



Could Micronutrient Deficiency be a Missing Link in the Fight Against **Overweight/ Obesity?**

Of all the debilitating health-related conditions and diseases in America today, perhaps none is as widespread and potentially devastating as overweight/obesity. According to Dr. Richard H. Carmona, M.D., a former surgeon general of the United States, “Obesity is the terror within; unless we do something about it, the magnitude of the dilemma will dwarf 9/11 or any other terrorist attempt.”¹ The problem with America’s overweight/obesity epidemic is twofold: not only are the rates not declining, no one can seem to stop them from growing. According to Johns Hopkins researcher May Beydoun, “Obesity is likely to increase, and if nothing is done, it will soon become the leading preventable cause of death in the United States.”² While the media has focused largely on the rising number of overweight and

obese adults, America’s youth may be the ones suffering the most, with the overweight prevalence for children and teens having tripled since 1980.³ It is hard to imagine that anyone living in America today has not been affected by the growing obesity pandemic in some way, whether personally, through family or friends, or by the rising costs of health care. While current research by Johns Hopkins Bloomberg School of Public Health shows that more than two-thirds (68%) of U.S. adults and one-third (33%) of U.S. children and adolescents are overweight or obese, the predictions concerning the future of obesity are even more sobering.⁴ According to the study’s lead author, Dr. Youfa Wang, estimates now predict that by 2015, 75% of all U.S. adults will be overweight or obese, by 2030 that number will be 86.3%, and by 2048 all American adults will overweight or obese.⁵

While nutritional and medical experts from around the world frantically try to understand the root causes of the obesity puzzle, the American people have tried just about everything they can to lose weight. Between the popular diet programs, gym memberships, hypnosis, acupuncture, cellulite creams, body wraps, infomercial contraptions, diet pills, prescription drugs, liposuction, aerobics classes, health spas, electronic abdominal stimulators, personal diet coaches, gastric bypass surgery, lap bands, fat-free foods, low-carbohydrate foods, foods whose macronutrient ratios add up the 40/30/30, vibration machines, yoga, saunas, appetite suppressants, diet drinks, exotic herbs, fasting, body cleansing, and pole dancing classes, Americans should be the skinniest people on the planet. But we're not...why? While one of the major government objectives for 2010 was to reduce the number of obese people in America to 15%, the recently released results of that initiative show that not one state met that goal.⁶ In fact, a new report by the Trust for America's Health (TFAH) and the Robert Wood Johnson Foundation shows that 28 states actually increased their obesity rates. Since 1991, a dramatic increase in obesity has occurred in the United States. The report shows that in 1991 no states were recorded as having an obesity rate greater than 20%. In contrast, the latest data from 2009 shows only one state as having a prevalence of obesity less than 20% (Colorado, 19.1%), 38 states have obesity rates greater than 25%, and currently nine states have obesity prevalence greater than 30% (Alabama, Arkansas, Kentucky, Louisiana, Mississippi, Missouri, Oklahoma, Tennessee, and West Virginia.)⁷

While science seems to be missing an important piece of the puzzle when it comes to slowing, stopping, and eventually reversing obesity, one recent study found a connection between being deficient in essential vitamins, minerals, and vitamin-like substances, such as CoQ10 (micronutrients) and overweight/obesity that may be worth a closer look. Published in December 2007 in *Economics and Human Biology*, the study found a direct link between being micronutrient deficient and being overweight or obese.⁸ Keeping all variables constant, the researchers concluded that the odds of being overweight or obese were 80.8% higher for the study's micronutrient-deficient participants when compared to the studies' non-deficient participants. Other studies lend credibility to this theory. A group of researchers out of the Medical College of Georgia set out to determine if another essential micronutrient (vitamin D) played a role in childhood obesity. Their research, presented to the American Heart Association, showed that when 650 children between the ages of 14 and 19 were tested, the students with the lowest vitamin D intake had the highest percentages of both body fat and abdominal fat.⁹ In a related study published in the *Journal of Clinical Endocrinology and Metabolism*, researchers concluded that a deficiency in vitamin D was directly linked with increased body fat.¹⁰

