesch CB, Hammond SM, Hampson SE, Eves A, Crowder MJ. Influence of supplementary vitamins, minerals and essential fatty acids on the antisocial behaviour of young adult prisoners. Randomised, placebo-controlled trial. *Br J Psychiatry* 2002;181:22-8
[32] Benton D. Micro-nutrient supplementation and the intelligence of children. *Neurosci Biobehav Rev* 2001;25:297-309

reactive protein, (CRP) in a double-blind, placebo-controlled trial.[33] The ability to safely and affordably deliver these benefits makes multimineral-multivitamin supplementation an essential component of any and all health-promoting and disease-prevention strategies. Vitamin A can result in liver damage with chronic consumption of 25,000 IU or more, and intake should generally not exceed 10,000 IU per day in women of childbearing age. Iron should not be supplemented except in patients diagnosed with iron deficiency by a blood test (serum ferritin). Additional vitamin D should be used, as described in the next section.

Documented benefits of multivitamin & multimineral supplementation according to peer-reviewed medical research:

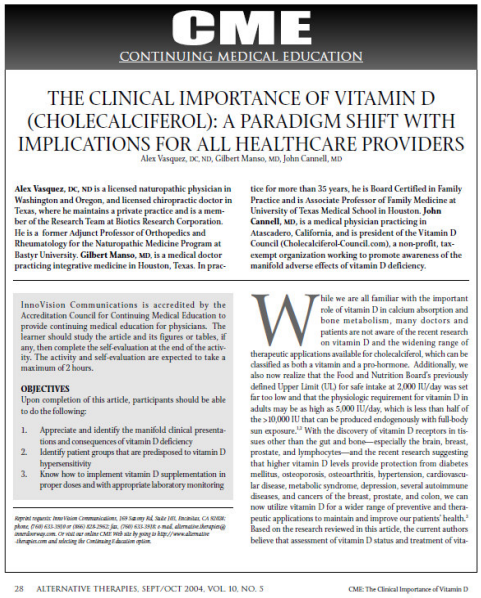
- Improves nutritional status and reduces the risk for chronic diseases
- Improves mood
- Potentiates antidepressant drug treatment
- Alleviates migraine headaches (when used with diet improvement and fatty acids),
- Improves immune function and infectious disease outcomes in the elderly (especially diabetics)
- Reduces morbidity and mortality in patients with HIV infection
- Alleviates premenstrual syndrome
- Ameliorates bipolar disorder
- Reduces violence and antisocial behavior in children and incarcerated young adults (when used with essential fatty acids)
- Improves scores of intelligence in children.

3. **Physiologic doses of vitamin D3**: The prevalence of vitamin D deficiency varies from 40 percent (general population) to almost 100 percent (patients with musculoskeletal pain) in the American population. I described the many benefits of vitamin D3 supplementation in the previous issue of *Nutritional Wellness* and in the major monograph published last year.[34] In summary, vitamin D deficiency causes or contributes to depression, hypertension, seizures, migraine, polycystic ovary syndrome, inflammation, autoimmunity, and musculoskeletal pain such as low-back pain. Clinical trials using vitamin D supplementation have proven the cause-and-effect relationship between vitamin D deficiency and these conditions by showing that each of these could be cured or alleviated with vitamin D supplementation. In our review of the literature, we concluded that daily vitamin D doses should be 1,000 IU for infants, 2,000 IU for children, and 4,000 IU for adults. Cautions and contraindications include the use of thiazide diuretics (e.g.,

[33] Church TS, Earnest CP, Wood KA, Kampert JB. Reduction of C-reactive protein levels through use of a multivitamin. *Am J Med* 2003;115:702-7

[34] **Vasquez A,** Manso G, Cannell J. The clinical importance of vitamin D (cholecalciferol): a paradigm shift with implications for all healthcare providers. *Alternative Therapies in Health and Medicine* 2004;10:28-37 http://optimalhealthresearch.com/cholecalciferol.html

hydrochlorothiazide) or any other medications that can promote hypercalcemia, as well as granulomatous diseases such as sarcoidosis, tuberculosis, and certain types of cancer, especially lymphoma. Effectiveness is monitored by measuring serum 25-OH-vitamin D, and safety is monitored by measuring serum calcium.



CME
CONTINUING MEDICAL EDUCATION

THE CLINICAL IMPORTANCE OF VITAMIN D (CHOLECALCIFEROL): A PARADIGM SHIFT WITH IMPLICATIONS FOR ALL HEALTHCARE PROVIDERS

Alex Vasquez, DC, ND, Gilbert Manso, MD, John Cannell, MD

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OBJECTIVES
Upon completion of this article, participants should be able to do the following:

1. Appreciate and identify the manifold clinical presentations and consequences of vitamin D deficiency
2. Identify patient groups that are predisposed to vitamin D hypersensitivity
3. Know how to implement vitamin D supplementation in proper doses and with appropriate laboratory monitoring

While we are all familiar with the important role of vitamin D in calcium absorption and bone metabolism, many doctors and patients are not aware of the recent research on vitamin D and the widening range of therapeutic applications available for cholecalciferol, which can be classified as both a vitamin and a pro-hormone. Additionally, we also now realize that the Food and Nutrition Board's previously defined Upper Limit (UL) for safe intake at 2,000 IU/day was set far too low and that the physiologic requirement for vitamin D in adults may be as high as 5,000 IU/day, which is less than half of the >10,000 IU that can be produced endogenously with full-body sun exposure.[1,2] With the discovery of vitamin D receptors in tissues other than the gut and bone—especially the brain, breast, prostate, and lymphocytes—and the recent research suggesting that higher vitamin D levels provide protection from diabetes mellitus, osteoporosis, osteoarthritis, hypertension, cardiovascular disease, metabolic syndrome, depression, several autoimmune diseases, and cancers of the breast, prostate, and colon, we can now utilize vitamin D for a wider range of preventive and therapeutic applications to maintain and improve our patients' health.[3] Based on the research reviewed in this article, the current authors believe that assessment of vitamin D status and treatment of vita-

28 ALTERNATIVE THERAPIES, SEPT/OCT 2004, VOL. 10, NO. 5 CME: The Clinical Importance of Vitamin D

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4. **Balanced and complete fatty acid supplementation**: A detailed survey of the literature shows there are at least five health-promoting fatty acids commonly found in the human diet.[35] These are alpha-linolenic acid (**ALA**; omega-3, from flaxseed oil), eicosapentaenoic acid (**EPA**; omega-3, from fish oil), docosahexaenoic acid (**DHA**; omega-3, from fish oil and algae), gamma-linolenic acid (**GLA**; omega-6, most concentrated in borage oil), and **oleic acid** (omega-9, from olive oil, also flaxseed and borage oils). Each of these fatty acids has health benefits that cannot be fully attained from supplementing a different fatty acid. The benefits of GLA (borage oil) are not attained by consumption of EPA and DHA (fish oil); in fact, consumption of fish oil can actually promote a deficiency of GLA.[36] Likewise, consumption of GLA alone can reduce EPA levels while increasing levels of proinflammatory arachidonic acid; both of these problems are avoided with co-administration of fish oil any time borage oil is used. Using ALA (flaxseed oil) alone only slightly increases EPA but generally leads to no improvement in DHA status and can lead to a reduction of oleic acid; thus, fish oil, olive oil (and borage oil) should be supplemented when flaxseed oil is used.[37] Obviously, the goal here is a balanced intake of all of the health-promoting fatty acids; using only one or two sources of fatty acids is not balanced and results in suboptimal improvement, at best. In clinical practice, I routinely use combination fatty acid therapy comprised of ALA, EPA, DHA, and GLA for essentially all patients. The product also contains a modest amount of oleic acid, and I encourage use of olive oil for salads and cooking. This approach results in complete and balanced fatty acid intake, and the clinical benefits are impressive.

