

Research Round Up

Studies support benefits of low-carb living

It was inevitable that, in a country gone "low carb crazy," dissident voices would be raised.

Some of the outbursts carry a lot of weight, coming from respected quarters. Addressing attendees at the 2004 meeting of the American College of Preventive Medicine, noted nutrition expert David L. Katz, MD, from the Yale Preventive Medicine Research Center, declared that low-carbohydrate diets are based on an "insane" premise.

Many other health experts share his feelings, but others believe the low-carb approach is more than just another diet fad. As such, researchers have been applying sound science to this alleged heresy. Their results are making many health professionals rethink their positions.

Calories vs. Carbs

While the two most recent studies involving low-carb diets yielded positive news, an earlier study—a first-ever, comprehensive analysis of all low-carb literature published between 1966 and 2003—favored caloric reduction over carbohydrate restriction.

In the study, which appeared in the *Journal of the American Medical Association* (April 9, 2003), Stanford University Medical Center researchers systematically reviewed all of the scientific papers, seeking to determine the effectiveness and safety of low-carb diets. Specif-

ically, they looked at changes in weight, lipids, glucose, insulin levels and blood pressure. While they didn't see any significant adverse effects, the researchers stopped short of recommending or discouraging the low carb approach, citing insufficient evidence: The studies, they felt, were too short and heterogeneous. Further, they concluded that weight loss resulted from decreased caloric intake and increased diet duration rather than restricted carbohydrate intake.

However, a study conducted around the same time, and published in 2003, contradicted the caloric conclusion. Led by Penelope Greene of the Harvard School of Public Health, the controlled study found that, during a 12-week period, low-carb dieters ingesting an extra 300 daily calories lost as much weight as those on a low-fat diet. Still, health experts said it raised more questions than it answered. Any number of reasons could have caused the weight loss, they said.

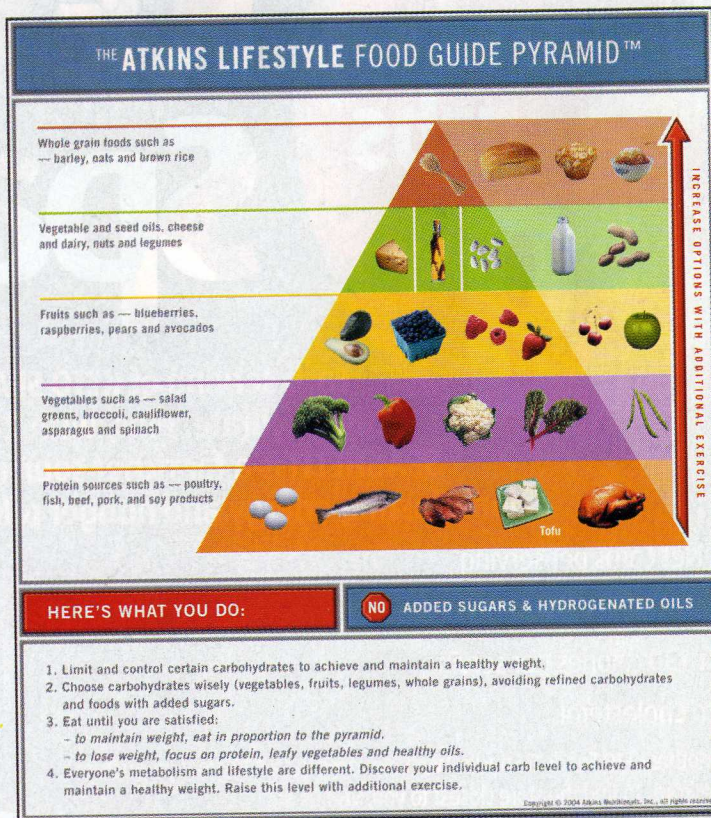
The Heart of the Matter

Effective weight loss isn't the only issue that concerns health experts. Many feel a low-carb diet puts the heart at risk. But two studies published in the May 22, 2003 issue of the *New England Journal of Medicine* indicated the fears are unfounded. The studies compared a carb-re-

stricted diet to a low-fat diet, and both indicated that the former was healthier and, at least in the short term, more effective for weight loss.

One study, conducted at the University of Pennsylvania School of Medicine, involved 63 men and women weighing an average 216 pounds who went on either a low-carb or low-fat diet for a year. The low-carb group lost more weight at three and six months, but after 12 months, weight loss was about the same for both groups. More interestingly, the low-carb group experienced a better increase in HDL (the so-called "good" cholesterol) and decrease in triglycerides (which are associated with heart disease). Total cholesterol and LDL ("bad" cholesterol) levels were the same for both groups. Further, both diets lowered blood pressure and insulin response. One significant point: researchers indicated that all participants exhibited poor adherence and high attrition. In other words, they had trouble sticking to their diets.

The other study, a six-month trial conducted at the Philadelphia Veteran Affairs Medical Center, looked at 132 severely obese men. Many suffered from related disorders such as diabetes, heart disease, hypertension and high cholesterol. Participants assigned to the low-carb diet experienced better weight loss after three and six months and a greater decrease in triglycerides. Non-diabetic participants who re-



duced their carbohydrates showed better insulin sensitivity, which suggested a decreased risk of diabetes. As in the other study, participants had difficulty adhering to a low-carb plan, which raised questions about long-term effectiveness.