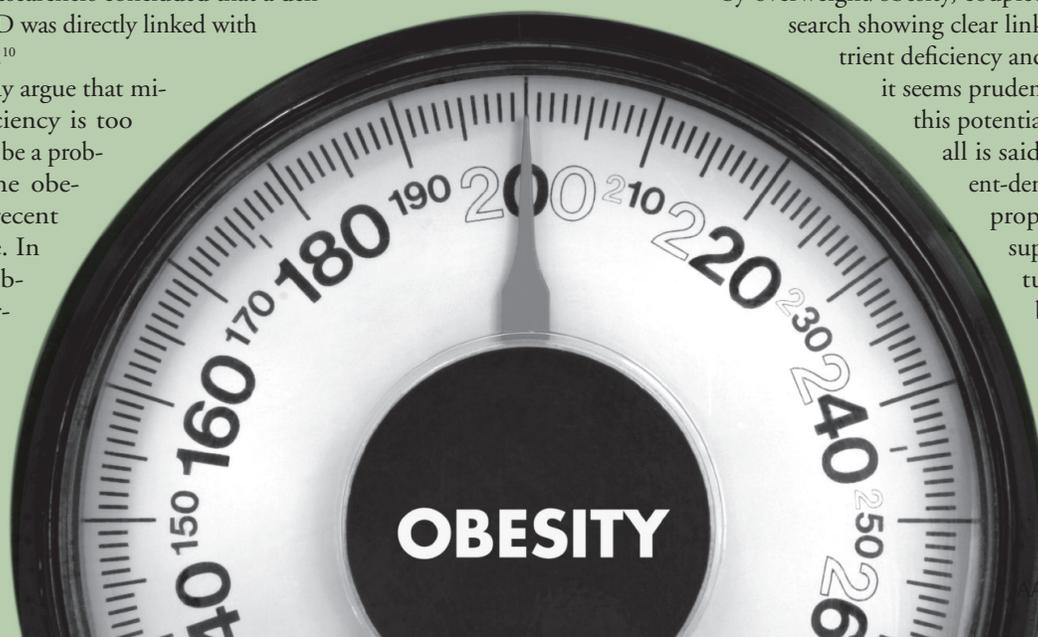
While some may argue that micronutrient deficiency is too rare in America to be a probable cause for the obesity epidemic, recent statistics disagree. In a 2009 study published in the journal *Pediatrics*, American children were found to be a whopping 70% insufficient in vitamin D, and recent find-

ings published in the *Archives of Internal Medicine* show three-quarters of U.S. teens and adults deficient in vitamin D.^{11,12} However, it is not just vitamin D Americans are deficient in—statistics from the USDA's own Web site highlight just how widespread America's micronutrient deficiency condition is. According to the USDA, 9 out of 10 Americans 2 years and older are deficient in potassium, 8 out of 10 are deficient in vitamin E, and more than 7 out of 10 Americans are deficient in vitamin A, vitamin C and magnesium.¹³ In addition, in a recent study published in the *Journal of the International Society of Sports Nutrition*, the popular diet plans that millions of Americans are following each year to lose weight, such as the Atkins for Life diet, the DASH diet, The Best Life Diet, and the South Beach Diet, were found to be deficient at providing minimum Recommended Daily Intakes (RDI) of 27 essential micronutrients.¹⁴ The study determined that on average, these diets left their followers deficient in 15 vitamins and minerals, including vitamin B5, vitamin B7, vitamin D, vitamin E, choline, chromium, copper, iron, iodine, potassium, magnesium, sodium and zinc.