5. **Probiotics /gut flora modification**: Proper levels of good bacteria promote intestinal health, proper immune function, and support overall health. Excess bacteria or yeast, or the presence of harmful bacteria, yeast, or "parasites" such as amoebas and protozoas, can cause "leaky gut," systemic inflammation, and a wide range of clinical problems. Intestinal flora can become imbalanced by poor diets, excess stress, immunosuppressive drugs,

[35] **Vasquez A**. Reducing Pain and Inflammation Naturally. Part 2: New Insights into Fatty Acid Supplementation and Its Effect on Eicosanoid Production and Genetic Expression. *Nutritional Perspectives* 2005; January: 5-16 http://optimalhealthresearch.com/part2
[36] Cleland LG, Gibson RA, Neumann M, French JK. The effect of dietary fish oil supplement upon the content of dihomo-gammalinolenic acid in human plasma phospholipids. *Prostaglandins Leukot Essent Fatty Acids* 1990 May;40(1):9-12
[37] Jantti J, Nikkari T, Solakivi T, Vapaatalo H, Isomaki H. Evening primrose oil in rheumatoid arthritis: changes in serum lipids and fatty acids. *Ann Rheum Dis* 1989;48(2):124-7

antibiotics, or exposure to contaminated food or water, all of which are common among American patients. Thus, as a rule, I reinstate the good bacteria by the use of probiotics (good bacteria and yeast), prebiotics (fiber, arabinogalactan, and inulin), and the use of fermented foods such as kefir (in patients not allergic to milk). Harmful yeast, bacteria, and other "parasites" can be eradicated with the combination of dietary change, drugs, and/or herbal extracts.[38,39]

Conclusion: In this brief review, I have outlined and scientifically substantiated a fundamental protocol that can serve as effective therapy for patients with a wide range of "diseases." Customizing the **Paleo-Mediterranean diet** to avoid food allergens, using **vitamin-mineral supplements** along with physiologic doses of **vitamin D** and **broad-spectrum balanced fatty acid supplementation**, and ensuring gastrointestinal health with the skillful use of **probiotics**, prebiotics, and antimicrobial treatments provides an excellent health-promoting and disease-eliminating foundation and lifestyle for many patients. Often, this simple protocol is all that is needed for the effective treatment of a wide range of clinical problems. For other patients with more complex illnesses, of course, additional interventions and laboratory assessments can be used to customize the treatment plan. However, **we must always remember that the attainment and preservation of health requires that we meet the body's basic nutritional needs. This five-step protocol begins the process of meeting those needs.** This is the most cost-effective and generally safe (for the vast majority of people) health-promoting and disease preventing plan available. The only alternatives to preventive medicine are 1) chronic use of drugs to suppress the manifestations of underlying problems, and 2) "early detection of disease" followed by drugs/chemotherapy and surgery/excision/amputation, and 3) crisis care.

Dr Vasquez's Summary: This nutrition plan is the best plan for most people to follow, although of course there are "exceptions to every rule" and "what works for 99 people might not work for the 100th person." This is why personalized attention from a nutrition-oriented doctor is important, especially for patients with food allergies, chronic diseases like kidney and liver disease, and for people taking medications.

A plan of ❶ supplementation with CoQ-10, ❷ replenishment of vitamin D so that blood levels enter the optimal range (as described in this document), ❸ fatty

[38] Force M, Sparks WS, Ronzio RA. Inhibition of enteric parasites by emulsified oil of oregano in vivo. *Phytother Res* 2000;14:213-4
[39] Schuster BG. Demonstrating the validity of natural products as anti-infective drugs. *J Altern Complement Med* 2001;7 Suppl 1:S73-82

acid supplementation, ❹ the Paleo-Mediterranean diet (see recipes that follow), and ❺ exercise for weight optimization and fitness is an evidence-based treatment plan that would certainly work well for the vast majority of Americans, who are—as a population—at very high risk for developing hypertension. Nearly 25% of American adults have hypertension, and 90% of Americans will have hypertension at some point during their lifetimes.

Summary of Basic Nutrition Protocol:

"Supplemented Paleo-Mediterranean Diet"

Use *combination formulas* to keep the number of "basic" supplements low to improve compliance and to allow room for the "interventional" treatments

1. **Paleo-Mediterranean Diet** + healthy lifestyle, exercise, adjustments, sleep, healthy relationships, relaxation
2. **ONE SUPPLEMENT for VITAMINS/MINERALS**
3. Ensure at least **2,000 IU vitamin D3**
4. **ONE SUPPLEMENT for ALL FATTY ACIDS: Fatty acid optimization: ALA, GLA, EPA, DHA, Oleic**
5. **Probiotics:** especially with allergies, IBS, and/or antibiotics

Vasquez A. Five-Part Nutritional Wellness Protocol That Produces Consistently Positive Results. ***Nutritional Wellness*** 2005 Sept http://optimalhealthresearch.com/protocol

For additional information and details:
http://www.optimalhealthnutrition.com/details_combination_fatty_acid_formula.asp

Combination Fatty Acid Supplementation

What are "fatty acids"?: I know it sounds technical and scientific, but basically the "fats and oils" that you eat in foods have 2 parts—there is a backbone called "glycerol" to which are attached 3 "fatty acids." During digestion, the fatty acids are taken away from the glycerol so that the fatty acids can be absorbed. Glycerol is pretty inert and inactive, but the fatty acids of different sources are now known to have major health benefits…or consequences.

Here is what you need to know about fatty acids; you need to know which to consume and which to avoid. Yes, it is that simple. Let's get to it.

Fatty acids to **avoid**: Patients should generally aim to ***reduce*** their intake of these two fatty acids:

1. **Arachidonic acid**: This is a fatty acid found in grain-fed beef (and thus cow's milk), lamb, and pork. Arachidonic acid promotes hypertension, inflammation, and cancer—there's no question about it. If you have any of these problems or want to avoid these problems, you should avoid sources of arachidonic acid.
2. **Linoleic acid**: This is the fatty acid found in vegetable oil, especially corn oil. Yes, people who consume linoleic acid may see a reduction in their cholesterol levels, but this is at the expense of increased systemic inflammation and higher risks for cancer. Generally, avoid vegetable oils; **use olive oil instead.**

Fatty acids to **consume**: Patients should generally aim to ***increase*** their intake of these four fatty acids:

1. **ALA**: ALA is the abbreviation for **alpha**-linolenic acid, a fatty acid found in flaxseed oil. ALA shows cardioprotective and antiinflammatory benefits in humans. **ALA is very safe—in fact, it is one of the fatty acid required for life**, especially when consumed in the doses that we will discuss later in this section.
2. **GLA**: GLA is the abbreviation for **gamma**-linolenic acid, a fatty acid found in borage oil and evening primrose oil. GLA shows cardioprotective and antiinflammatory benefits in humans, and several studies have also shown anti-cancer benefits. **GLA is very safe**, especially when consumed in the doses that we will discuss later in this section.
3. **EPA**: EPA is the abbreviation for eicosapentaenoic acid, a fatty acid found in fish oil. EPA is very safe, especially when consumed in the doses that we will discuss later in this section. **EPA shows clinically powerful anti-**

inflammatory and cardioprotective benefits; some studies show EPA to be the best treatment available for reducing the risk for heart attack.

4. **DHA**: DHA is the abbreviation for docosahexaenoic acid, a fatty acid found in fish oil, with the same benefits and safety as for EPA, with the additional benefit of improving brain function and improving mood and concentration.

Safety: Fatty acids are consumed in the diet every day; the American diet pattern just does not provide enough of them in the right amounts and in the right proportions; this is why supplementation is important.

Common dose: 3-6 capsules per day, or—if using the liquid form—we use 1-2 tablespoons per day.

Drug interactions: None that are consistently proven. Because the health promoting fatty acids improve blood flow and reduce clotting, there is some increased risk for bleeding in patients taking blood-thinning medications. If you are taking blood-thinning or "anti-coagulant" drugs, talk to your doctor or one of our doctors before using fatty acid supplementation.

Dr Vasquez's Summary: Again, just like vitamin D (and love and exercise and a healthy diet), just about everyone will benefit from getting more of the health-promoting fatty acids. We use fatty acids in an evidence-based combination, available either as capsules or as a liquid that can be taken right off the spoon or mixed into your morning smoothie. **The cardio-protective benefits of fatty acid supplementation are only partly mediated by a lowering of blood pressure, which is only a small amount.** Combination fatty acid supplementation also lowers cholesterol levels; but this is not where the benefit is derived, either. The real benefit of fatty acids for protecting the heart comes from the 1) reduction in systemic inflammation that is seen in patients with hypertension, 2) the improvement in blood flow and reduction in too-easy clotting, and 3) the improved health of the walls of the blood vessels.

For more information see our website at
http://optimalhealthnutrition.com/details_combination_fatty_acid_formula.asp

Want to know more about fatty acids and the science supporting their use?

See these 2 review articles by Dr Vasquez, available at our website:
http://optimalhealthnutrition.com/details_combination_fatty_acid_formula.asp

Reducing Pain and Inflammation Naturally.
Part II: New Insights into Fatty Acid Supplementation and Its Effect on Eicosanoid Production and Genetic Expression

Alex Vasquez, D.C., N.D.