All researchers were surprised that the low-carb diet didn't have the anticipated adverse effects. But they cautioned that the studies were relatively small and had no follow up, and agreed that larger and longer studies are needed. The VA researchers called it "premature" to advocate low-carb diets. At the same time, Linda Stern, MD, co-leader of the VA study, has commented that health professionals may have to rethink their lifestyle-modification recommendations, especially with diabetics, and consider the health benefits of the low-carb approach.

Moreover, both studies re-sounded the alarm that health professionals have raised in recent years: Despite the prevalence of low-fat eating, products and habits, Americans are still gaining weight.

Two More Studies

As if acting on their own suggestion, the VA researchers extended their study to 12 months, examining the same 132 subjects and reporting their new findings in the May 18, 2004 issue of *Annals of Internal Medicine*. The low-carb subjects still showed better triglyceride and HDL levels. However, the low-fat group continued to lose weight from six to 12 months, while the average weight in the low-carb group remained about the same. After a year, the low-fat dieters had pretty much caught up with their low-carb counterparts.

In the same issue of *Annals*, another randomized study supported the short-term effectiveness and general safety of the low-carb diet. This six-month study, from the Duke University Medical Center, included 120 overweight adults with high cholesterol levels. Findings were nearly identical as far as six-month weight reduction and lower triglyceride and higher HDL levels. Changes in LDL cholesterol levels were insignificant. But there were two notable differences: Participation rate was higher and weight loss was greater. Low-carb dieters lost an average of 26 pounds while their counterparts lost an average of 14 pounds.

Still, both studies were limited by their length and limited number of participants. Again, researchers emphasized the need for longer stud-

ies. At the same time, the positive results no longer could be denied. In an editorial that accompanied the studies, Walter C. Willett, MD, DrPH, from the Harvard School of Public Health, wrote, "We can no longer dismiss very-low-carbohydrate diets."

Indeed, low-carb diets were beginning to be viewed as an effective alternative, especially for individuals with obesity-related health conditions.

The Ketosis Factor

Another area that has created alarm among skeptics is the issue of ketosis, the condition where a carb-deprived body breaks down muscle and fat to produce glucose. However, two 2002 studies conducted at the University of Connecticut's Human Performance Laboratory indicated the ketosis is not quite the demon it appears. One study, published in the *Journal of Nutrition* (July 2002), demonstrated that ketosis could actually improve the blood markers that predict coronary artery disease. The other study, published the same month in *Metabolism*, involving normal-weight participants on a six-week, carb-restricted diet, revealed that subjects not only lost fat but maintained or increased muscle mass as well.

The problem with ketosis, perhaps, is misunderstanding, as indicated by Gary Traube in the landmark July 7, 2002 *New York Times Magazine* article, "What If It's All Been A Big Fat Lie?" (The Traube article, by the way, is to the low-carb revolution what the "Declaration of the Rights of Man and Citizen" was to the

pyramid—which has a carb-heavy base (11 servings a day of breads, cereal and pasta)—is obsolete. Willett, who led the study (and editorialized favorably for low-carb diets in *Annals*), concluded that the pyramid promulgates the assumption that only fat calories make people fat when, in fact, too many calories—from whatever macronutrient—put on the pounds.

Now, the USDA is in the process of re-designing the pyramid and is considering various proposals. A revised version is expected in 2005. In the meantime, Atkins Nutritionals Inc. has developed its own pyramid, which turns the old pyramid on its head: whole grains reside at the top while protein sources such as meat, fish and poultry form the large base. It offers no guidelines for serving numbers and encourages individuals to determine their own carbohydrate level. Because of that, some health professionals feel it's too vague. "It only has general guidelines, and leaves out exercise," comments Registered Dietitian Debbie Strong of the Ochsner Clinic Foundation's Heart and Vascular Institute in New Orleans.

While the USDA is envisioning a new pyramid, the Food and Drug Administration (FDA) is in the process of establishing an official definition for low-carb products, the way it did for low-fat products. This is in response to fears from health and consumer advocate groups that the public is being ripped off by misleading packaging claims that tout products as "carb-free" or "carb-friendly." Food labeling guide-

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French Revolution.) Traube reported that medical experts he interviewed suggested that medical professionals were confusing ketosis with ketoacidosis, a potentially fatal form of ketosis found in untreated diabetics.

Disassembling the Food Pyramid

As the ranks of low-carb proponents swell, many health professionals have begun questioning the validity of the U.S. Department of Agriculture's ubiquitous food pyramid. Major complaints are that it encourages far too much carb intake and doesn't take into account how different macronutrient balances affect metabolism. A study published in the *American Journal of Clinical Nutrition* (November 2002) concluded that the

lines were expected by summer 2004, but actual implementation will most likely take longer. The Grocery Manufacturers of America has suggested that the FDA set the "carb-free" bar at less than 0.5 grams per serving and the "low carb" at less than 9 grams per serving. The Center for Science in the Public Interest would like to see the low-carb level set at 6 grams.

Looking Ahead

For now, low-carb life stylists should feel validated by recent studies that demonstrate the health benefits and short-term effectiveness of carb-restricted diets. But it is generally agreed that longer and larger studies are needed. To that end, the National Institutes of Health is funding a large-scale, five-year study that includes 360 participants. Stay tuned. ♦