To add to America's micronutrient deficiency epidemic, more U.S. adults are taking prescription drugs than ever before.¹⁵ Recent studies show that one of the major side effects of many of today's most popular prescription drugs—including statins, analgesics, loop and thiazide diuretics, antacids and oral contraceptives—is vitamin and mineral depletion, which can eventually lead to micronutrient deficiency.^{16,17} Making matters worse, even those individuals who religiously take their daily multivitamin pill are not immune to becoming micronutrient deficient. It turns out that due to something called "micronutrient competition," many of the vitamins and minerals found in the typical multivitamin may end up going right down the toilet. Research published in both the *British Journal of Nutrition* and *Harvard Health Letter* shows that natural competitions for absorption between many vitamins and minerals, including copper and zinc and calcium and iron, could make it so that unless a multivitamin is specially formulated to prevent micronutrient competition, many of the micronutrients in the multivitamin are simply not absorbed.^{18,19}

The fact is, new research is showing that micronutrient deficiency is much more of a widespread problem than previously thought. It has been proven to increase the risk factor for multiple health conditions and diseases in both adults and children, including diabetes, high blood pressure, cardiovascular disease, and many cancers.²⁰ In addition, kids who start out with micronutrient deficiencies and never correct them may be putting themselves at risk for developing all of these diseases at a much earlier age. With so many people worldwide affected

by overweight/obesity, coupled with the recent research showing clear links between micronutrient deficiency and overweight/obesity, it seems prudent to further examine this potential connection. When all is said and done, a nutrient-dense diet, sunlight, and proper anti-competition supplementation could turn out to be our best defense against the potentially largest, most devastating health scourge of the 21st century—the obesity pandemic.



References

- 1 US Department of Health and Human Services. *The Obesity Crisis in America*. Surgeon General's Web site. <http://www.surgeongeneral.gov/news/testimony/obesity07162003.html>. Accessed March 13, 2008.
2. Obesity rates continue to climb in the United States. Johns Hopkins Bloomberg School of Public Health Web site. http://www.jhsph.edu/publichealthnews/press_releases/2007/wang_adult_obesity.html. Accessed March 8, 2010.
3. Ogden CL, Carroll MD, Curtin L, McDowell MA, Tabak CJ, Flegal KM. Prevalence of overweight and obesity in the United States, 1999-2004. *JAMA*. 2007;295:1549-1555.
4. Wang Y, Beydoun MA. The obesity epidemic in the United States—gender, age, socioeconomic, racial/ethnic, and geographic characteristics: a systematic review and meta-regression analysis. *Epidemiol Rev*. 2007;29:6–28
5. Wang Y, Beydoun MA, Liang L, Caballero B, Kumanyika SK. Will all Americans become overweight or obese? Estimating the progression and cost of the U.S. obesity epidemic. *Obesity*. 2008;16 10, 2323–2330. doi:10.1038/oby.2008.351
6. New report: adult obesity increases in 28 states. Robert Wood Johnson Foundation Web site. <http://www.rwjf.org/newsroom/product.jsp?id=65468>. Accessed September 4, 2010.
7. Hendrick B. Obesity rate swells in 28 states. WebMD Web site. <http://www.webmd.com/diet/news/20100629/obesity-rate-swells-in-28-states>. Accessed September 4, 2010.
8. Asfaw A. Micronutrient deficiency and the prevalence of mothers' overweight/obesity in Egypt. *Econ Hum Biol*. 2007;5(3): 471-483.
9. Not enough vitamin D in the diet could mean too much fat on adolescents. Physorg.com Web site. <http://www.physorg.com/news156088325.html>. Accessed March 8, 2010.
10. Campbell RC, Campbell PP, Reinhardt T, and Gilsanz V. Vitamin D status and its relationship to body fat, final height, and peak bone mass in young women. *J Clin Endocrinol Metab*. 2009;94:67–73. doi:10.1542/peds.2009-0051
11. Kumar J, Muntner P, Kaskel JF, Hailpern MS, Melamed LM. Prevalence and associations of 25-hydroxyvitamin D deficiency in U.S. children: NHANES 2001–2004. *Pediatrics*. 2009;124: e362-e370
12. Ginde A, Liu MC, Camargo CA Jr. Demographic differences and trends of vitamin D insufficiency in the U.S. population, 1988-2004. *Arch Intern Med*. 2009;169(6):626-632.
13. US Department of Agriculture. Nutrient Intakes/All U.S. USDA Human Nutrition Products & Services. <http://www.ars.usda.gov/Services/docs.htm?docid=15677>. Accessed March 8, 2010.
14. Calton J. Prevalence of micronutrient deficiency in popular diet plans. *J Int Soc Sports Nutr*. 2010, 7:24
15. Express Scripts Inc. More Americans are using more prescription drugs. <http://www.reuters.com/article/pressRelease/idUS148673+13-Feb-2008+BW20080213>. Accessed September 6, 2010.
16. Langsjoen PH, Langsjoen, AM. The clinical use of HMG CoA-reductase inhibitors and associated depletion of coenzyme Q10: a review of animal and human publications. *BioFactors*. 2003;18:101–111.
17. LaValle JB. Recognizing drug induced nutrient depletion in chiropractic practice. http://www.chiro.org/nutrition/FULL/Recognizing_Drug_Induced_Nutrient_Depletion.shtml. Accessed September 6, 2010.
18. Sandstrom B. Micronutrient interactions: effects on absorption and bioavailability. *Br J Nutr*. 2001;85(suppl 2): S181–S185.
19. Harvard Medical School. Nutrition's dynamic duos. *Harv Health Lett*. 2009;34(9).
20. Mann D. Vitamin D deficiency common in U.S. children. CNN Web site. <http://www.cnn.com/2009/HEALTH/08/03/vitamin.d.children/index.html>. Accessed March 8, 2010. ■



