

Entry Level Clinical Nutrition: A cost effective, practical and simple addition to the functional medicine repertoire

Part I: Introduction

Jeffrey Moss, DDS, CCN, DACBN

413-530-0858 (cell)

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Summer of Work Exposes Medical Students to System's Ills - NYTimes.com Page 1 of 3

The New York Times

THE CLERGY OF THE EPISCOPAL CHURCH IN AMERICA HAS VOTED TO CALL FOR ADOPTING PRESIDENT OBAMA'S HEALTH CARE PLAN AND OPPOSED REPUBLICAN EFFORTS TO BLOCK IT.

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September 9, 2009
Summer of Work Exposes Medical Students to System's Ills

BY KENNETH COOPER

SEATTLE — This summer, medical students from the University of Washington took a long look under the hood of the health care system they are about to inherit, and many returned to campus last week with their eyes wide open and their idealism tempered.

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Summer of work exposes medical students to system's ill, *The New York Times*, September 9, 2009

The students learned not only to deliver babies and suture wounds, but also to order unnecessary tests as protection against lawsuits, to hector specialists into seeing Medicaid patients, to match patients with prescriptions on Wal-Mart's \$4 list. And they saw firsthand what Mr. Olsgaard called "a tidal wave of chronic disease" — diabetes, hypertension, obesity, depression — that left many questioning how much any one physician could really accomplish.

"I often wondered what we were actually doing to help people," Mr. Olsgaard said.

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“...a tidal wave of chronic illness...”

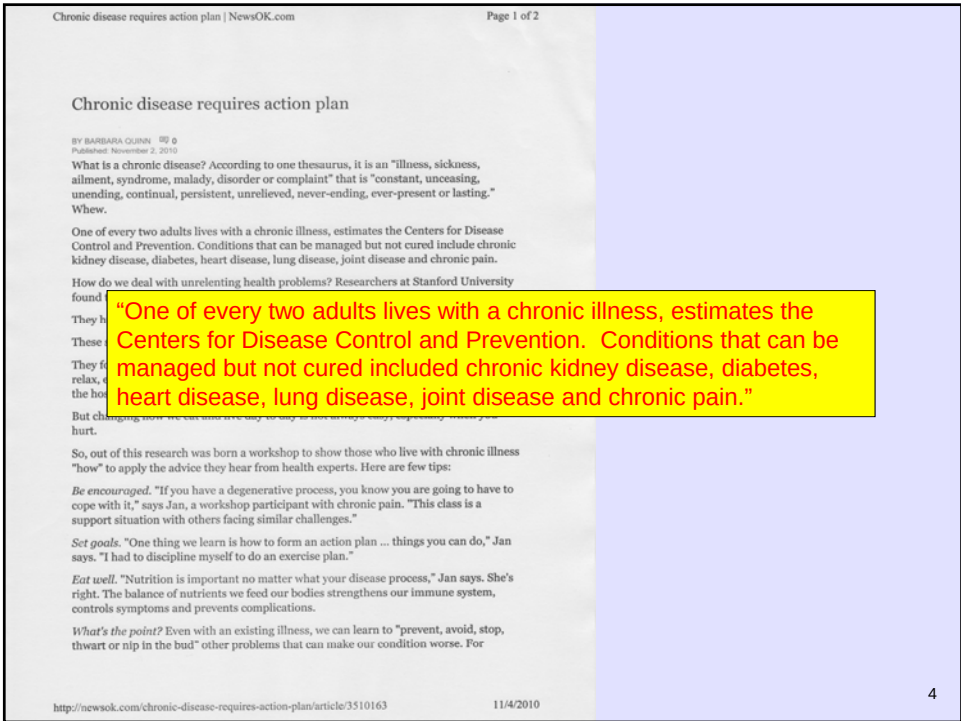
For 71 years, the University of Washington School of Medicine has dispatched its rising second-year students across the Northwest to provide primary care in rural or underserved areas. The monthlong program is elective, but a record number of students took part this year — 117 from a class of 216.

The school has a cooperative agreement to train medical students from Alaska, Idaho, Montana and Wyoming, none of which has a medical college of its own. The summer program is one of several vehicles, along with loan forgiveness enticements, designed to lure students back to their home states to practice in areas with a shortage of primary care givers.

This year, the students set out as negotiations were intensifying in Washington over wholesale changes to the health care system they will soon be joining. Whether there will be improvements to the system remains to be seen, but few students returned thinking there was little to fix.

http://www.nytimes.com/2009/09/09/health/policy/09medschool.html?_r=1&th=&emc=th& 9/9/2009

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Print Story: Americans sicker but English die quicker says study - Yahoo! News

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YAHOO! NEWS

PRINT Back to story

Americans sicker but English die quicker says study

REUTERS

By Kate Kelland and Julie Steenhuisen
Thu Nov 4, 12:14 am ET

LONDON/CHICAGO (Reuters) - Older Americans suffer more chronic disease than their English counterparts, but the English die earlier, according to a study on Thursday that could revive debate about whose health system is better.

Researchers at the U.S.-based RAND Corp and Britain's Institute for Fiscal Studies (IFS) found that while Americans aged 55 and older have higher rates of chronic disease, they live longer than elderly people who get ill in England.

"If you get sick at older ages, you will die sooner in England than in the United States," said James Smith, an economist with RAND in Santa Monica, California, who co-authored the study with James Banks and Alastair Muriel of the IFS.

"It appears that at least in terms of survival at older ages with chronic disease, the medical system in the United States may be better than the system in England."

But that edge comes at a price.

Organisation for Economic Co-operation and Development (OECD) data show the United States spends more on healthcare than any other nation, and Banks said spending on healthcare for the elderly in the U.S. is almost double that in England.

In 2008, the latest year for which full OECD figures are available, the United States spent 16 percent of its national output or \$7,538 per person on health -- well over double the \$3,000 per person average of all OECD countries.

British politicians leapt to defend the state-funded National Health System when it was attacked during the 2009 U.S. presidential election campaign by Republicans who used criticism of the NHS -- which they called a socialist system -- to stoke opposition to Barack Obama's healthcare reforms.

Supporters of Obama's reforms argue too many people fall through the net and are without medical insurance. Once people in the United States turn 65, however, they become eligible

http://news.yahoo.com/s/nm/20101104/fc_nm_life/us_elderly_britain_us_2/print

11/4/2010

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2A - FRIDAY, SEPTEMBER 24, 2010 - USA TODAY

Study: USA is fattest among advanced countries

By Nanci Hellmich
USA TODAY

The United States is the fattest nation among 33 countries with advanced economies, according to a report out today from an international think tank.

Two-thirds of people in this country are overweight or obese; about a third of adults -- more than 72 million -- are obese, which is roughly 30 pounds over a healthy weight.

Obesity rates have skyrocketed since the 1980s in almost all the countries where long-term data is available, says the report from the Organization for Economic Cooperation and Development (OECD), which works on policies to promote better economies and quality of life. Countries with the fastest obesity growth rates: the United States, Australia and England.

"Obesity is a growing threat to public health in all the advanced countries throughout the world," OECD spokesman Matthias Rumpf says. Obesity causes illnesses, reduces life expectancy and increases health care costs, he says.

Obesity increases the risk of heart disease, diabetes, several types of cancer



In the fight: First lady Michelle Obama participates in Let's Move! Campaign festivities with children in New Orleans on Sept. 8 to push exercise and battle obesity.

and other diseases. Obesity cost the U.S. an estimated \$147 billion in weight-related medical bills in 2008, according to a study by government scientists.

"We have to find the most effective

and cost-efficient way to deal with the problem," Rumpf says. "Countries can learn from each other, and the best and most effective policies can be used in all countries."

Among OECD's recommendations:

► Individual lifestyle counseling by family doctors and dietitians to increase the life expectancy and quality of life for people who are obese or at risk of becoming so. "It costs a lot of money," Rumpf says, "but you get a lot for this money."

► Health promotion campaigns, compulsory food labeling and a serious commitment from the food industry to stop advertising unhealthy foods to kids.

"There are a lot of these things going on in the U.S. already, but the question is (whether) you can adjust and redirect the policies to make them more effective," he says. "No one can fix the problem, but we can reduce it."

Neville Rigby, director of the European Obesity Forum, says the OECD report "is important because it provides clear evidence that the way most countries have been approaching obesity has been doomed to failure."

"Obesity must be tackled by a multi-pronged approach that involves a combination of strong policy measures at the same time as individual management issues are addressed by physicians and their teams," he says.

The report "makes the case for a much more robust set of government and societal actions," Rigby says. If society waits for business and individuals to do what is really needed, "the obesity epidemic will simply get much, much worse."

Battling the bulge

Highest		
Country	Women	Men
United States	36%	32%
Mexico	35%	24%
Chile	32%	19%
New Zealand	27%	26%
United Kingdom	25%	24%

Lowest		
Country	Women	Men
Japan	2%	2%
Korea	4%	4%
Switzerland	8%	9%
Norway	8%	11%
Italy	9%	11%

Source: Organization for Economic Co-operation and Development data on OECD member countries

Report: Poor science education impairs U.S. economy

By Dan Vergano
USA TODAY

Stagnant scientific education imperils U.S. economic leadership, says a report by leading business and science figures.

Released Thursday at a congressional briefing attended by senators and Congress members of both parties, the report updates a 2005 science education

report that led to moves to double federal research funding.

Nevertheless, the Rising Above the Gathering Storm review finds little improvement in U.S. elementary and secondary technical education since then.

"Our nation's outlook has worsened," concludes the report panel headed by former Lockheed Martin chief Norman Augustine. The report "paints a

daunting outlook for America if it were to continue on the perilous path it has been following."

► U.S. K-12 education in mathematics and science ranks 48th worldwide.

► 49% of U.S. adults don't know how long it takes for the Earth to circle the sun.

► China has replaced the United States as the world's top high-technology producer.

Although U.S. school achievement scores have stagnated, harming the economy as employers look elsewhere for competent workers, the report says that other nations have made gains.

If the U.S.'s students matched Finland's, for example, analysis suggests the U.S. economy would grow 0.16%.