Abstract: Doctors and patients can achieve significant success in the treatment of pain and inflammation by using dietary modification along with nutritional, botanical, and fatty acid supplementation. The first article in this series reviewed recent diet research and the basic biochemistry of fatty acid metabolism, and this second article will provide doctors with a profound understanding of the importance of optimal fatty acid supplementation and will review the clinical benefits of this essential therapy. This review contains the most concise, detailed, up-to-date, and clinically relevant description of fatty acid metabolism that has ever been published in a single article.

INTRODUCTION

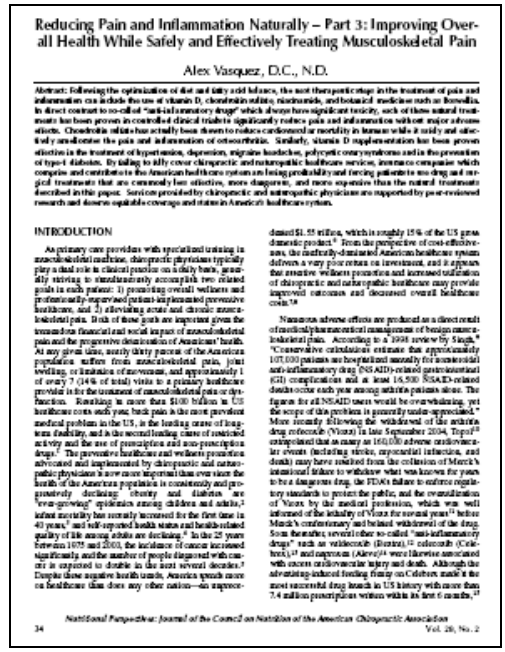
Chiropractic and naturopathic physicians are the only doctorate-level healthcare providers with graduate-level training in therapeutic nutrition and are emerging as the leaders in the treatment and prevention of long-term health disorders, including nearly all of the chronic diseases seen in clinical practice such as obesity, hypertension, adult-onset diabetes, hypercholesterolemia, allergies, asthma, arthritis, depression and a long list of other musculoskeletal and non-musculoskeletal conditions.[1,2] With the increasing substantiation of the effectiveness and cost-effectiveness of the nutritional management of these problems, and the documentation of the excessive cost and adverse effects generally associated with pharmaceutical medications, we are approaching a paradigm shift in healthcare which will eventually designate the practitioners of holistic natural healthcare in their proper place—at the forefront of patient management.

Healthcare providers of all disciplines are obligated to act responsibly to protect the health of the public. Current research published in peer-reviewed medical journals suggests that over-utilization of allopathic medical care endangers patients' health by exposing patients to prescribing errors,[3] hospital injuries, and what is described as "substandard care."[4] A recent article in the *New England Journal of Medicine*[5] concluded that deficits in allopathic medical care pose "serious threats to the health of the American public." A 1997 review published by the American Academy of Family Physicians[6] stated, "Recent estimates suggest that each year more than 1 million patients are injured while in the hospital and approximately 180,000 die because of these injuries. Furthermore, drug-related morbidity and mortality are common and are estimated to cost more than $136 billion a year." New research also shows that several popular "antidepressant" drugs actually increase the risk for suicide in children[7] and adults[8,9] and, similarly, "antipsychotic" drugs may worsen clinical outcomes in a large percentage of patients with mental illness.[10] Chiropractic diet therapy—not drugs—is the most effective treatment for chronic hypertension,[11,12] Many anti-inflammatory drugs for the treatment of joint pain actually promote joint destruction[13–16,15] and the newer selective cyclooxygenase inhibitors carry an unpredictable cost[16,17] and fail to deliver improved efficacy[18] despite significantly increasing the risk for kidney damage, hypertension, myocardial infarction, stroke, and sudden death.[18,19,21] On the other hand, natural treatments such as dietary improvements and fatty acid supplementation have been shown to safely reduce the need for medical treatments, to improve health, to alleviate many common diseases, and to prolong life at lower cost, negligible risk, and with improved overall outcomes.[22–25] In order to reduce costs, promote health, and reduce iatrogenic diseases, our healthcare paradigm must change from "disease treatment with drugs and surgery" to "health promotion with therapeutic nutrition and lifestyle improvement."[26] It is safe and reasonable to predict that in the near future, customized dietary improvement, chiropractic nutrition, lifestyle modification, and fatty acid supplementation will be viewed as integral components of patient care for all patients with all diseases. Doctors must therefore be informed of new research on how to use these interventions skillfully.

The combination of dietary improvement and skillful nutritional intervention as reviewed by the current author in the first article in this series[26] and in greater detail elsewhere[27] is the single most powerful approach for the effective treatment of a wide range of conditions. Following closely behind general dietary modification, fatty acid supplementation offers clinicians the opportunity to improve the health of their patients in ways that no other single treatment can.

FATTY ACID SUPPLEMENTATION: UNDERSTANDING IS THE KEY TO MASTERY

An accurate and detailed understanding of fatty acid metabolism is important for the complete and effective management of many clinical conditions including mental depression, coronary artery disease, hypertension, diabetes, other inflammatory/autoimmune disorders, and many of the musculoskeletal conditions encountered in clinical practice. The practical application of this information is



Reducing Pain and Inflammation Naturally – Part 3: Improving Overall Health While Safely and Effectively Treating Musculoskeletal Pain

Alex Vasquez, D.C., N.D.

Abstract: Following the optimization of diet and fatty acid balance, the next therapeutic step in the treatment of pain and inflammation can include the use of vitamin D, chondroitin sulfate, niacinamide, and botanical medicine such as boswellia. In direct contrast to so-called "anti-inflammatory drugs" which always have significant toxicity, each of these natural treatments has been proven in controlled clinical trials to significantly reduce pain and inflammation without major adverse effects. Chondroitin sulfate has actually been shown to reduce cardiovascular mortality in humans while it safely and effectively ameliorates the pain and inflammation of osteoarthritis. Similarly, vitamin D supplementation has been proven effective in the treatment of hypertension, depression, migraine headaches, polycystic ovary syndrome, and in the prevention of type-1 diabetes. By failing to fully cover chiropractic and naturopathic healthcare services, insurance companies which comprise and contribute to the American healthcare system are being profoundly and forcing patients to use drug and surgical treatments that are commonly less effective, more dangerous, and more expensive than the natural treatments described in this paper. Services provided by chiropractic and naturopathic physicians are supported by peer-reviewed research and deserve equitable coverage and status in America's healthcare system.

INTRODUCTION

As primary care providers with specialized training in musculoskeletal medicine, chiropractic physicians typically play a dual role in clinical practice on a daily basis, generally striving to simultaneously accomplish two related goals in each patient: 1) promoting overall wellness and professionally-supervised patient-implemented preventive healthcare, and 2) alleviating acute and chronic musculoskeletal pain. Both of these goals are important given the tremendous financial and social impact of musculoskeletal pain and the progressive deterioration of Americans' health. At any given time, nearly thirty percent of the American population suffers from musculoskeletal pain, joint swelling, or limitation of movement, and approximately 1 of every 7 (14% of total) visits to a primary healthcare provider is for the treatment of musculoskeletal pain or dysfunction. Resulting in more than $100 billion in US healthcare costs each year, back pain is the most prevalent medical problem in the US, is the leading cause of long-term disability, and is the second leading cause of restricted activity and the use of prescription and non-prescription drugs.[1] The preventive healthcare and wellness promotion advocated and implemented by chiropractic and naturopathic physicians is now more important than ever since the health of the American population is consistently and progressively declining: obesity and diabetes are "ever-growing" epidemics among children and adults,[2] infant mortality has actually increased for the first time in 40 years,[3] and self-reported health status and health-related quality of life among adults are declining.[4] In the 25 years between 1975 and 2000, the incidence of cancer increased significantly and the number of people diagnosed with cancer is expected to double in the next several decades.[5] Despite these negative health trends, America spends more on healthcare than does any other nation—an expenditure of nearly $1.55 trillion, which is roughly 15% of the US gross domestic product.[6] From the perspective of cost-effectiveness, the medically-dominated American healthcare system delivers a very poor return on investment, and it appears that preventive wellness promotion and increased utilization of chiropractic and naturopathic healthcare may provide improved outcomes and decreased overall healthcare costs.[7,8]