Jayson Calton, PhD, is a published author and board certified nutritionist. He specializes in weight loss and human nutrition, and his areas of research include indigenous diets and the link between micronutrient deficiency and modern health conditions and disease. Over the last 20 years, he has worked with thousands of international clients including celebrities, athletes, and top corporate executives. He has done postdoctoral studies in Lifestyle Medicine at Harvard Medical School DCE, sits on the board of directors for the National Association of Nutritional Professionals (NANP), and is the founder and CEO of Calton Nutrition.

EXPAND YOUR HORIZONS

DEFINE YOURSELF!

DEFINE YOUR PRACTICE!

DUAL BOARD CERTIFICATIONS:

INTEGRATIVE BIOLOGIC DENTAL MEDICINE - IBDM
BOARD CERTIFIED NATUROPATHIC PHYSICIAN - NMD
WORLD RENOWNED FACULTY

NEW CLASS STARTS: DECEMBER 3–5, 2010

CLASS SIZE LIMITED TO 10 STUDENTS

COMPREHENSIVE CURRICULUM:

CRANIO-FACIAL ORTHOPEDICS
 NEURAL THERAPY
 AUTONOMIC RESPONSE TESTING
 INTEGRATIVE PRACTICE MANAGEMENT
 INTEGRATIVE BIOLOGIC NUTRITION
 BIO-ENGINEERING OF DENTITION
 BIOLOGIC MANAGEMENT OF HEAVY METALS
 PROBIOTIC AND ENZYME THERAPY
 CRANIAL OSTEOPATHY
 HOMEOPATHY
 HOMOTOXICOLOGY

DETOXIFICATION THERAPY
 SYSTEMIC DRAINAGE THERAPY
 GERMAN BIOLOGIC MEDICINE
 NEUROTRANSMITTER THERAPY
 CHINESE MEDICINE/ HERBAL THERAPY
 ELECTROACUPUNCTURE
 EXTRA-CELLULAR MATRIX THERAPY
 INTEGRATIVE AROMATIC THERAPY
 I.V. THERAPEUTIC PROTOCOLS
 AND MUCH MORE!



1 YEAR- 5 WEEKENDS
120 HOURS AGD/PACE

APPROVED CE

CALL: 201-820-3829