"The real point is that we have to jump a world

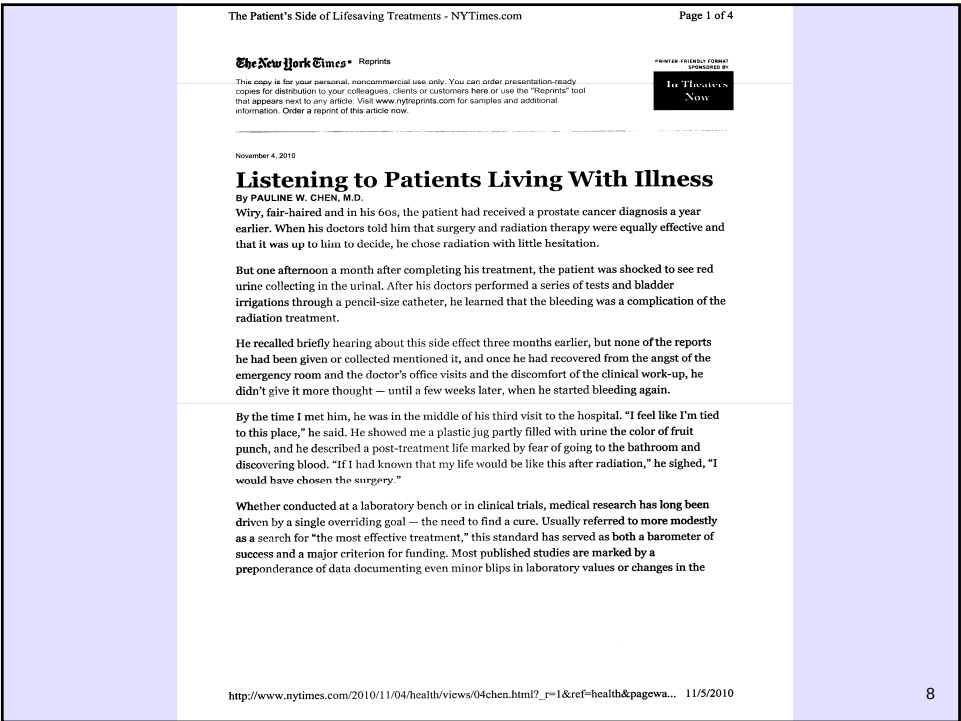
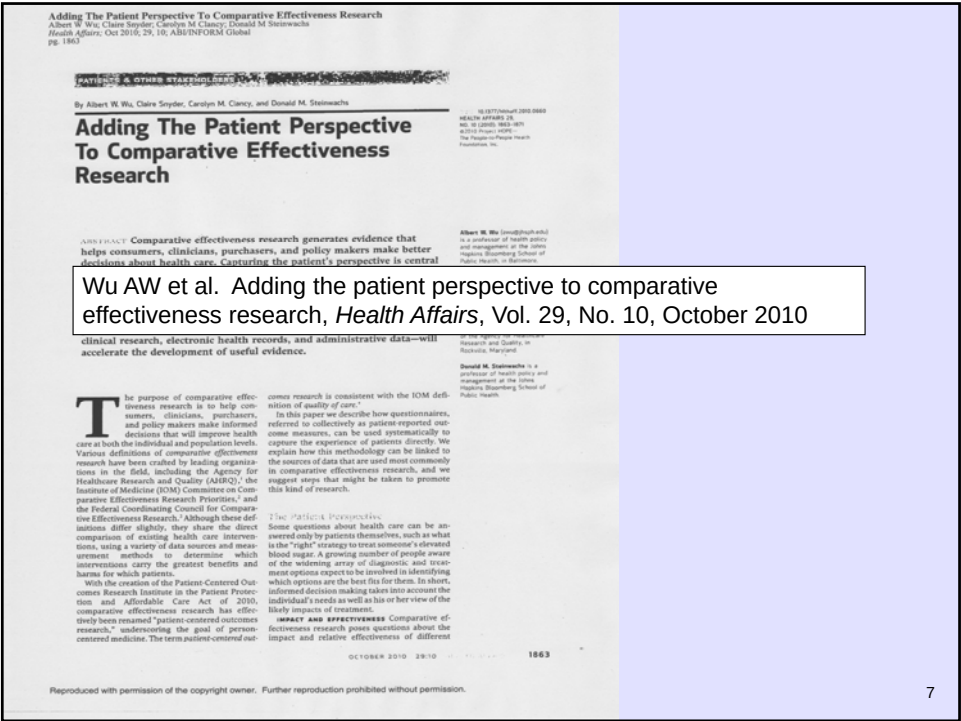
opportunities for young people," says Charles Vest, head of the National Academy of Engineering, a report sponsor. "Otherwise, we don't have a chance."

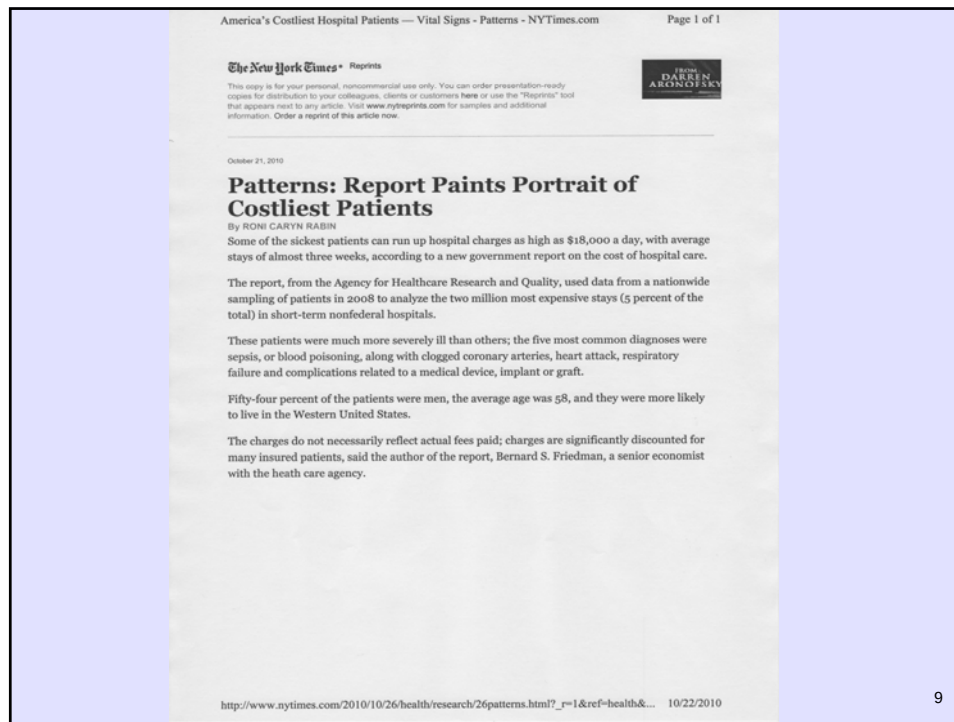
"The current economic crisis makes the link between education and employment very clear," says Steven Newton of the National Center for Science Education in Lakewood

led by B. Lindsay Lowell of Georgetown University found that worries about U.S. science education were overblown. It saw three times more science and engineering college graduates than job openings each year.

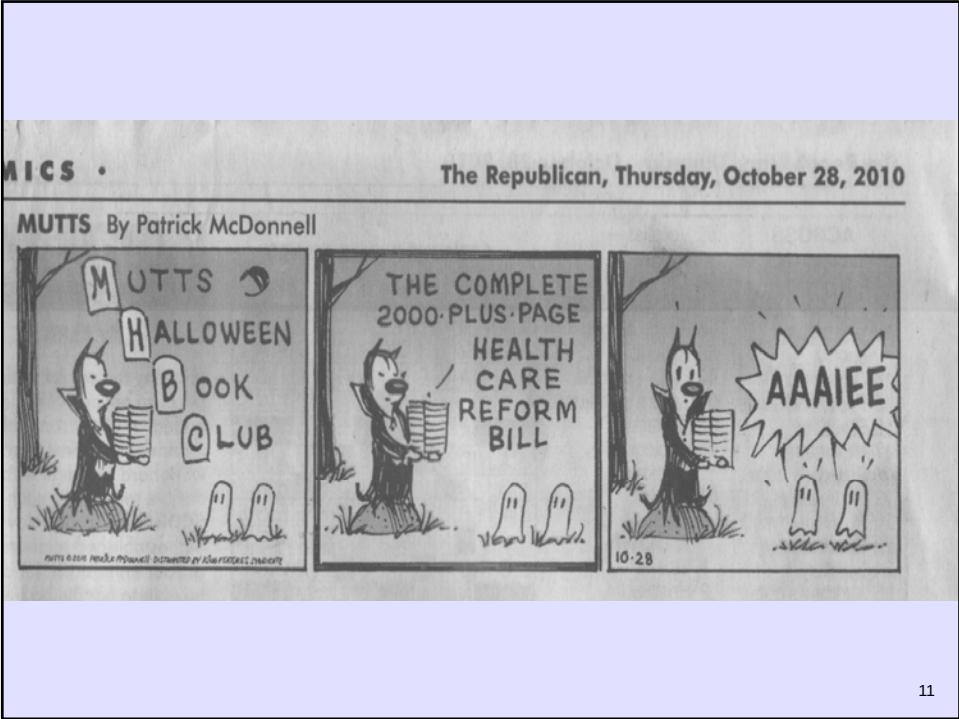
Other reports have found high science and engineering students struggling to better science education.

Entry Level Clinical Nutrition
Dr. Jeff Moss

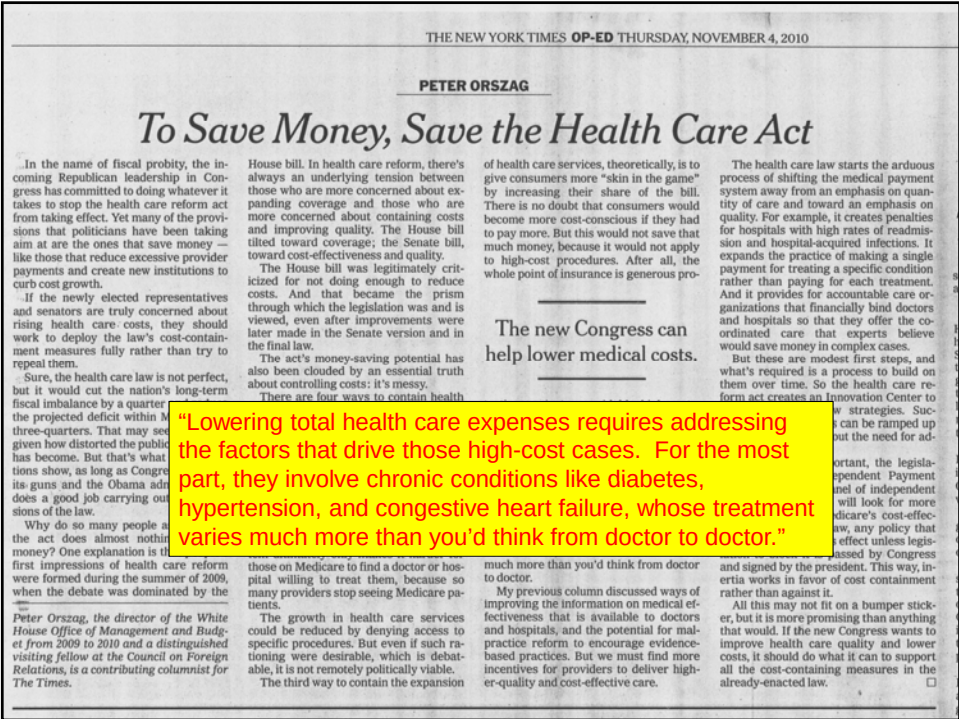




- “Some of the sickest patients can run up hospital charges as high as \$18,000 a day, with average stays of almost three weeks, according to a new government report on the cost of hospital care.”
- “These patients were much more severely ill than others; the five most common diagnoses were sepsis, or blood poisoning, along with clogged arteries, heart attack, respiratory failure and complications related to a medical device, implant or graft.”



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BOOKS ON SCIENCE | Katherine Bouton

Wrapped in Data and Diplomas, It's Still Snake Oil

Ben Goldacre is exasperated. He's not exactly angry — that would be much less fun to read — except in certain circumstances. He is irked, vexed, bugged, ticked off at the sometimes in-advertent (because of stupidity) but more often deliberate deceptions perpetrated in the name of science. And he wants you, the reader, to share his feelings.

His initial targets are benign. Health spas and beauty salons offer detox foot-baths for \$30 and up, or you can buy your own machine online for \$149.99. You put your feet in salt water through which an electrical charge runs. The water turns brown, the result of electrolysis, and you're supposedly detoxed. Dr. Goldacre describes how one could produce the same effect with a Barbie doll, two nails, salt, warm water and a car battery charger, thus apparently detoxing Barbie. The method is dangerous, however, because of the chance of getting a nasty shock, and he wisely warns readers not to try his experiment themselves. As for homeopathy, he says that it may indeed work but it's not because of the ingredients in those pills. You can pay for Valmont Cellular DNA Complex (made from "specially treated salmon roe DNA"), but Vaseline works just as well as a moisturizer.

There's more here than just debunking nonsense. The appearance of "scienicness": the diagrams and graphs, the experiments (where exactly was that study published?) that prove their efficacy are all superficially plausible, with enough of a "hasse barrier" to deter a closer look. Dr. Goldacre (a very boyish-looking 36-year-old British physician and author of the popular weekly "Bad Science" column in The Guardian) shows us why that closer look is necessary and how to do it.