Numerous adverse effects are produced as a direct result of medical/pharmaceutical management of benign musculoskeletal pain. According to a 1998 review by Singh,[9] "Conservative estimates of adverse drug reactions (ADRs) suggest that approximately 107,000 patients are hospitalized annually for nonsteroidal anti-inflammatory drug (NSAID)-related gastrointestinal (GI) complications and at least 16,500 NSAID-related deaths occur each year among arthritis patients alone. The figures for all NSAID users would be overwhelming, yet the scope of this problem is generally under-appreciated." More recently following the withdrawal of the arthritis drug rofecoxib (Vioxx) in late September 2004, Topol[10] extrapolated that as many as 160,000 adverse cardiovascular events (including stroke, myocardial infarction, and death) may have resulted from the collusion of Merck's intentional failure to withdraw what was known for years to be a dangerous drug, the FDA's failure to enforce regulatory standards to protect the public, and the overutilization of Vioxx by the medical profession, which was well informed of the lethality of Vioxx for several years[11] before Merck's confirmatory and belated withdrawal of the drug. Soon thereafter, several other so-called "anti-inflammatory drugs" such as valdecoxib (Bextra),[12] celecoxib (Celebrex),[13] and naproxen (Aleve)[14] were likewise associated with excess cardiovascular injury and death. Although the advertising-induced feeling flung on Celebrex made it the most successful drug launch in US history with more than 7.4 million prescriptions written within its first 6 months,[15]

Nutritional Treatments for Hypertension

Alex Vasquez, D.C., N.D.

This article was originally published in *Naturopathy Digest*

Introduction:

Clinical problems associated with hypertension can be divided into two categories dependent upon the severity and duration of the elevated blood pressure. Mild elevations in blood pressure that are sustained over a period of many years and decades increases the risk of atherosclerosis, stroke, myocardial infarction, heart failure, and renal failure. Acute elevations in blood pressure, even if sustained for a relatively short time, can cause hypertensive encephalopathy, stroke, retinal hemorrhage, acute myocardial infarction, and acute left ventricular failure with pulmonary edema. Many different etiologies exist for hypertension, including but not limited to metabolic syndrome, hypothyroidism, renal failure, and adverse drug effects; the scope of this article is limited to uncomplicated prehypertension and Stage One Hypertension. Obviously, the goals of therapy are to bring the blood pressure down into the normal range and to prevent end-organ damage, especially to heart, brain, eyes, and kidneys.

Guidelines for the assessment and therefore management of hypertension change periodically based on new consensus and new research data. "Prehypertension" or early hypertension begins at 120 systolic over 80 diastolic, while "Stage One hypertension" is in the range of 140/90 - 160/100. Patients beyond Stage One Hypertension or those with a complex clinical presentation should generally be co-managed pharmaceutically (at least initially); a table describing hypertensive categories is provided below (Table 1). Doctors who choose to manage hypertension for their patients must include proper history, physical examination, laboratory assessment (e.g., chemistry/metabolic panel, urinalysis, thyroid and cardiovascular panels), and the treatment plan must include frequent follow-up (e.g., every 2-4 weeks) until the problem is resolved. If effectiveness cannot be obtained, sustained, or documented then the patient should receive both verbal and written referral to another physician, particularly an internist or cardiologist.

Table 1: Hypertension categorization*

Prehypertension:	>120/80
Stage One:	140/90 - 160/100
Stage Two:	160/100 - 210/120 without symptoms and without end-organ damage (i.e., no renal damage, headache, or edema). Clinicians should generally refer or co-manage these patients.
Urgent:	SBP ≥ 220 or DBP 125 - 129, or Stage 2 with symptoms or end-organ damage. Immediate referral for drug treatment is appropriate.
Emergency:	>220/130 is an emergency: 911 or ER

* Additional considerations that affect treatment and management: Insulin resistance / pre-diabetes / metabolic syndrome: dyslipidemia / high cholesterol, obesity, inactivity,

personal and family medical history, other chief complaints and clinical and laboratory findings.

Nutritional treatments for hypertension:

Nutritional treatments for hypertension include the following considerations, which can generally be used in combination (rather than in isolation, as studied in the research). These will be listed and discussed in order of general effectiveness (see Table 2).

1. Short-term supervised fasting: Short-term inpatient supervised fasting appears to be the most effective treatment for chronic hypertension that has ever been documented. Working closely with his multidisciplinary team, **pioneering chiropractic physician Alan Goldhamer DC** documented reductions in hypertension of 60/17 in patients with severe hypertension and reductions of 37/13 in patients with moderate hypertension.[40,41,42] Generally the program begins with 4-7 days of a raw vegetarian diet followed by 1-2 weeks of fasting and concluded with reintroduction of a vegetarian and health-promoting diet. Laboratory tests and professional supervision help ensure patient safety.
2. Healthy diet and exercise: Health-promoting diets such as either Paleo- and Mediterranean-style diets can lower blood pressure by as much as 17/13 according to some reports. Please see my previous articles in this magazine for description of the "supplemented Paleo-Mediterranean Diet."[43]
3. CoQ10: Coenzyme Q-10 in doses of 100-225 mg/day can lower blood pressure quite effectively, as documented in several clinical studies, some of which showed that CoQ-10 is more effective and safer than the use of antihypertensive drugs.[44,45,46] Reductions in blood pressure are generally in the range of 17/12 and are dose-dependent. A patient who does not respond to 100 mg per day may respond very well to 200 mg per day. Since it is a fat-soluble nutrient, CoQ-10 should be administered with dietary fat and/or consumed in a "pre-emulsified" form to enhance absorption which is a prerequisite for clinical effectiveness. Several trials have been reported showing enhanced absorption of CoQ-10 when administered in

[40] Goldhamer A, et al. Medically supervised water-only fasting in the treatment of hypertension. *J Manipulative Physiol Ther* 2001 Jun;24(5):335-9

[41] Goldhamer AC, et al. Medically supervised water-only fasting in the treatment of borderline hypertension. *J Altern Complement Med*. 2002 Oct;8(5):643-50

[42] Goldhamer AC. Initial cost of care results in medically supervised water-only fasting for treating high blood pressure and diabetes. *J Altern Complement Med*. 2002 Dec;8(6):696-7

[43] Vasquez A. A Five-Part Nutritional Protocol that Produces Consistently Positive Results. *Nutritional Wellness* 2005 Sept. http://nutritionalwellness.com/archives/2005/sep/09_vasquez.php and http://optimalhealthresearch.com/protocol

[44] "RESULTS: The mean reduction in systolic blood pressure of the CoQ-treated group was 17.8 +/- 7.3 mm Hg (mean +/- SEM). None of the patients exhibited orthostatic blood pressure changes. CONCLUSIONS: Our results suggest CoQ may be safely offered to hypertensive patients as an alternative treatment option." Burke BE, Neuenschwander R, Olson RD. Randomized, double-blind, placebo-controlled trial of coenzyme Q10 in isolated systolic hypertension. *South Med J*. 2001 Nov;94(11):1112-7

[45] "These findings indicate that treatment with coenzyme Q10 decreases blood pressure possibly by decreasing oxidative stress and insulin response in patients with known hypertension receiving conventional antihypertensive drugs." Singh RB, Niaz MA, Rastogi SS, Shukla PK, Thakur AS. Effect of
hydrosoluble coenzyme Q10 on blood pressures and insulin resistance in hypertensive patients with coronary artery disease. *J Hum Hypertens*. 1999 Mar;13(3):203-8

[46] "...51% of patients came completely off of between one and three antihypertensive drugs at an average of 4.4 months after starting CoQ10." Langsjoen P, Langsjoen P, Willis R, Folkers K. Treatment of essential hypertension with coenzyme Q10. *Mol Aspects Med*. 1994;15 Suppl:S265-72

pre-emulsified form. CoQ-10 is very safe, and drug interactions are rare; caution should be used in patients taking coumadin.

4. Sodium restriction: Clinical responsiveness to low-sodium diets ranges from minimal to a maximal reduction in the range of 22/14 - 16/9.[47] Contraindications to low-sodium diet are uncommon (e.g., hyponatremia); low-sodium diets should generally be a component of all anti-hypertensive treatment plans.
5. Vitamin D and calcium: Vitamin D3 (cholecalciferol) and calcium supplementation can reduce blood pressure in hypertensive patients by approximately 13/7.[48] As I have discussed in extensive detail elsewhere, a reasonable dose of vitamin D3 for adults is in the range of 2,000 - 4,000 IU per day, and doctors new to vitamin D therapy should read my clinical monograph published in 2004 and available on-line.[49] The most important drug interaction with vitamin D is seen with hydrochlorothiazide, a commonly-used antihypertensive diuretic that promotes hypercalcemia; vitamin D therapy in patients taking hydrochlorothiazide must be implemented slowly, with professional supervision, and with weekly laboratory monitoring of serum calcium. Vitamin D probably corrects hypertension via several mechanisms, including but not limited to increased absorption of magnesium and reduction in intracellular calcium, as I described previously in this magazine.[50] Since vitamin D absorption decreases with age and in patients with intestinal disease (including dysbiosis[51]), absorption of fat-soluble vitamin D3 is enhanced when administered in pre-emulsified form.[52]
6. Prescription drugs: Use of the nutritional treatments described in this article can complement or replace antihypertensive drug therapy in many patients. When used singly, prescription antihypertensive drugs average a reduction in blood pressure of approximately 12/6. Initial reductions of 20/10 require combination therapy, according to a review article published in American Family Physician in 2003.[53]
7. Exercise: Moderate exercise can reduce blood pressure by approximately 7/7 in the short term. Longer-term exercise, particularly along with diet improvements and weight loss, can result in synergistic and curative benefits. Patients who have been sedentary for years and those with probable or documented cardiovascular disease should be evaluated by a physician and ECG before beginning an exercise program.

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[47] "The average fall in blood pressure from the highest to the lowest sodium intake was 16/9 mm Hg." MacGregor GA, Markandu ND, Sagnella GA, Singer DR, Cappuccio FP. Double-blind study of three sodium intakes and long-term effects of sodium restriction in essential hypertension. *Lancet*. 1989 Nov 25;2(8674):1244-7

[48] "A short-term supplementation with vitamin D(3) and calcium is more effective in reducing SBP than calcium alone. Inadequate vitamin D(3) and calcium intake could play a contributory role in the pathogenesis and progression of hypertension and cardiovascular disease in elderly women." Pfeifer M, Begerow B, Minne HW, Nachtigall D, Hansen C. Effects of a short-term vitamin D(3) and calcium supplementation on blood pressure and parathyroid hormone levels in elderly women. *J Clin Endocrinol Metab*. 2001 Apr;86(4):1633-7

[49] Vasquez A, Manso G, Cannell J. The clinical importance of vitamin D (cholecalciferol): a paradigm shift with implications for all healthcare providers. *Altern Ther Health Med*. 2004 Sep-Oct;10(5):28-36 http://optimalhealthresearch.com/monograph04

[50] Vasquez A. Intracellular Hypercalcinosis. A Functional Nutritional Disorder With Implications Ranging From Myofascial Trigger Points to Affective Disorders, Hypertension and Cancer. Naturopathy *Digest* 2006, September http://www.naturopathydigest.com/archives/2006/sep/vasquez.php

[51] Vasquez A. Reducing Pain and Inflammation Naturally. Part 6: Nutritional and Botanical Treatments Against "Silent Infections" and Gastrointestinal Dysbiosis, Commonly Overlooked Causes of Neuromusculoskeletal Inflammation and Chronic Health Problems. *Nutritional Perspectives* 2006; January. http://optimalhealthresearch.com/dysbiosis

[52] Vasquez A. Subphysiologic Doses of Vitamin D are Subtherapeutic: Comment on the Study by The Record Trial Group. *Lancet* 2005 published online May 6 http://optimalhealthresearch.com/lancet

[53] Magill MK, Gunning K, Saffel-Shrier S, Gay C. New developments in the management of hypertension. *Am Fam Physician*. 2003 Sep 1;68(5):853-8 http://www.aafp.org/afp/20030901/853.html

8. Fish oil: Fish oil supplementation had been shown to reduce blood pressure by approximately 3/2. For reasons that I have detailed elsewhere[54], fish oil should be co-administered with a source of GLA such as borage oil in order to maximize effectiveness and minimize subtle biochemical adverse effects. Importantly, fish oil is safer, less expensive, and more effective than "statin" antihypercholesterolemic drug treatment for reducing total and cardiovascular mortality.
9. Food allergy elimination: According to a clinical study of migraineurs published in *The Lancet*, identification and avoidance of food allergens can normalize blood pressure in hypertensive migraine patients.[55] The anti-hypertensive response to food allergy avoidance can be seen clinically even in patients who do not have migraine or other manifestations of allergy, but the more allergic symptoms that are seen and the more complete the response to allergy elimination, the more likely is a reduction in blood pressure.

Table 2: General effectiveness of therapies for chronic essential hypertension

1. Short-term supervised fasting: -60/-17 for severe HTN and -37/-13 for moderate HTN*
2. Healthy diet and exercise: -17/-13
3. CoQ10 100-225 mg/day: -17/-12
4. Sodium restriction: 22/14 - 16/-9
5. Vitamin D and calcium: -13/-7
6. Prescription drugs: -12/-6 * Reductions of 20/10 require combination therapy
7. Exercise: -7/-7
8. Fish oil: -3/-2
9. Food allergy elimination: variable response ranging from insignificant to curative

Conclusions:

Many nutritional treatments for hypertension are documented in the research literature, and several of these treatments appear safer and more cost-effective than pharmaceutical antihypertensive drugs. Furthermore, the synergistic use of the nutritional and lifestyle interventions described above—e.g., supplemented Paleo-Mediterranean diet along with exercise, fish oil, vitamin D, CoQ-10, and sodium restriction-results in clinical benefits that far exceed the results published in the single-intervention clinical trials that have documented the effectiveness of the individual components. The major drug interaction that one must look out for is the combination of vitamin D with hydrochlorothiazide. Switching from pharmaceutical drugs to nutrients for the management of hypertension requires diligent follow-up, informed consent, and documentation of beneficial clinical response and should be undertaken only by skilled and experienced clinicians.

[54] Vasquez A. Reducing Pain and Inflammation Naturally. Part 2: New Insights into Fatty Acid Supplementation and Its Effect on Eicosanoid Production and Genetic Expression. *Nutritional Perspectives* 2005; January: 5-16 http://optimalhealthresearch.com/part2.html
[55] Grant EC. Food allergies and migraine. *Lancet*. 1979 May 5;1(8123):966-9

Thinking Outside the (Pill) Box: Is the "Battle Against Hypertension and Diabetes" Truly Meant to be "Won" for Patients…or for the Drug Companies?

The Most Profitable "Wars" are the ones that are Fought Indefinitely and which Require Reliance on Private Industry: As with most modern sociopolitical fights, wars, and missions, a keen observer (or any high-school student who read George Orwell's classic novel *1984*) might question whether the current "**Mission**: To **Combat** High Blood Pressure in America"[56] is actually meant to ever be won. The US National Heart, Lung, and Blood Institute (NHLBI) invokes the language of battle, e.g., "to **mobilize** all Americans in the **fight against high blood pressure** and reduce the more than 1 million heart attacks, strokes, and kidney failure cases that it causes each year. The CDC and the NHLBI have **joined forces** to **disseminate** these materials…"[57] Ironically, the NHLBI's document entitled "Physician Fact Sheet: What Every Physician Should Know" (http://hp2010.nhlbihin.net/mission/partner/physcian_factsheet.pdf) contains zero practical information on diet, exercise, or nutritional supplementation. Likewise, the document under the heading "Real Possibilities for America's Health Care Providers"[58] provides nothing that a clinician or patient could use to authentically correct the common causes of HTN; it provides near-meaningless mention of "diet and exercise" accompanied by a photo of people sitting at a table with food and encourages that doctors "Support Adherence to Treatment" accompanied by a photo of a woman taking pills.