You'll get a good grounding in the importance of evidence-based medicine (the dearth of which is a "gaping" hole in our culture). You'll learn how to weigh the results of competing trials using a funnel plot, the value of meta-analysis and the Cochrane Collaboration. He points out common methodological flaws: failure to blind the researchers to what is being tested and who is in a control group, misunderstanding, randomization, ignoring the natural process of regression to the mean, the bias toward positive results in publication. "Studies show" is not good enough, he writes: "The plural of 'anecdote' is not data."

Dr. Goldacre has his favorite nemeses, one of the most prominent being the popular British TV nutritionist Gillian McKeith, whose books and diet supplements are wildly successful. According to her Web site, "Gillian McKeith earned a Doctorate (PhD) in Holistic Nutrition from the American Holistic College of Nutrition, which is now known as the Clayton College of Natural Health." (The college closed in July of this year.) Clayton was not accredited, and offered a correspondence course to get a Ph.D. that cost \$6,400. She is also a "certified professional member" of the American Association of Nutritional Consultants, where, Dr. Goldacre writes, he managed to get certification for Hettie, his dead cat, for \$60. Ms. McKeith has agreed not to call herself "Dr." anymore.

There's nothing wrong, he says, with the substance of her diet ("anyone who tells you to eat more fresh fruits and vegetables is all right by me") any more than with diets that advise drinking plenty of water and moderate alcohol intake and exercise. What he does object to is the "proprietaryization of common sense." Adding sciency flourishes and a big price tag to the advice may enhance the placebo effect, "but you might also wonder whether the primary goal is something much more cynical and lucrative: to make common sense copyrightable, unique, patented and owned."

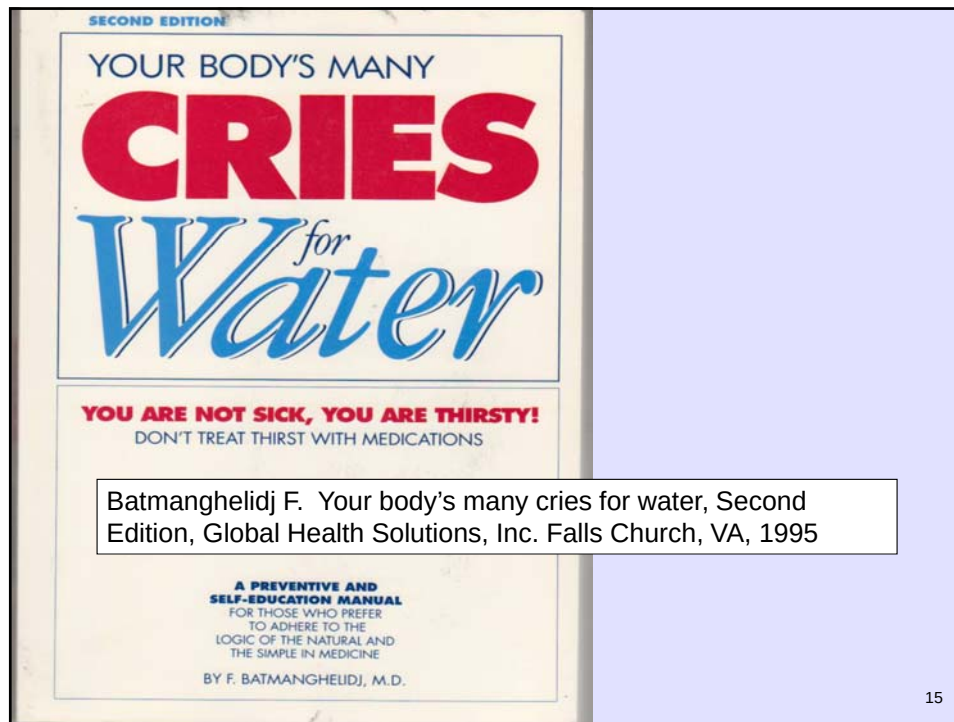
Sometimes bad science is downright harmful, and in the chapter titled "The Doctor Will Sue You Now," the usually affable Dr. Goldacre is indeed angry, and rightly so. The chapter did not appear in the original British edition of the book because the doctor in question, Dr. Matthias Rath, a vitamin pill entrepreneur, was suing The Guardian and Dr. Goldacre personally on a libel complaint. He dropped the case (after the Guardian had amassed \$770,000 in legal expenses) paying \$365,000 in court costs. Dr. Rath, formerly head of cardiovascular research at the Linus Pauling Institute in Menlo Park, Calif., and founder of the nonprofit Dr. Rath Research Institute, is, according to his Web site, "the founder of Cellular Medicine, the groundbreaking new health concept that identifies nutritional deficiencies at the cellular level as the root cause of many chronic diseases."

Dr. Rath's ads in Britain for his high-dose vitamins have claimed that "90 percent of patients receiving chemotherapy for cancer die with months of starting treatment" and suggested that three million lives could be saved if people stopped being treated with "poisonous compounds." He took his campaign to South Africa, where AIDS was killing 300,000 people a year, and in newspaper ads proclaimed that "the answer to the AIDS epidemic is here." The ads asked, "Why should South Africans continue to be poisoned with AZT? There is a natural answer to AIDS." That answer was multivitamin supplements, which he said "cut the risk of developing AIDS in half."

"Tragically," as Dr. Goldacre writes, Dr. Rath found a willing ear in Thabo Mbeki. Despite condemnation by the United Nations, the Harvard School of Public Health and numerous South African health organizations, Dr. Rath's influence was pervasive. Various studies have estimated that had the South African government used antiretroviral drugs for prevention and treatment, more than 300,000 unnecessary deaths could have been prevented.

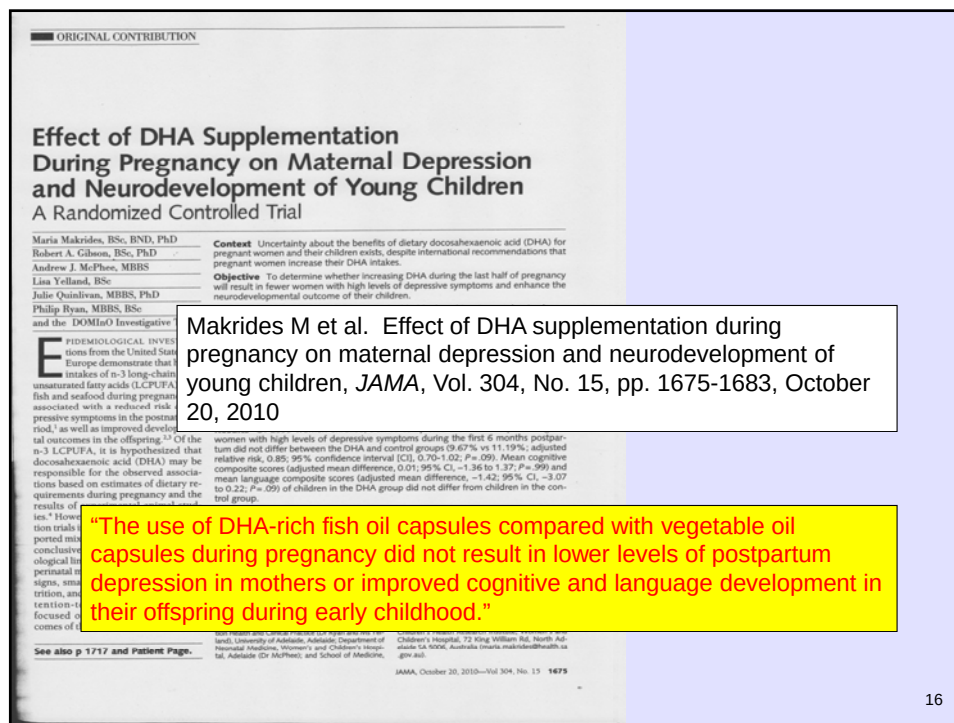
You don't have to buy the book to read the whole sorry story, which is readily available online. Dr. Goldacre believes in the widest possible dissemination of information. But if you do buy the book, you'll find it illustrated with lucid charts and graphs, footnoted (I'd have liked more of these), indexed and far more serious than it looks. Depending on your point of view, you'll find it downright snarky or wittily readable.

The thirsty man syndrome



Batmanghelidj F. Your body's many cries for water, Second Edition, Global Health Solutions, Inc. Falls Church, VA, 1995

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Makrides M et al. Effect of DHA supplementation during pregnancy on maternal depression and neurodevelopment of young children, JAMA, Vol. 304, No. 15, pp. 1675-1683, October 20, 2010

"The use of DHA-rich fish oil capsules compared with vegetable oil capsules during pregnancy did not result in lower levels of postpartum depression in mothers or improved cognitive and language development in their offspring during early childhood."

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ORIGINAL CONTRIBUTION

Docosahexaenoic Acid Supplementation and Cognitive Decline in Alzheimer Disease A Randomized Trial

Joseph F. Quinn, MD
Rena Raman, PhD
Ronald G. Thomas, PhD
Karin Yurko-Mauro, PhD
Edward R. Nelson, MD
Christopher Van Dyck, MD
James E. Galvin, MD
Jennifer Lee
Clifford R. Jack
Michael W. Weiner
Lynne S. Shiner
Paul S. Aisen

Context Docosahexaenoic acid (DHA) is the most abundant long-chain polyunsaturated fatty acid in the brain. Epidemiological studies suggest that consumption of DHA is associated with a reduced incidence of Alzheimer disease. Animal studies demonstrate that oral intake of DHA reduces Alzheimer-like brain pathology.

Objective To determine if supplementation with DHA slows cognitive and functional decline in individuals with Alzheimer disease.

Design, Setting, and Patients A randomized, double-blind, placebo-controlled trial of DHA supplementation in individuals with mild to moderate Alzheimer disease (Mini-

Quinn JF et al. Docosahexaenoic acid supplementation and cognitive decline in Alzheimer disease, JAMA, Vol. 204, No. 17, pp. 1903-1911, November 3, 2010

“Supplementation with DHA compared with placebo did not slow the rate of cognitive and functional decline in patients with mild to moderate Alzheimer disease.”

Downloaded from www.jama.com at University of Bridgeport on November 3, 2010

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AJCN. First published ahead of print May 19, 2010; doi: 10.3945/ajcn.2010.20175.

Dietary intake of n-3 long-chain polyunsaturated fatty acids and coronary events in Norwegian patients with coronary artery disease¹⁻³

Mari S Manger, Elin Strand, Maria Ebbeling, Reinhard Selfer, Helga Refsum, Jan E Nordrehaug, Dennis W Nilsen, Christian A Drevon, Grethe S Tell, Øyvind Bleie, Stein E Vollset, Eva R Pedersen, and Ottar Nygård

ABSTRACT
Background: Consumption of fish and n-3 (omega-3) long-chain polyunsaturated fatty acids (LCPUFAs) has been associated with reduced risk of coronary artery disease (CAD) mortality.
Objective: The aim was to examine the relation between dietary intake of n-3 LCPUFAs or fish and risk of future coronary events or mortality in patients with well-treated CAD.
Design: This was a substudy of the Norwegian Diet and Cancer Study (NORCA), a cohort study of 27,000 Norwegian men aged >18 years, who completed a food-frequency questionnaire (FFQ) and provided blood samples for analysis of fatty acid composition. The FFQ included questions on intake of fish and intake of supplements containing fish oil. The primary endpoint was a composite of nonfatal acute myocardial infarction (MI), nonfatal stroke, and death from cardiovascular causes.
Results: The mean (±SD) intake of n-3 LCPUFAs was 0.58 (±0.28) g/d, and the mean (±SD) intake of fish was 0.83 (±0.34) g/d. We found no dose-response relation between intake of n-3 LCPUFAs or fish and risk of coronary events or mortality in the multivariable-adjusted model.
Conclusions: Among Norwegian patients with CAD consuming relatively high amounts of n-3 LCPUFAs and fish, there were no significant trends toward a reduced risk of coronary events or mortality.