"Common Objectives" …with Drug Companies: For more than a decade, the American Heart Association has been "advised" by their "Pharmaceutical Roundtable" (PRT) comprised of monolithic drug companies which must each pay a least $1 million per year for each 3-year term of membership.[59] According to the American Heart Association's website in a document updated August 2009[60], "The American Heart Association Pharmaceutical Roundtable (PRT) is a strategic coalition of 10 leading pharmaceutical companies and association volunteers and staff. It allows our association and members of the **pharmaceutical industry** to identify and pursue **common objectives** to improve cardiovascular health in the United States through research, patient education, and public and professional programs." Current members include:

- AstraZeneca L.P.
- Eli Lilly and Company
- Bristol-Myers Squibb Company
- GlaxoSmithKline

[56] National Heart, Lung, and Blood Institute (NHLBI). The Mission: To Combat High Blood Pressure in America http://hp2010.nhlbihin.net/mission/ Accessed December 22, 2009
[57] Centers for Disease Control and Prevention. State Heart Disease and Stroke Prevention Program Addresses High Blood Pressure. http://www.cdc.gov/dhdsp/library/fs_state_hbp.htm Accessed December 22, 2009
[58] National Heart, Lung, and Blood Institute (NHLBI). http://www.nhlbi.nih.gov/health/prof/heart/hbp/mp/mp_health.htm Accessed December 22, 2009
[59] "Each industry participant of the PRT will sign a separate agreement with AHA that will be binding only between the AHA and that individual industry member. The agreements will commit each industry member to contribute $1,000,000 per year for three years." Letter dated March 20, 1998 from Joel I. Klein (Assistant Attorney General), US Department of Justice Antitrust Division. http://www.justice.gov/atr/public/busreview/1608.htm Accessed December 23, 2009
[60] http://www.americanheart.org/presenter.jhtml?identifier=2366 Accessed December 23, 2009

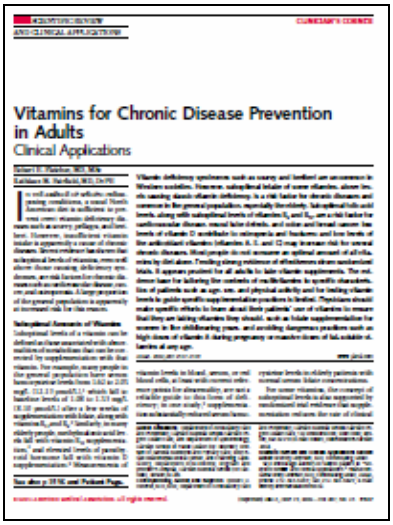
- Merck/Schering-Plough Pharmaceuticals
- Merck Pharmaceuticals
- Novartis Pharmaceuticals Corporation
- Pfizer, Inc
- Sanofi-Aventis
- Takeda Pharmaceuticals

Promoting Unhealthy Eating: Proatherosclerotic Recipes Endorsed by the US National Heart, Lung, and Blood Institute (NHLBI): The following is a partial list of atherosclerosis-promoting recipes listed under the title "Stay Young at Heart: Cooking the Heart-Healthy Way"[61] advocated on the website of the NHLBI in December 2009. Notice the lack of nutrient density, the emphasis on simple carbohydrates, the frequent use of baking with oil to create the effect of frying, the lack of raw foods, and the scarcity of phytonutrients:

- "Stir-fried beef" with boiled potatoes and white rice
- "Beef stroganoff" with 6 cups of cooked macaroni pasta
- "Crispy oven-fried chicken" cooked in cornflakes and buttermilk
- "Classic macaroni and cheese"
- "Candied yams" with brown sugar, margarine, white flour, and orange juice
- "Oven French fries" (white potatoes oven-fried in vegetable oil)
- "White rice" cooked with vegetable oil and salt
- "Sunshine (white) rice" cooked with vegetable oil, orange juice, and lemon juice
- "Homestyle biscuits" made from white flour, salt, and sugar
- "Banana-nut bread" made from mashed ripe bananas, low-fat buttermilk, packed brown sugar, margarine, all-purpose white flour, egg and salt.
- "Apricot-orange bread" made from dried apricots, margarine, white sugar, egg, white flour, dry milk powder, salt and orange juice
- "Apple coffee cake" made with peeled apples (please note that >90% of the antioxidants contained in apples are in the peel—thus when the peel is removed, virtually all that remains is antioxidant-poor carbohydrate), one cup of sugar, one cup of dark raisins, one-quarter cup vegetable oil, 1 egg, and two-and-a-half cups of sifted all-purpose white flour
- "Frosted cake" with 2 1/4 cups cake flour, 4 tablespoons margarine, 1 1/4 cups sugar, 4 eggs, low fat cream cheese, and 2 cups sifted confectioners sugar!!
- "Topical fruit compote" with sugar
- "Peach cobbler" with sugar, white flour, margarine, canned peaches "packed in juice", peach nectar, and cornstarch
- "Rice pudding" with white rice, 3 cups of skim milk, and 2/3 cup sugar

The list goes on to include many other proatherosclerotic and prodiabetic meals. Any reasonable person might ask why US National Heart, Lung, and Blood Institute would promote a diet plan that is ensured to contribute to the pandemics of hypertension, obesity, and diabetes mellitus.

[61] US National Heart, Lung, and Blood Institute (NHLBI). Stay Young at Heart: Cooking the Heart-Healthy Way. http://www.nhlbi.nih.gov/health/public/heart/other/syah/index.htm Accessed December 23, 2009



Vitamins for Chronic Disease Prevention in Adults
Clinical Applications

Fletcher RH, Fairfield KM. Vitamins for chronic disease prevention in adults: clinical applications. *JAMA*. 2002 Jun 19;287(23):3127-9

This remarkable review published in the Journal of the American Medical Association reversed "mainstream medicine's" long-held resistance to accepting the benefits of vitamin supplementation.

> "…suboptimal intake of some vitamins…is a risk factor for chronic diseases and common in the general population, especially the elderly. … **Most people do not consume an optimal amount of all vitamins by diet alone. …it appears prudent for all adults to take vitamin supplements.** … **Physicians should make specific efforts to learn about their patients' use of vitamins to ensure that they are taking vitamins they should**,…"

High-dose vitamin therapy stimulates variant enzymes with decreased coenzyme binding affinity (increased K_m): relevance to genetic disease and polymorphisms

Ames BN, Elson-Schwab I, Silver EA. High-dose vitamin therapy stimulates variant enzymes with decreased coenzyme binding affinity (increased K(m)): relevance to genetic disease and polymorphisms. *Am J Clin Nutr*. 2002 Apr;75(4):616-58

Dr Bruce Ames is one of the most respected researchers in the history of science and medicine. In this article, Dr Ames and his colleagues review the biomedical literature showing that "high-dose vitamin supplementation" improves the function of defective enzymes. By restoring function to the defective enzymes that cause disease in some people, vitamin supplementation can restore health.

> "High-dose vitamin therapies have been efficacious in ameliorating ~50 genetic diseases. The diseases are usually due to variant enzymes with decreased affinity (increased Km) for vitamin-derived cofactors. Feeding high doses of the vitamin raises the tissue cofactor concentrations and thereby increases the activity of the defective enzyme."

Spelt Berry Breakfast Bowl

Recipe by Julia Liebich DC

Ingredients:

- 2 cups spelt berries: antioxidants and fiber
- 2 apples, sliced: antioxidants and fiber
- 1/2 cup chopped walnuts: antioxidants and fiber
- 2 T butter:
- 1 T honey: antioxidants, antiinflammatory benefits
- 2 tsp vanilla:
- Cinnamon: antioxidants, appears to benefit diabetic patients
- Kefir or plain yogurt: good source of probiotics—good bacteria for your intestines and immune system

Preparation:

1. Rinse spelt berries several times, set aside (may soak spelt berries 6-8 hours prior to preparation).
2. Bring 6 cups water to boil, add rinsed spelt berries and reduce to simmer. Cover and cook until tender (approximately 45 min)
3. Slice apples, add to pan with 1 T butter, 1 tsp vanilla and sprinkle with cinnamon over medium heat. Cover; may add 1 - 2 T water to steam. Stir as needed to prevent from burning.
4. Add 1 T butter and 2 T brown sugar, 1 tsp vanilla to pan on high heat. Stir and add walnuts. Continue to stir (3-4 minutes) until walnuts have sufficiently browned.
5. Add cooked spelt berries to bowl, top with apples, fresh fruit, walnuts and kefir or plain yogurt if desired. Sprinkle with cinnamon.

Serving size: 4

See the original posting on our site here:
http://optimalhealthnutrition.com/recipe_spelt_berry_breakfast_bowl.asp

Hazelnut-Fig-Almond bars with home-made almond milk (and whey protein powder)

Recipe by Julia Liebich DC

Ingredients for the fig/prune-almond/hazelnut bars:

- 2 cups figs (or prunes) soaked for 20 minutes before use
- 2 cups almonds and hazelnuts
- 1/2 cup coconut (shredded unsweetened)

Preparation:

- Blend ingredients in food processor; add water as needed (one tablespoon (or slightly more))
- Press into mold or pan
- If consistency is too wet or if you'd like them warm (yum!), place in oven at 105 degrees (keep it raw) for 20 minutes or so

Serving Recommendations:

- Serve as above with dried dried prunes, almonds, and home-made almond milk.

For more details and uses see:
http://optimalhealthnutrition.com/recipe_figalmondbars_almondwheymilk.asp

Ingredients for the almond milk:

- 1 cup almonds soaked 6-12 hours
- 3 cups water
- 1 teaspoon vanilla
- Honey and cinnamon to taste

Preparation:

- Blend water and almonds in blender then strain mixture through cheesecloth; drain the almond milk into a container then place back into blender. Re-blend the almond milk with vanilla, honey, and cinnamon.
- Save and re-use the almonds "pulp" as a source of fiber and nutrition for our Green Brownies or one of our other health-promoting recipes.
- Add 2 scoops of our whey protein isolate to increase the health benefits and protein content. Our whey protein isolate contains 10 grams of protein per scoop.

For more details and uses see:
http://optimalhealthnutrition.com/recipe_figalmondbars_almondwheymilk.asp

Cinnamon Apple Chocolate Almonds: a wonderful and healthy snack!

Recipe by Drs Alex Vasquez and Recipe by Julia Liebich

Ingredients:

- Cinnamon: antioxidants that help improve glucose utilization
- Apple: good source of fiber and antioxidants—leave the skin on. The skin of the apple is where most of the antioxidants are located.
- Cheese: Dairy products have some benefits for cardiovascular health—just use in moderation.
- Almonds: loaded with antioxidants, fiber, and healthy fatty acids
- Chocolate: loaded with **antioxidants**

Preparation:

- Cut and slice into bite-sized pieces

Serving Recommendations:

- As pictured

For more details:
http://optimalhealthnutrition.com/recipe_cinnamon_apple_chocolate.asp

Baked Acorn Squash

How to Bake and Serve:

- Take acorn squash and cut in half as shown
- Use a spoon to remove the seeds
- Place a thin coat of olive oil, then place face-down to bake at 350F for 1 hour or until soft enough to easily pierce from the outside with a fork or knife
- Eat with a little salt and pepper or fill with mix of pan-seared ginger and shitake mushrooms

To access all of our recipes, visit our website at www.OptimalHealthNutrition.com/recipe.asp

MD Anderson Cancer Center Endorses Green Tea and Dark Chocolate to Reduce Cancer Risk!

December 2009: The December 2009 on-line edition of *Focused on Health* published by MD Anderson Cancer Center encourages green tea, dark chocolate, exercise, and increased fruit consumption to reduce the risk of developing cancer. We wholeheartedly agree!

Dark Chocolate-A Rich Source of AntiCancer Antioxidants*

According to MD Anderson Cancer Center:

- "In addition to being delicious, moderate amounts of dark chocolate may play a role in cancer prevention. … Just be sure to check the label before buying! To get those cancer prevention benefits, the chocolate should contain at least 65% cocoa."
- "Recent research shows that dark chocolate has chemicals, called flavonoids, which have been shown to play a role in reducing cancer risks. Flavanoids act as antioxidants and occur naturally in the plant-based cacao bean, the base of all chocolate products. Cacao beans are, in fact, one of the most concentrated natural sources of antioxidants that exist."
- "One way to enhance the body's antioxidant defenses is to eat antioxidant-rich foods, such as dark chocolate. Other well-known foods that contain antioxidants include blueberries, walnuts, cranberries, teas (green and black) and red wines. Antioxidant levels are determined by Oxygen Radical Absorbance Capacity, which measures a food's ability to neutralize the harmful effects of free radicals. Data from the U.S. Department of Agriculture and the Journal of the American Chemical Society indicates that dark chocolate tops the list for Oxygen Radical Absorbance Capacity on a per serving basis."
- "Choose dark chocolate with a high cacao percentage(65% or higher).
- "Include a special message in a Valentine's Day card. Remind the person you love that dark chocolate can aid in cancer prevention. Because it's only healthful in small portions, also encourage him or her to share the chocolates with others.

Green Tea--A Rich Source of AntiCancer Antioxidants

*According to MD Anderson Cancer Center***

- "Studies suggest that antioxidants in green tea protect against cancer by stopping cancer cells from growing. So what gift could be better for your loved one than a green-tea sampler?" MD Anderson Cancer Center endorses Dark Chocolate and Green Tea, December 2009
- Green tea is thought to protect against cancer by causing cell cycle arrest (which stops cancer cells from dividing wildly) and by inducing cell death (which kills tumor cells). The four major active ingredients in green tea are eipicatechin-3-gallate, epigallocatechin, epicatechin and epigallocatechin-3-gallate (EGCG). EGCG is the most researched, and it is a potent antioxidant. A cup of green tea contains about 10-142 mg EGCG and 10-90 mg caffeine. Black tea has less EGCG than green tea.

* The information on dark chocolate from MD Anderson was compiled from these two pages on December 16, 2009 http://www.mdanderson.org/publications/focused-on-health/issues/2009-december/share-the-health.html and http://www.mdanderson.org/publications/focused-on-health/issues/2009-february/valentines-sweetest-treat.html

** The information on green tea from MD Anderson was compiled from these two pages on December 16, 2009 http://www.mdanderson.org/publications/focused-on-health/issues/2009-december/share-the-health.html and http://www.mdanderson.org/education-and-research/departments-programs-and-labs/departments-and-divisions/clinical-nutrition/complementary-therapies/clinical-nutrition-green-tea.html

For more **details about the health benefits of green tea**, please see our website:
http://optimalhealthnutrition.com/details_teas.asp

For more **details about the health benefits of chocolate**, please see our website:
http://optimalhealthnutrition.com/details_chocolates.asp

Cocoa-Nut Macaroons

This is a healthfully indulgent recipe to seriously destroy and satisfy any chocolate craving :)

* Perfect & fun recipe for kids to help make*

Ingredients:

- 1/2 cup **dark chocolate**
  - http://optimalhealthnutrition.com/details_chocolates.asp
- 1 cup **unsweetened cocoa powder**
  - http://optimalhealthnutrition.com/details_chocolates.asp
- 1/4 cup **light olive oil**
  - http://optimalhealthnutrition.com/details_olive_products.asp
- 1-2 tsp vanilla
- 1/2 cup **honey**
  - http://optimalhealthnutrition.com/details_honey.asp
- 2 1/2 cups unsweetened, finely shredded coconut

NOTE: For heartier flavor, substitute 1 cup of coconut for 1 cup of oats or almond meal / ground almonds. **Experiment as you wish**... it is fun to be creative ☺ You'll also learn quickly with a little experience how to get the consistency just like you like it.

The original recipe is located at our site:
http://optimalhealthnutrition.com/recipe_cocoa_nut_macaroons.asp

Preparation:

- Add olive oil, dark chocolate, cocoa powder, honey to pan and melt together over medium heat.
- Add vanilla, sea salt (sprinkle evenly), cinnamon and coconut to pan and continue to stir until evenly mixed.
- Scoop out teaspoon size balls when cool enough to handle; form balls or flatten into cookie shapes.
- Cool and enjoy!

Serving Recommendations:

- Delicious with fresh berries and yogurt / frozen yogurt
- Also delicious while warm or slightly crisped in frying pan

The original recipe is located at our site:
http://optimalhealthnutrition.com/recipe_cocoa_nut_macaroons.asp

Vegetable (no pasta) Lasagna

Let's start by deciphering lasagna and understanding its components: Lasagna is basically a dish comprised of **5 main ingredients**:

1. wide flat pasta noodles--in this case we're using wide flat strips of vegetables such as zucchini, squash, and eggplant,
2. tomato sauce
3. vegetables and mushrooms
4. cheese: commonly ricotta, mozzarella, but also feta and cottage cheeses can be used,
5. accessory herbs and spices: including garlic, basil, olives and other components to make a richly tasteful dish.

The "magic" of lasagna is how the tastes and textures blend together during the cooking process. As long as you have the basic components included, you can make your own recipe depending upon what you like and what you have available.

We started by cutting zucchini into strips. This can be done with either a knife or with a vegetable peeler.

We layered strips of zucchini and squash, then a layer of cheese and tomato sauce, then more strips of zucchini and eggplant, then more tomato sauce, topped with basil and mushrooms. This was our first version, and it was ***delicious***.

We baked at 350 degrees Fahrenheit for 90 minutes.

For our second version, we added garlic and basil, and we cut the vegetables sideways with a food processor in order to have a more

uniform thickness. This version also included cottage cheese and ground venison for the filling.