Manger MS et al. Dietary intake of n-3 long-chain polyunsaturated fatty acids and coronary events in Norwegian patients with coronary artery disease, Am J Clin Nutr, published ahead of print May 19, 2010

“In this population with established and well-treated CAD and with a relatively high intake of n-3 LCPUFAs, we observed no significant association between intakes of n-3 LCPUFAs or fish and risks of coronary events or mortality. Only patients with very low intakes of these fatty acids may reduce their risk of coronary events by increasing their intakes.”

Am J Clin Nutr doi: 10.3945/ajcn.2010.20175. Printed in USA. © 2010 American Society for Nutrition

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Entry Level Clinical Nutrition

Dr. Jeff Moss

Forum

Vitamin/mineral supplements: of questionable benefit for the general population

Donald B McCormick

In the United States today, there is a multibillion dollar industry in dietary supplements with at least a third sold as vitamin/mineral pills and drinks. Though everyone requires small amounts of these essential micronutrients, and supplements are of benefit to some within the population, the considerable majority of people can fulfill their needs with the intake of healthy diets of mixed foods. In addition, the fortification of some processed foods adds extra amounts of several micronutrients, especially those for which there is deemed to be a need in special segments of our population. In spite of this safe and adequate level of intake, there are many who have been led to believe that the frequent ingestion of supplements will be helpful in their efforts to maintain optimal health, live longer, and even prevent or cure non-deficiency diseases. It is the intent of this article to unravel the causes and misconceptions behind this practice and to emphasize that most of the money spent on unnecessary supplementation could be better used for other purposes.

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There are 13 vitamins that are essential to life, and we eat the diet that provides them. The diet, and nutritional requirements for these micronutrients were detailed during the past century. Understanding at the molecular level has revealed that most vitamins and trace minerals function after metabolic conversion to cofactors within enzyme systems that

tain growth, health, and normal reproductive function, but avoid such excesses as may be deleterious. Most of the peer-reviewed literature on this subject has been summarized in volumes that collate information within periodically updated chapters that are especially appropriate for

McCormick DB. Vitamin/mineral supplements: of questionable benefit for the general population, *Nutr Rev*, Vol. 68, No. 4, pp. 207-213, April 2010

"The continued and important advice for the public is to get their essential micronutrients from foods when possible. The use of supplements should be sparing and best decided in consultation with professionals. The public may additionally benefit from a more careful examination of the excess nutrients consumed in fortified foods, cereals, and vitamin 'enhanced' products."

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Arch Intern Med - Abstract: Effects of Lowering Homocysteine Levels...
<http://archinte.ama-assn.org/cgi/content/short/170/18/1622>

ARCHIVES OF INTERNAL MEDICINE

Vol. 170 No. 18, October 11, 2010

Review Article

LESS IS MORE

Effects of Lowering Homocysteine Levels With B Vitamins on Cardiovascular Disease, Cancer, and Cause-Specific Mortality

Meta-analysis of 8 Randomized Trials Involving 37 485 Individuals

Robert Clarke, FRCP; Jim Halsey, BSc; Sarah Lewington, DPhil; Eva Lonn, MD; Jane Armitage, FRCP; JoAnn E. Manson, MD, DrPH; Kaare H. Benaas, MD; J. David Spence, MD; Ottav Nygård, MD; Rex Jamison, MD; J. Michael Gaziano, MD; Peter Guarino, PhD; Derrick Bennett, PhD; Fraz Mir, MD; Richard Peto, FRS; Rory Collins, FRCP; for the B-Vitamin Treatment Trialists' Collaboration

Arch Intern Med. 2010;170(18):1622-1631. doi:10.1001/archinternmed.2010.348

Elevated plasma homocysteine levels have been associated with higher risks of cardiovascular disease. Lowering homocysteine levels with B vitamins to lower plasma homocysteine levels were obtained from folic acid in cardiovascular events during events (399 3010 cancer reduction). The allocation had no significant effects on vascular outcomes, with rate ratios (95% confidence intervals) of 1.01 (0.97-1.05) for major vascular events, 1.03 (0.97-1.10) for major coronary events, and 0.96 (0.87-1.06) for stroke. Likewise, there were no significant effects on vascular outcomes in any of the subgroups studied or on overall mortality.

Clarke R et al. Effects of lowering homocysteine levels with B vitamins on cardiovascular disease, cancer and cause-specific mortality, *Arch Int Med*, Vol. 170, No. 18, October 11, 2010

"Dietary supplementation with folic acid to lower homocysteine levels had no significant effects within 5 years on cardiovascular events or on overall cancer or mortality in the populations studied."

Oxford, England (Dr Clarke, Lewington, Armitage, Bennett, Peto, and Collins and Mr Halsey); Population Health Research Institute and Division of Cardiology, Department of Medicine, McMaster University, Hamilton, Ontario, Canada (Dr Lonn); Department of Medicine, Harvard Medical School, Brigham and Women's Hospital (Dr Manson), and Massachusetts Veterans Epidemiology Research and Information Centre, Veterans Affairs Boston Healthcare System (Dr Gaziano), Boston, Massachusetts; Department of Heart Disease, University Hospital of Northern Norway, Tromsø (Dr Benaas); Department of Neurology, Roberts Research Institute, University of Western Ontario, London, Ontario (Dr Spence); Department of Heart Disease, University of Bergen, Bergen, Norway (Dr Nygård); Department of Medicine, Veterans Affairs Palo Alto Healthcare System and Stanford University School of Medicine, Palo Alto, California (Dr Jamison); Cooperative Studies Program, Department of Veterans Affairs, Connecticut Veterans Affairs Healthcare System, West Haven (Dr Guarino); and Department of Clinical Pharmacology, Addenbrookes'

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B-vitamins reduce the long-term risk of depression after stroke: The VITATOPS trial

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Rapid Communication
B-vitamins reduce the long-term risk of depression after stroke: The VITATOPS trial

Oswaldo P, Almeida MD, PhD, FRCPC, FRCPC^{1,2,3,4}, Kyle Moore PhD^{5,6}, James Adams MD, PhD^{7,8}, Lynn Fraser MD^{9,10}, PhD, FRCPC^{11,12}, Timothy M.E. Evans MD^{13,14}, Bruce Wilson MD, FRCPC^{15,16}, Christine J. Murray MD, FRCPC^{17,18}, FRCPC¹⁹

Article first published online: 25 OCT 2010
DOI: 10.1002/ana.22189
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Abstract
Objectives: The VITATOPS trial was a randomized controlled trial of B-vitamin supplementation in stroke survivors. The primary outcome was the prevalence of major depression at the end of treatment. Other measured factors included age, gender, poststroke disability, and use of antidepressants.

Results: Among 273 people who completed the first assessment after 7 ± 2.7 years (mean ± standard deviation) of follow-up, random assignment to B-vitamins was associated with a lower hazard of major depression compared with placebo (HR 0.48, 95% confidence interval [CI] 0.21–1.08, adjusted hazard ratio [aHR] 0.48, 95% CI 0.21–1.08) and a trend toward a lower rate of major or minor depression at the end of the trial compared with placebo (19.1% vs 27.7%, adjusted odds ratio [aOR] 0.58, 95% CI 0.21–1.58).

Interpretation: Long-term treatment of poststroke survivors with folic acid, B6, and B12 was associated with a reduction in the hazard of major depression in our patient population. If these findings can be validated externally, B-vitamin supplementation offers hope as an effective, safe, and affordable intervention to reduce the burden of poststroke depression.

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AJCN. First published ahead of print September 22, 2010 as doi: 10.3945/ajcn.2010.29371.

Multivitamin use and the risk of myocardial infarction: a population-based cohort of Swedish women^{1–3}

Suominen Rautianen, Agneta Åkesson, Emily B. Leviton, Rolf Mørgersten, Murray A. Mittleman, and Alicja Wolk

ABSTRACT
Background: Dietary supplements are widely used in industrialized countries. There is only one published randomized controlled trial (RCT) on low-dose multivitamin supplements (including vitamin C, vitamin E, β-carotene, selenium, and zinc) and incident CHD in healthy adults.

Results: During an average of 10.2 y of follow-up, 932 MI cases were identified. The study included 31,671 women with no history of cardiovascular disease (CVD) and 2262 women with a history of CVD aged 49–83 y from Sweden.

Conclusion: The use of multivitamin supplements was not associated with MI, especially long-term use among women with no CVD. Further prospective studies with detailed information on the content of supplements are needed to clarify the role of multivitamins in the prevention of CVD.

INTRODUCTION
The use of dietary supplements by people aged 18 and older has increased in many countries (1, 2). In the United States, for example, the prevalence of CVD is high, and the use of dietary supplements is widespread (3). Despite the availability of dietary supplements, the role of multivitamins in the prevention of CVD remains unclear. A recent Cochrane review reported that single supplements of vitamin A, β-carotene, or vitamin E used in different RCTs, which were expected to have beneficial effects on different health outcomes, were related to higher mortality (4).

RESULTS
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A recent Cochrane review reported that single supplements of vitamin A, β-carotene, or vitamin E used in different RCTs, which were expected to have beneficial effects on different health outcomes, were related to higher mortality (4).

CONCLUSION
The use of multivitamin supplements was not associated with MI, especially long-term use among women with no CVD. Further prospective studies with detailed information on the content of supplements are needed to clarify the role of multivitamins in the prevention of CVD.

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Vitamin C requirement in surgical patients
Ryoji Fukushima and Eriko Yamazaki

Department of Surgery, Tokyo University School of Medicine, 2-1-1 Hongo, Bunkyo-ku, Tokyo, Japan
Correspondence to: Dr Ryoji Fukushima, MD, PhD, Department of Surgery, Tokyo University School of Medicine, 2-1-1 Hongo, Bunkyo-ku, Tokyo 113-8505, Japan
Tel: +81 3 5859 1231; fax: +81 3 5275 5307; e-mail: ryof@med.tohyoku.ac.jp

Current Opinion in Clinical Nutrition and Metabolic Care 2010, 13(2):000

Purpose of review
To summarize recent findings on vitamin C status and assess the requirement and optimal dose of supplementation in surgical patients.

Recent findings
Blood vitamin C concentration falls after uncomplicated surgery and further decreases in surgical intensive care unit patients. The decline may be owing to increased demand caused by increased oxidative stress. To normalize plasma vitamin C concentration, much higher doses than the recommended daily allowance or doses recommended in parenteral nutrition guidelines are needed in these patients. In uncomplicated surgical patients, more than 500 mg/day of vitamin C may be required, with much higher doses in surgical intensive care unit patients. In uncomplicated gastrointestinal surgery, continuous parenteral administration of 500 mg/day of vitamin C reduced postoperative oxidative stress as manifested by reduced urinary excretion of isoprostanes. In some studies, postoperative atrial fibrillation was prevented after cardiac surgery by perioperative vitamin C supplementation. In critically ill patients, some prospective randomized controlled trials support parenteral supplementation of high doses of vitamin C, E and trace elements.

Summary
Vitamin C requirement is increased in surgical patients, and the potential advantage of supplementation is to increase the plasma and tissue levels of vitamin C and thereby

Fukushima R & Yamazaki E. Vitamin C requirement in surgical patients, *Curr Opin Nutr Metab Care*, Online ahead of print, 2010

Introduction
Because of these biochemical functions of vitamin C, it is considered an antioxidant in aqueous milieu. As an antioxidant, it scavenges both reactive oxygen species and nitrogen species in aqueous milieu. Because of these biochemical functions of vitamin C, it is considered an antioxidant in aqueous milieu.