The above version was coated with cheese and mushrooms before entering the oven, again for about 90 minutes at 350 degrees. The remaining squash, eggplant, and zucchini were baked along side to make good use of the oven being on. As you can see, the cheese was on its way to being well cooked and deliciously crispy.

See more photos and details at:
http://optimalhealthnutrition.com/recipe_vegetable_lasagna.asp

Fresh Figs with Feta & Raspberry Balsamic Drizzle

Created by Julia Liebich DC

Ingredients - Figs:

1. 2 cups fresh figs, sliced
2. Arugula or Spinach
3. 1/4 cup feta cheese, crumbled
4. 1/4 cup chopped walnuts

Ingredients – Raspberry Balsamic Drizzle:

5. 1/2 cup raspberries
6. 1/2 cup balsamic vinegar
7. 1 T. honey

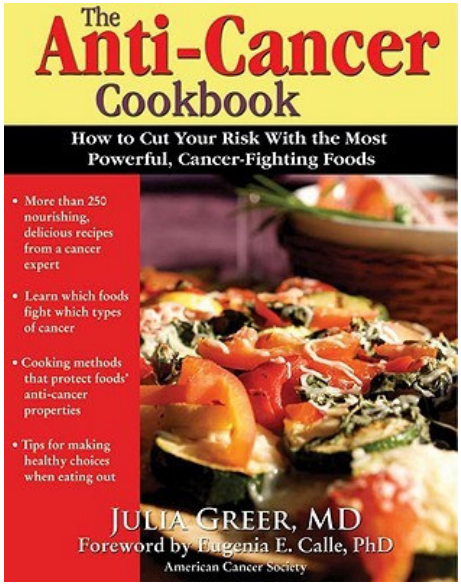
Preparation:

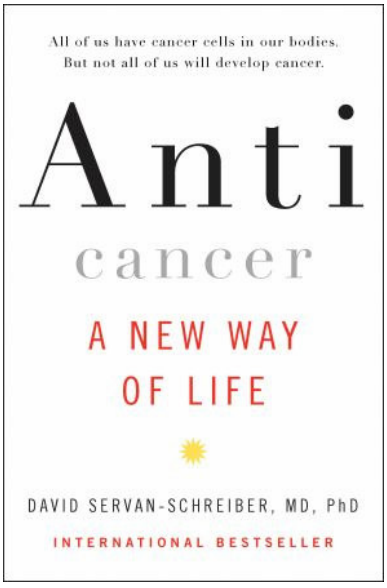
1. Add balsamic vinegar to pan and bring to high heat, add sugar, stir. Add raspberries and simmer until desired consistency.
2. Remove stems and cut figs cross-wise and lay over bed of spinach/ arugula. Top with walnuts, crumbled feta and drizzle with raspberry balsamic reduction. Top with fresh raspberries as desired.

See details: http://optimalhealthnutrition.com/recipe_fresh_figs.asp

The "AntiCancer Lifestyle" is coming of age!

We should all take advantage of this progress!





Introduction: The "AntiCancer Lifestyle" as used in this discussion is a lifestyle that incorporates specific lifestyle habits and nutritional supplements that have been demonstrated to provide a beneficial reduction in the risk of developing cancer. FDA regulations require nutritional companies to say, "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." However, the research showing that several nutritional interventions and lifestyle habits can reduce the risk of cancer is very

impressive and has been published in peer-reviewed medial journals for more than 100 years.

Regarding the above images: These are shared with you as examples of the increased use of the "anti-cancer" phrase and concept that is being applied to specific dietary patterns and lifestyle habits. Let's look review each of these publications in turn:

1. ***Anticancer Research*** is a peer-reviewed medical journal written for doctors and scientists. I (Dr Vasquez) consider it to be a progressive and generally good journal. Their website: http://www.iiar-anticancer.org/
2. "***The AntiCancer Cookbook***" is among the worst cookbooks ever published and its anticancer recipes are loaded with white flour and sugar. This book is a joke, a deception, and the fact that it was provided an endorsement by a member of the American Cancer Society shows clearly where that organization stands in relation to *authentically* improving the health of Americans and preventing cancer. In response to this problem, we are in the process of writing our own anticancer cookbook, which we will provide for free at http://www.anticancercookbook.com/
3. "***AntiCancer: A New Way of Life***" is written by a doctor who had brain cancer and then became interested in nutrition. Although the book is a fair introduction for the general public, it is weak from a scientific perspective when viewed by those of us who have doctorate-level training in nutrition and who have been reviewing the anticancer research literature for more than 10 years. While the information is generally "good", it is often generally incomplete. For example, in his discussion of soy foods, the author completely fails to mention the inhibition of tyrosine kinase (an enzyme that plays an important role in the growth of cancer) by soy products; I (Dr Vasquez) consider this a major oversight and that it probably reflects his lack of familiarity with the nutrition research literature. Despite these and other shortcomings, the book is an important step forward for most doctors and for the general public.

What action can be taken now?: Obviously, avoid exposure to known carcinogens such as chemical fumes and tobacco smoke. Follow the 5-part nutrition protocol outlined above. Make sure you get enough vitamin D3—see website for details. Emphasize a plant-based diet with plenty of phytonutrients. Check our www.OptimalHealthNutrition.com website and enlist on our newsletter for our legitimate science-based AntiCancer Cookbook which we will provide for ***free*** at http://www.anticancercookbook.com/

FDA required statement

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.

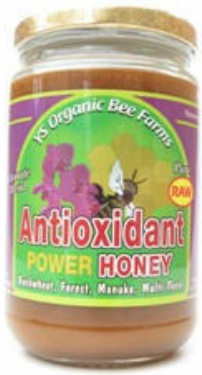
Celebrate life and your commitment to better health by using foods that provide extra benefits

These are called "**functional foods**" due to their health-promoting benefits. Another term used in the medical research is "**Polymeal**" which means to habitually consume dietary items such as red wine, dark chocolate, olive oil, fresh fish, whey protein, vegetable concentrates so that the diet is loaded with food items that provide additional and synergistic benefits.

Organic Dark Chocolate is a rich source of antioxidants with proven clinical benefits and can be included in your daily diet. Within a context of a health-promoting Paleo-Mediterranean Diet and the 5-Part Nutrition Protocol, chocolate can be a health-promoting addition for an antioxidant-rich snack, especially if combined with other health-promoting goodies like nuts, fresh fruit, and yogurt. In a very real sense, chocolate exemplifies the fact that great health can be fun and tasty, too! Chocolate does not have to be "junk food", and we don't have to feel guilty as if we are "cheating" simply because we enjoy tasty foods *within the context of an overall health plan that is built upon the* Paleo-Mediterranean Diet and the 5-Part Nutrition Protocol along with almost-daily exercise.

Our health-promoting antioxidant organic teas: **Our organic teas** have unique attributes that make them particularly important to your health-promoting and disease prevention plan.

See more details and active hyperlinks at this page:
http://optimalhealthnutrition.com/healthy_chocolates_oiliveoil_whey_phytogreens.asp



Organic Honey Products: All of **our honey products are organic**, and they provide the anti-oxidant, anti-inflammatory and anti-allergy benefits shown in research.

Whey Protein Isolate: **Whey protein isolate** is a very high-quality, very versatile, and very convenient form of dietary protein. Whey protein isolate can be mixed with water or juice and consumed for a quick no-carbohydrate no-fat source of protein; it can be mixed in a blender with berries and the **Combination Fatty Acid Formula** for a more complete health-promoting meal or snack. We also have recipes on the website for the use of whey protein, for example in our raw protein brownie bars.

Premium Organic Olive oil: Organic Limited Reserve Extra Virgin Olive Oil

This single-estate Tuscan extra virgin olive oil is produced in limited quantities each harvest year. Made from **100% organic Tuscan olives pressed within 24 hours of harvest**, this extra virgin olive oil has an exquisite Tuscan tasting profile. It is "green", with notes of artichoke and a distinct peppery finish. A product of sustainable agriculture, the olives are harvested by hand at precisely the right time and **crushed within 24 hours** to capture the maximum freshness of the olive fruit and its legendary health benefits. This oil is certified Kosher Parve. Ingredients: 100% Tuscan olive oil

See more details and active hyperlinks at this page:
http://optimalhealthnutrition.com/healthy_chocolates_oiliveoil_whey_phytogreens.asp

Updates:

The version of the document you are reading was updated on **Monday, March 22, 2010**; if more than 1-2 months have passed, please see our website for any updates.

Updates to this information will be posted at our website: http://OptimalHealthNutrition.com/**hypertension**.asp.