“The postoperative requirement for vitamin C appears to be increased probably owing to increased demand, and the RDA or doses recommended in parenteral guidelines may not be sufficient to maintain an adequate plasma concentration. It seems that more than 500 mg/day is needed for uncomplicated surgical patients and higher doses for severely stressed patients.”

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Blood vitamin concentrations during the acute-phase response. [Crit Care Med. ...]

PubMed Search: Louw JA and vitamin

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Display Settings: Abstract

Crit Care Med. 1992 Jul;20(7):934-41.

Blood vitamin concentrations during the acute-phase response.

Louw JA, Wierback A, Louw ME, Kotze TJ, Cooper R, Labadarios D.
Department Internal Medicine, University of Stellenbosch, Tygerberg Hospital, South Africa.

Comment in:
Crit Care Med. 1993 Oct;21(10):1815-6.

Abstract
OBJECTIVES: To investigate the effect, if any, of the acute-phase response on blood vitamin concentrations and to test the hypothesis that these concentrations may change during stress.
DESIGN: Open study, utilizing a volunteer sample of patients.
SETTING: Tertiary care center.
PATIENTS: Twenty-six healthy adult volunteers (14 female and 12 male); 25 volunteers underwent uncomplicated orthopedic surgery and one suffered traumatic limb fractures.
INTERVENTIONS: None.
MAIN OUTCOME MEASUREMENTS: Determination of serum collected blood samples.
RESULTS: The pretest protein values. This included vitamin C, and in plasma and albumin. Blood on values below the respective normal ranges. These concentrations normalized without any therapeutic interventions.
CONCLUSIONS: We demonstrated transient, but significant, decreases in blood vitamin concentrations during the acute-phase response. Recommendations regarding daily supplementation with these vitamins in clinical practice cannot be made on the basis of these results, as the functional importance of these observations is not, at present, clear. However, what is clear is that biochemical vitamin concentrations, determined during the acute-phase response, should be interpreted

Louw JA et al. Blood vitamin concentrations during the acute-phase response, *Crit Care Med*, Vol. 20, No. 7, pp. 934-41, July 1992

“We demonstrated transient, but significant, decreases in blood vitamin concentrations during the acute-phase response.”

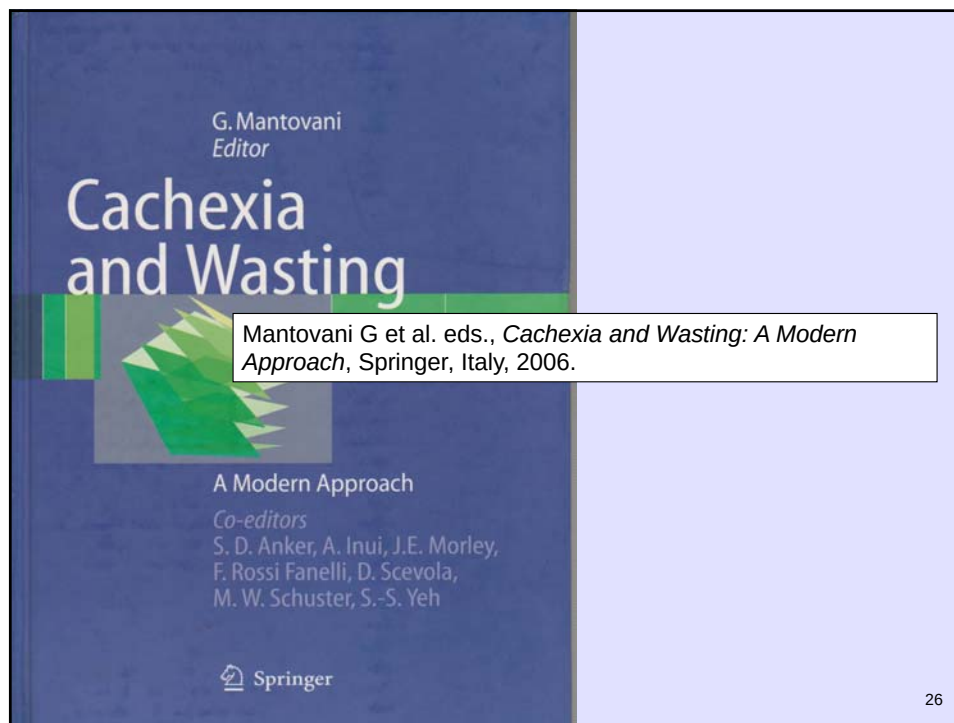
“...biochemical vitamin concentrations, determined during the acute-phase response, should be interpreted with care.”

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- **“Certainly there is little debate that supraphysiologic supplementation is indicated for a brief period when a frank deficiency of a micronutrient is identified. As a general guideline, the provision of 5 to 10 times the RDA on a daily basis for 5-7 days, either enterally or parenterally, will suffice as a means of repletion.”**

Mason JB. Vitamin and trace elements in the critically ill patient. In: Shikora SA et al, ed. *Nutritional Considerations in the Intensive Care Unit*. Dubuque, IA: Kendall/Hunt Publishing Co.; 2002:61-77.

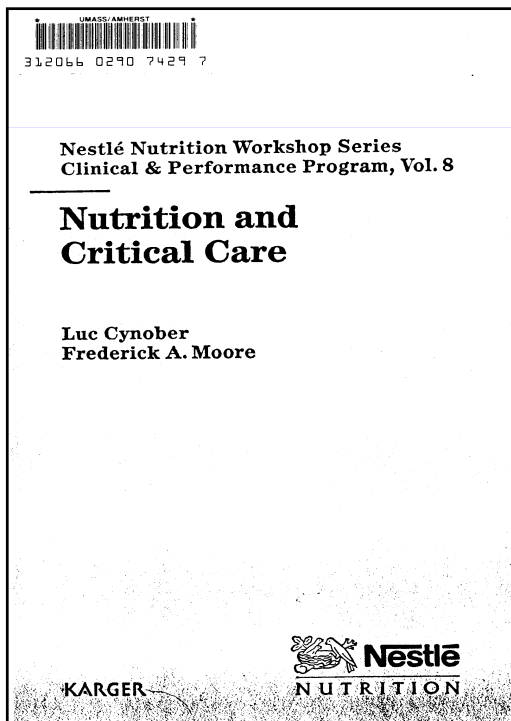
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- “Cachexia may well represent the devastating flip side of the tremendous achievements of modern medicine, as the incidence of cachexia is also a function of survival of chronic illness.”
- “Many diseases – which rapidly led to death only a few years ago – are now better controlled by new therapies. Even if we cannot cure and eradicate these diseases, their natural history has significantly increased by months and years. Although these new therapeutic strategies represent a remarkable advantage over the previous standards of care, ***it is impossible to ignore the fact that many more patients are now facing the nutritional and metabolic consequences of prolonged immunological and hormonal challenges due to both the illness process itself and the aggressive therapies.***”

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Baracos VE. Overview on metabolic adaptation to stress, pp. 1-13.

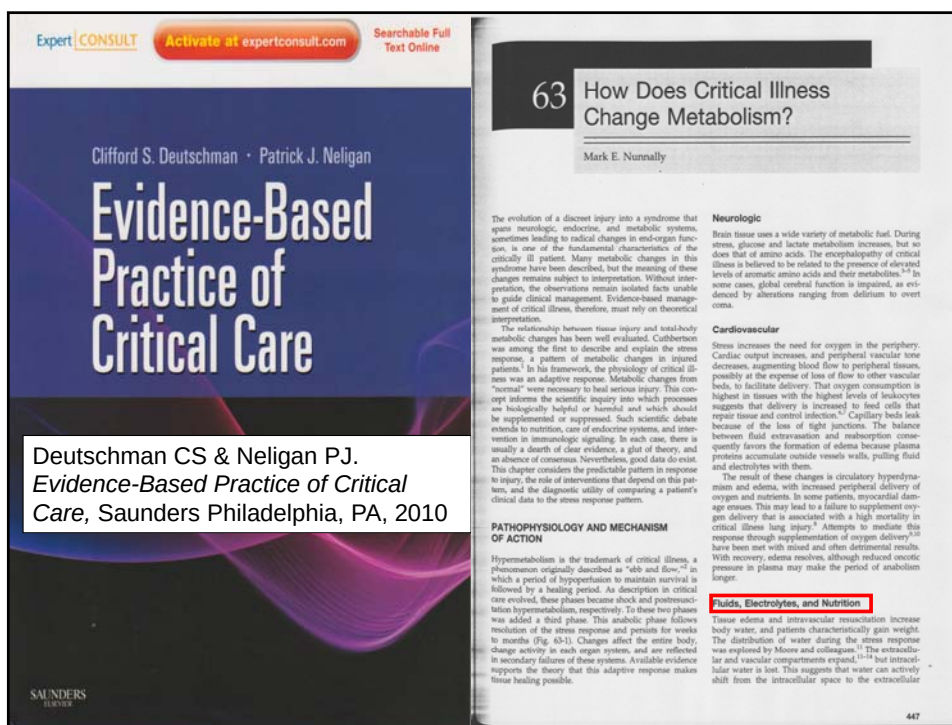
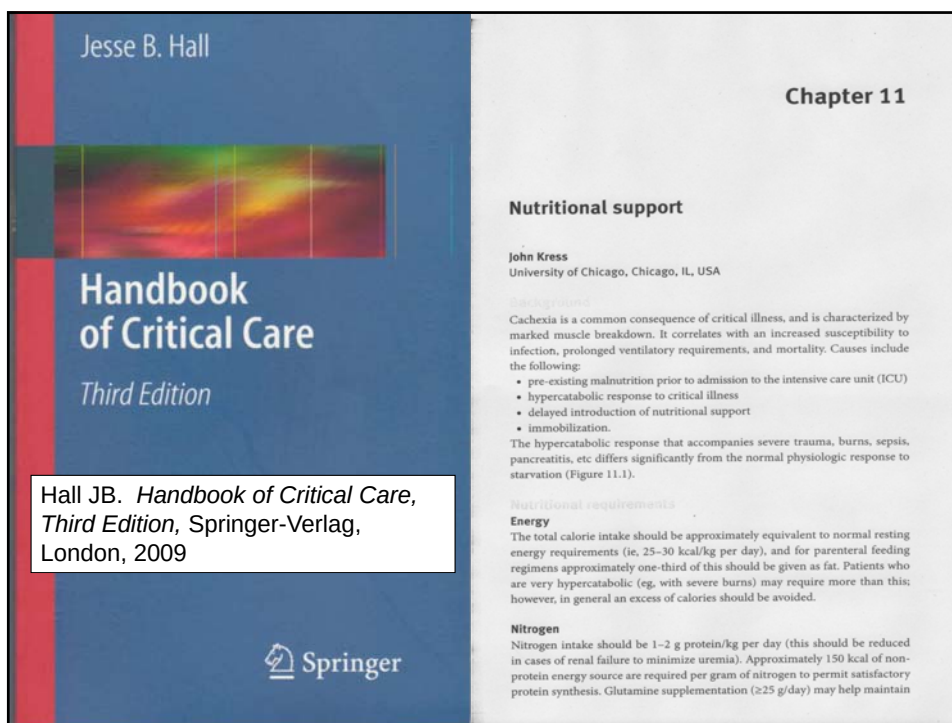
“An understanding of the nature of stress is fundamental to the rational design of nutrient mixtures to feed patients whose homeostasis has been altered by one or more stressors.”

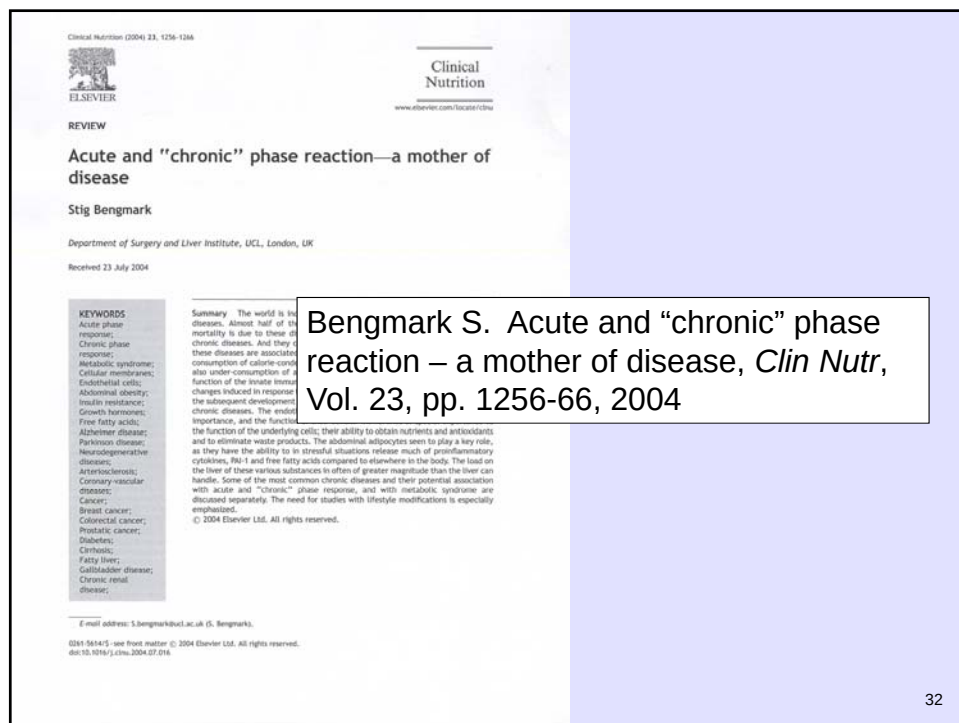
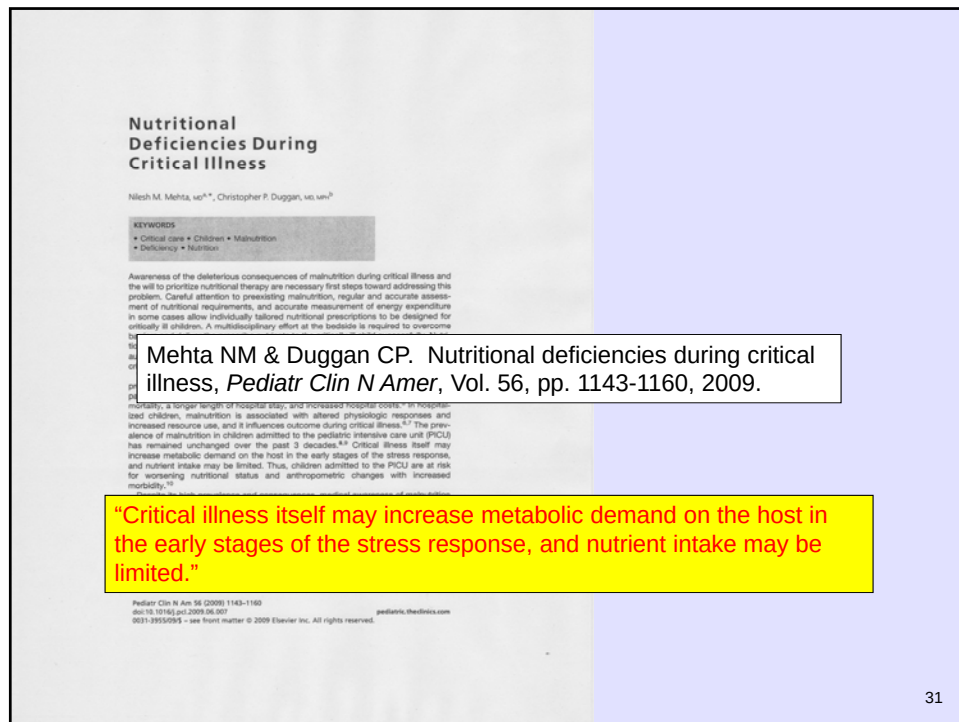
“All stresses may be presumed to be associated with characteristic modifications in the metabolism of lipids, carbohydrates, amino acids, and micronutrients.”

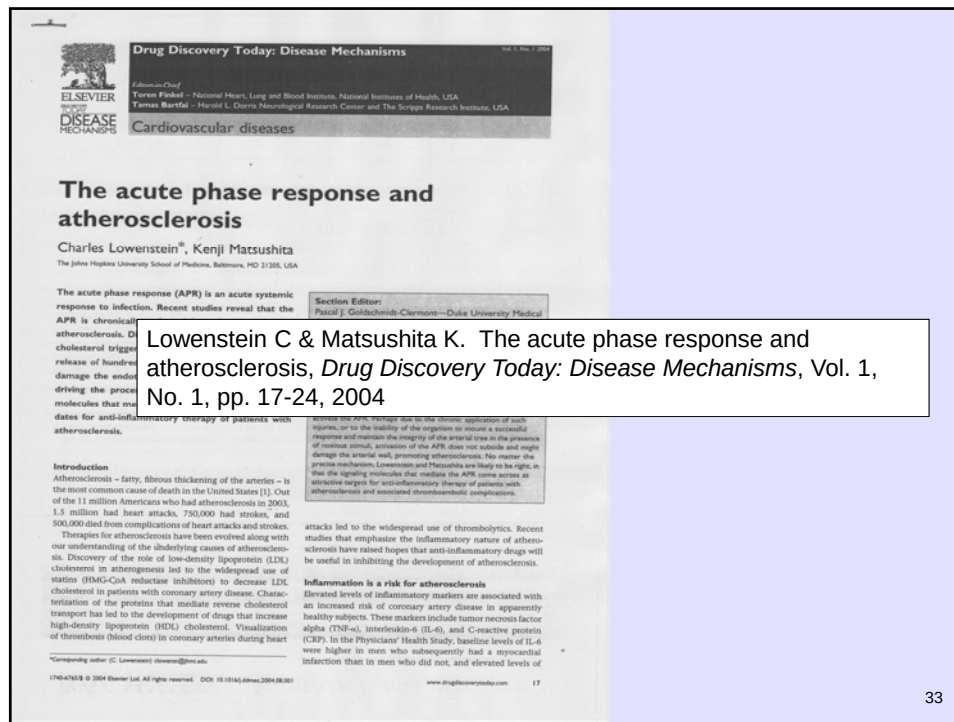
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- “The acute phase response (APR) is an acute systemic response to infection. Recent studies reveal that the APR is chronically activated in patients at risk for atherosclerosis. Diabetes, hypertension, and elevated cholesterol trigger the APR, leading to the systemic release of hundreds of effector molecules that might damage the endothelium and activate macrophages, driving the process of atherogenesis. The signaling molecules that mediate the APR are attractive candidates for anti-inflammatory therapy of patients with atherosclerosis.”
- “Many of the inflammatory markers elevated in patients at risk for atherosclerosis are part of the APR. The APR is an innate systemic inflammatory response to diverse injuries, such as infection and trauma. Although the APR is a beneficial short-term response to life threatening physiological challenges, the APR can harm the host if it is chronically activated. Elevation of APR markers in patients with heart disease suggests that the APR plays a role in atherogenesis.”

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- “Elevations in the APR markers in patients with atherosclerosis suggest that risk factors for heart disease – such as diabetes, mediators of hypertension, and LDL cholesterol – might trigger the APR.”
- “Normally, the APR is activated within hours by infection and then shuts down within two to three days. However, in patients with atherosclerosis the APR appears to be chronically activated at a low level for years. For example, elevated CRP levels predict the risk of atherosclerosis more than six years into the future. Perhaps the continued presence of atherosclerotic risk factors such as hypertension play a role in the persistent activation of the APR.”

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Environmental Medicine | Article

Perceived Treatment Efficacy for Conventional and Alternative Therapies Reported by Persons with Multiple Chemical Sensitivity

Pamela Reed Gibson, Amy Nicole-Marie Elms, and Lisa Ann Ruding
School of Psychology, James Madison University, Harrisonburg, Virginia, USA

Multiple chemical sensitivity (MCS) is a condition in which persons experience negative health effects in multiple organ systems from exposure to low levels of common chemicals. Although symptoms experienced from particular chemicals vary across persons, they are generally stable within persons. The sensitivities often spread over time, first to related chemicals and then to other classes of chemicals. This study examined self-reported perceived treatment efficacy of 101 treatments used by 917 persons with self-reported MCS. Treatments examined included environmental medicine techniques, holistic therapies, individual nutritional supplements, detoxification techniques, body therapies, Eastern-origin techniques, newer therapies, prescription items, and others. The three most highly rated treatments were creating a chemical-free living space, chemical avoidance, and prayer. Both creating a chemical-free living space and chemical avoidance were rated by 95% of respondents as helpful. Results for most therapies were mixed. Participants had consumed a mean of 12 health care providers and spent over one-third of their annual income on health care costs. We discuss this drain on personal resources and describe respondents' attitudes toward the possibility of healing from MCS. **Key words:** chemical hypersensitivity, chemical injury, environmental allergy, environmental illness, environmental sensitivity, multiple chemical sensitivity. *Environ Health Perspect* 111:1498–1504 (2003). doi:10.1289/ehp.6139 [Online 9 April 2003]

Although some progress has been made in the development of a case definition for multiple chemical sensitivity (MCS) (Bartha et al. 1999) and in elucidating symptom profiles (Joffres et al. 2001), we still lack a widely accepted treatment protocol for the condition. Consequently, patients experiment with a wide variety of both conventional and holistic health treatments. Although practitioners of environmental medicine have a systematic approach for working with MCS, there is no common MCS treatment protocol accepted across medical disciplines. The field of environmental medicine espouses guidelines and techniques for addressing MCS, but critics maintain that the techniques have not been efficacious in double blind trials. Because research on treatments for MCS is sparse, people have few data on which to rely when choosing interventions. Physicians have described health findings from patient samples (Bell et al. 1995; Calland 1987; Heuser et al. 1992; Lieberman and Cason 1998; Ross 1992a) and suggested treatment strategies (Jewett 1992; Ross 1992b; Ziem 1992), but only a small number of published studies describe the MCS treatment and follow-up (Lax and Henzenberger 1995). In addition, only three studies to date have examined patient assessments of a large number of health interventions for MCS (Gibson 2000; Johnson 1996, 1997a, 1997b, 1998; Leroy et al. 1996). All three studies found that chemical avoidance measures were rated as very highly effective, whereas prescription drugs were rated the least effective of all treatments.

Life impact research shows that people with MCS tend to spend a considerable amount of

their means on large numbers of treatments, spending an annual income of \$35,000 to \$65,000 to develop 8.6 practices, a quarter of a report habit and expertise (Fagel et al. 1998).

Our purpose was to investigate perceived efficacy of those treatments. The study was not limited to conventional techniques. Rather, we sought to gather data on any techniques that respondents had tried, in an effort to understand the experience of seeking medical treatment for a poorly understood condition. We chose to evaluate retrospective reports from patients to assess the large number of treatment methods tried by this population of considerable size. Results may be helpful to patients, providers, and advocates in making decisions about resource allocation.

Methods

Participants. Participants were 917 persons contracted through the Chemical Injury Information Network (CIIN, White Sulphur Springs, MT: cin.org) and through MCS support groups. People learn about and become members of CIIN and other support groups through other persons with MCS, physicians' offices, small media, and the

Internet. Most groups publish newsletters with resources and informational support for persons with MCS and other interested parties. Respondents were 82% women and 18% men. Participants' ages ranged from 20 to 82 years, with a mean age of 53 years. Respondents' characteristics are presented in detail in Table 1. When asked to identify the severity of their condition, 7% identified their MCS as mild, 32% as moderate, 45% as severe, and 13% as totally disabling.

Procedure. This research, including the survey materials, was reviewed by the James Madison University Institutional Review Board. All members of CIIN were invited to respond to a mail survey that was sent

Gibson PR et al. Perceived treatment efficacy for conventional and alternative therapies reported by persons with multiple chemical sensitivity, *Environ Health Perspectives*, Vol. 111, No. 12, pp. 1498-1504, September 2003.

from the three efficacy studies done to date (Gibson 2000; Johnson 1996, 1997a, 1997b, 1998; Leroy et al. 1996), elements of environmental medicine protocol, widely used nutritional supplements, well-known body therapies and other holistic therapies, and other current treatments described to us by persons with MCS. Treatments were grouped into the following nine categories: environmental medicine/body techniques, holistic medicine, Eastern-origin techniques, newer therapies, prescription items, detoxification techniques, body therapies, Eastern-origin techniques, and others. The authors declare they have no conflict of interest. Received 17 June 2002; accepted 16 December 2002.

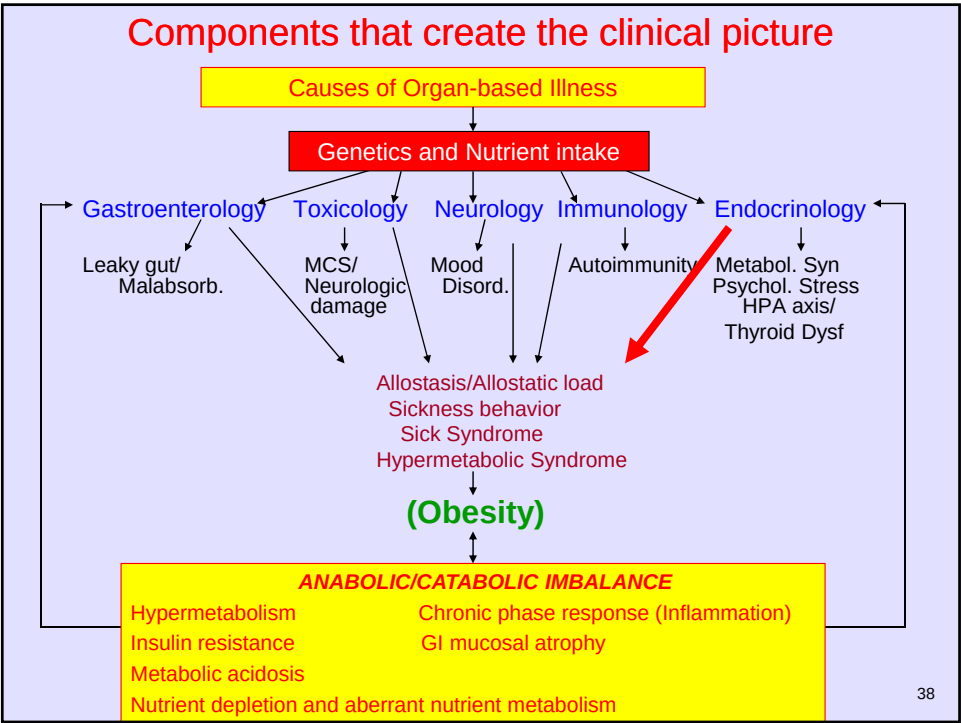
Address correspondence to P. Gibson, James Madison University, School of Psychology, MSC 7401, Harrisonburg, VA 22807 USA. Telephone: (540) 568-6195. Fax: (540) 568-3322. E-mail: pgibson@jmu.edu

We thank C. Wilson and J. Wilson of the Chemical Injury Information Network for their support in survey distribution and finding. We also appreciate the efforts of all respondents who completed surveys.

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The authors declare they have no conflict of interest. Received 17 June 2002; accepted 16 December 2002.

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A simplified approach to helping patients feel better

- Understanding the true nature of chronic illness: Excessive allostatic load
- Simple diagnostic tools
- A simplified menu to improve patient quality of life

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Considerations for the Catabolic Patient

Signs & Symptoms	Consider	Treatment Plan	Monitor	Supplementation
Signs & Symptoms: • Feeling "lousy" • Fatigue • Cravings • Depression/anxiety • Poor quality sleep • Poor digestion/absorption/leaky gut • Chronic pain/infection	Optimize pH	Optimize fluid and electrolyte balance	Morning urinary pH -pH paper	Potassium bicarbonate -K Alkaline (Moss) Magnesium -Magnesium Glycinate (Vital Nutrients)
Clinical Findings: • High % body fat • Low bone density • High fasting insulin • Heavy metal burden • Calcium to phosphorus ratio 3:1 • High normal globulin • Cholesterol (220-280) • High LDL, low HDL • High triglycerides • Low normal serum potassium, high normal serum sodium • High normal BUN with normal creatinine • Low urinary sulfate • Genomic variations	Optimize muscle mass (reduce sarcopenia) and amino acid levels	Pay special attention to protein and amino acids	Body composition: -Bioelectric impedance scale Grip strength: -dynamometer	Amino acids -Custom Amino Base (Metabolic Maint.) Protein powders/bars -UltraLean products (Biogenesis) -Paleo products (DFH)
	Reducing inflammation	Reduce inflammation Address food allergies	Inflammatory biomarkers: -HS-CRP -Fibrinogen levels -WBC -Differential	Anti-inflammatory agents -Inflametric (Olympian) -D-Flame (Protocols) -Pain Guard (Perque) Fish Oils -Ultra Pure Fish oil (Vital Nutrients) Food allergy blends -AllerGzymes (DFH)
	Improving insulin sensitivity	Watch carbohydrate/protein ratio	Fasting glucose Fasting insulin Cravings	Metabolic Synergy (DFH)
	Optimize dietary carbohydrate/protein ratios	Replete protein deficiencies and reduce carbohydrate intake along with improvements in dietary quality	Diet diary Optimal protein intake -1.0 - 1.2 g/kg body weight	Protein powders/bars -Paleo products (DFH) -UltraLean (Biogenesis)
	Optimize GI function	Dietary changes, supplementation of digestive aids	Patient signs and symptoms	Betaine HCl (Vital Nutrients) Digestzymes (DFH) Intestinal Repair Complex (Biogenesis)
	Optimize micronutrient deficiencies/imbalances	Supplementation of multis Possible emphasis on vitamin D, iodine, and zinc	Serum 25 OH vitamin D Fatigue/serum thyroid indicators Zinc taste test	Multi Nutrients (Vital Nutr) Vitamin D (Vital Nutr) Iosol (Moss) Zinc Supreme (DFH)

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Invited Review

Neurosignals 2009;17:144-152
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Published online: February 4, 2010

Biological Mechanism of Antidepressant Effect of Omega-3 Fatty Acids: How Does Fish Oil Act as a 'Mind-Body Interface'?

Kuan-Pin Su
Department of General Psychiatry and Mind-Body Interface Laboratory (MBI-Lab), China Medical University and Hospital, Taichung, Taiwan; Stress, Psychiatry and Immunology Laboratory (SPI-Lab), Institute of Psychiatry, King's College London, London, UK

Key Words
Major depressive disorder · Depression · Docosahexaenoic acid · Arachidonic acid · Prostaglandins · Thromboxanes · Lipoxygenase A2 · Cyclo-oxygenase

Abstract
The unsatisfactory results of monoamine-based antidepressant therapy and the high occurrence of somatic symptoms and physical illness in patients with depression imply that the serotonin hypothesis is insufficient to approach the aetiology of depression. Depressive disorders with somatic presentation are the most common form of depression. Somatization, the bodily symptoms without organic explanation, is similar to cytokine-induced sickness behaviour. Based on recent evidence, omega-3 polyunsaturated fatty acids (n-3 PUFAs, or n-3 fatty acids) are enlightening a promising path to discover the unsolved of depression, sickness behaviour and to link the connection of mind and body. The PUFAs are classified into n-3 (or omega-3) and n-6 (or omega-6) groups. Eicosapentaenoic acid and docosahexaenoic acid, the major bioactive components of n-3 PUFAs, are not efficiently synthesized in humans and should therefore be obtained directly from the diet, particularly by consuming fish. Docosahexaenoic acid deficiency is associated with dysfunctions of neuronal membrane stability and transmission

prostaglandin E₂ synthesis, which might be linked to the somatic manifestations and physical comorbidity in depression. The role of n-3 PUFAs in immunity and mood function supports the promising hypothesis of psychoneuroimmunology of depression and provides an excellent interface between 'mind and body'. This review is to provide an overview of the evidence about the role of n-3 PUFAs in depression and its common comorbid physical conditions and to propose mechanisms by which they may modulate molecular and cellular functions.

Introduction

Major depressive disorder (MDD) is a serious psychiatric illness with a high lifetime prevalence rate [1]. However, the current treatment for this high burden disease is not satisfactory. Less than 50% of patients achieve full remission with optimized medication treatment [2] despite that more than 40 antidepressants with mechanisms related to serotonin, norepinephrine and/or dopamine

Su KP. Biological mechanism of antidepressant effect of omega-3 fatty acids: How does fish oil act as a 'mind-body interface'? *Neurosignals*, Vol. 17, pp. 144-152, 2009

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Dr. Kuan-Pin Su
Department of Psychiatry
China Medical University Hospital
No. 2, Yuh-Der Road, Taichung 404 (Taiwan)
Tel.: +886 4 2206 2121, ext. 1070; Fax: +886 4 2206 1230; E-Mail: cshsu@cmuh.org.tw

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Table 1. Overlapping of symptoms of acute sickness behaviour associated with IFN- α therapy and the somatic symptoms in MDD

Symptoms	Prevalence in IFN- α therapy ^a , %	Prevalence in MDD ^b , %
Fatigue/asthenia	39–90	73
Headache	27–67	33 ^e
Gastrointestinal symptoms	50 ^{c, 1}	34–47 ^f
Psychomotor slowing	40 ^c	59–65 ^f
Insomnia	20–39 ^d	63
Irritability	35 ^d	50
Arthralgia	9–36	31 ^e
Musculoskeletal pain	26–32	62–80 ^{g, 2}
Abdominal pain	15–20	21 ^e
Anorexia	13–19	40
Anxiety	13–18 ^d	57
Poor concentration	14 ^d	51

^a [46], unless otherwise specified; ^b [99], unless otherwise specified; ^c [100]; ^d [101]; ^e [102]; ^f [103]; ^g [104].

¹ Nausea, vomiting, bowel problems.

² Result from depressed inpatient population.

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Inflammatory signaling in skeletal muscle insulin resistance: green signal for nutritional intervention?

Pascal P.H. Hommelberg^{a,c}, Ramon C.J. Langen^b, Annette M.W.J. Schols^b, Ronald P. Mensink^{a,c} and Jochum Plat^a

^aDepartment of Human Biology, ^bDepartment of Respiratory Medicine, ^cDepartment of Nutrition, Toxicology and Metabolism, Maastricht University Medical Centre, Maastricht and ^dTop Institute Food and Nutrition, Wageningen, The Netherlands

Correspondence to: Ronald P. Mensink, Department of Human Biology, Maastricht University Medical Centre, P.O. Box 616, 6200 MD Maastricht, The Netherlands. Tel: +31 43 3881320, fax: +31 43 3870970, email: r.p.mensink@maastricht.nl

Current Opinion in Clinical Nutrition and Metabolism Care 2010; 13:647–655

Purpose of review

To review the evidence implicating a role of inflammatory signaling pathways, specifically nuclear factor- κ B and c-Jun NH2-terminal kinase, in fatty acid-induced skeletal muscle insulin resistance and to discuss the potential of dietary interventions to interfere with these processes.

Recent findings

Fatty acids can induce skeletal muscle insulin resistance via inflammatory signaling after binding Toll-like receptors at the cell membrane of muscle cells or after accumulating as intramyocellular lipid metabolites. In both processes, activation of intracellular inflammatory signaling is involved. The majority of literature addressing the causality of muscle nuclear factor- κ B activation in skeletal muscle insulin resistance suggests that insulin resistance does not require muscle nuclear factor- κ B activation. Recently, strong evidence was given that c-Jun NH2-terminal kinase signaling is an important inflammatory pathway involved in skeletal muscle insulin resistance. Furthermore, it is

Hommelberg PPH et al. Inflammatory signaling in skeletal muscle insulin resistance: green signal for nutritional intervention? *Curr Opin Nutr and Metab Care*, Vol. 13, No. 6, pp. 647–655, November 2010

reverse insulin resistance, well controlled human intervention studies have to be designed.

Keywords

fatty acids, inflammation, insulin resistance, polyphenols, skeletal muscle

Our Open Clin Nutr Metab Care 13(6):647–655
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1360–1950

Introduction

Understanding the etiology of insulin resistance is required to halt and reverse the increasing prevalence of diabetes mellitus type 2 (T2D). Although insulin resistance is often associated with obesity, it also accompanies cachexia, a condition characterized by loss of muscle with or without loss of fat mass. As excess adipose tissue is an unlikely cause of cachexia-associated insulin resistance, a low-grade inflammatory response, a common denominator of type 2 diabetes and cachexia may underlie muscle insulin resistance.

Here we will review inflammatory signaling mechanisms by which fatty acids (FA) can induce skeletal muscle

insulin resistance, and some novel dietary interventions to interfere with these processes will be discussed.

Inflammatory signals and signaling pathways involved in insulin resistance

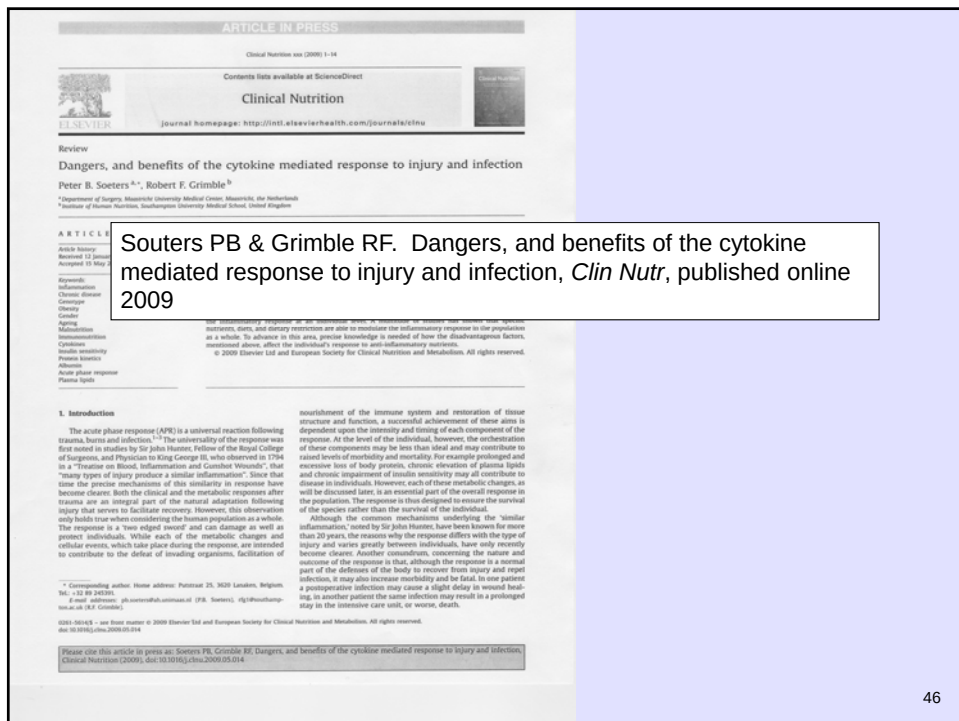
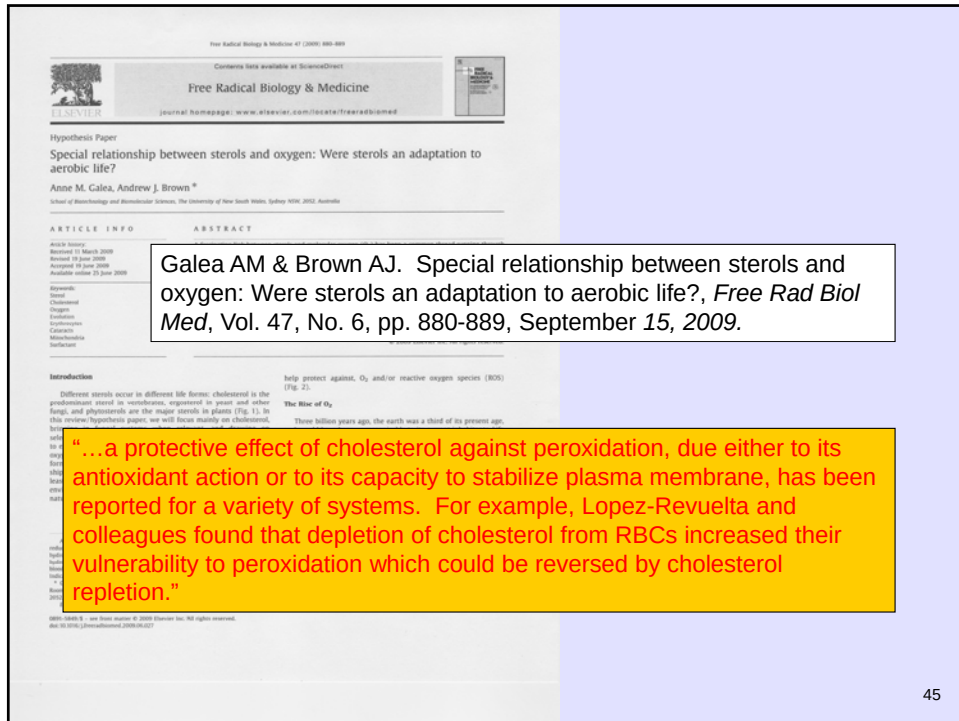
Although a chronic inflammatory status has been observed in both T2D and cachexia, including increased inflammatory signaling, in skeletal muscle, the source and nature of the inflammatory signal likely differs between these conditions. Increased circulating cytokines, either derived from the diseased organ or host response in cachexia, or from excess adipose tissue or macrophages in T2D, may trigger insulin resistance upon receptor activation in skeletal muscle. In contrast, increased

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DOI:10.1097/MCO.0b013e328323f1ad

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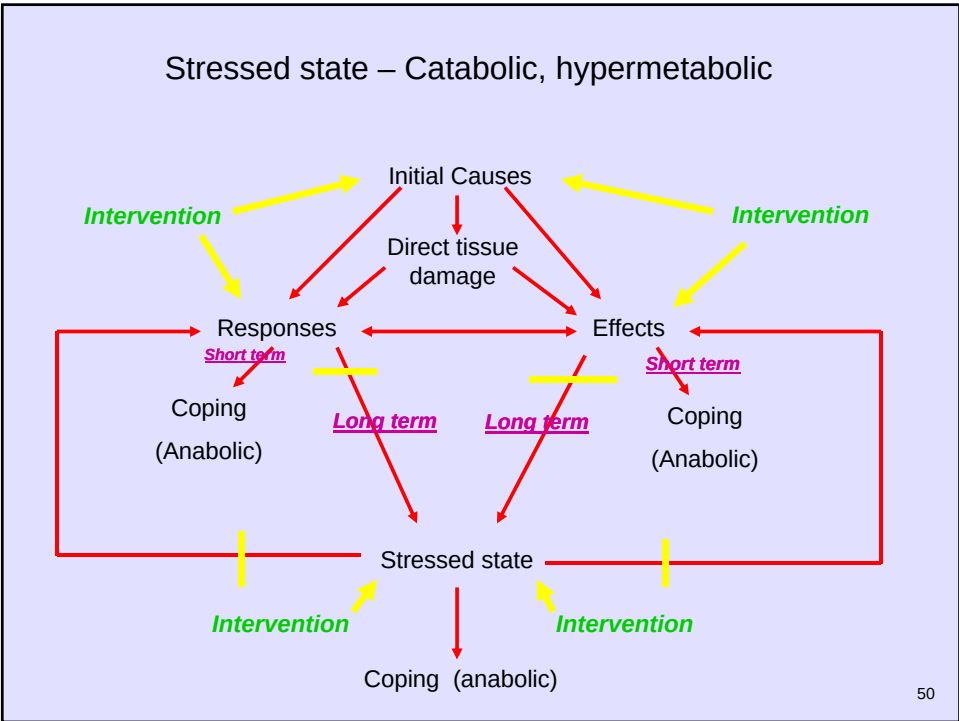
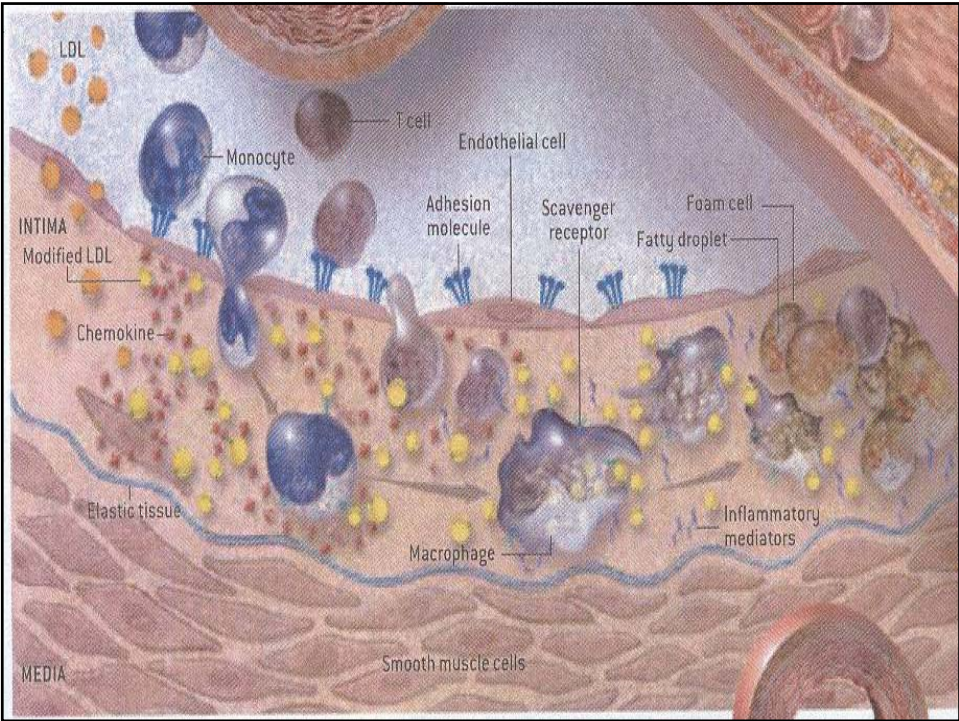


- “Endotoxin, via stimulation of pro-inflammatory cytokine production, induces increased plasma lipid concentrations due to increased synthesis and secretion of triglyceride-rich lipoproteins by the liver and inhibition of lipoprotein lipase.”
- “This effect leads to hyperlipoproteinemia and hypertriglyceridemia, which increases the availability of substrate for the immune system and wound healing, but can also bind and neutralize LPS.”
- *“It has therefore been postulated that triglyceride-rich lipoproteins (very low-density lipoproteins and chylomicrons) are also components of an innate, non-adaptive host immune response to infection.”*

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- *“In experimental settings it is has indeed been demonstrated that lipoproteins can bind LPS, protect against LPS-induced toxicity, and play an important role in host response to LPS.”*

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Thank you!!

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