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- At least a dozen studies have been conducted recently in major medical and scientific research institutions and published in top-notch journals that confirm the low-carbohydrate diet is superior to the low-fat diet in multiple respects.
- The respondents to the PCRM poll would represent only 0.00001125% or one one-thousandth of one percent of individuals following a low-carbohydrate diet.
- Researchers from Harvard recently reported that subjects could eat 300 calories more per day on a low-carbohydrate diet than those following a low-fat diet and still lose the same amount of weight over a 12-week period.
- Dieters would prefer to lose fat rather than lean tissue, which is precisely what happens with low-carbohydrate diets.
- Virtually every study done on low-carbohydrate diets shows that weight loss is accompanied by either an improvement or no change in heart disease risk factors.
- Low carb dieters who consume green leafy and colorful vegetables and low-glycemic fruits are not at risk of osteoporosis (long-term bone loss).
- The whole idea that protein in the amounts eaten in modified low-carbohydrate diets damages kidneys is a vampire myth that refuses to die no matter how many stakes have been driven through its heart by a multitude of medical studies.
- Overall there is no evidence that meat causes colon cancer, or any other cancer, for that matter. Actually many cancer-fighting nutrients are in meat and a reduction in meat intake might be more likely to increase cancer risk.
- As the data continues to accumulate and the studies increase in number, the efficacy of the modified low-carbohydrate diet will finally be established to the satisfaction of all.

On November 20<sup>th</sup>, the Physicians Committee for Responsible Medicine (PCRM) released a report entitled *Analysis of Health Problems Associated with High-Protein, High-Fat, Carbohydrate-Restricted Diets Reported via an Online Registry*. The report, which dresses, speaks and behaves like something that might appear in a bona fide medical journal, examines a host of health problems consumers have suffered allegedly as a result of their following a high-protein diet.

We find this report interesting on a number of fronts, not the least of which is in the way PCRM uses what is at best anecdotal information and presents it in the guise of a scientific investigation. Over the past twenty years when we and other physicians who use low-carbohydrate diets to help our patients lose weight, normalize blood lipids, stabilize blood sugars, reduce their high blood pressure and generally improve their health reported our clinical experience with thousands of such patients we have often been greeted by groups such as PCRM – which view science through a vegetarian or low-fat lens – with cries of “Anecdotal! It’s only anecdotal evidence. If your low-carbohydrate regimen is so good, where are the clinical studies?”

In the last couple of years, however, at least a dozen studies have been conducted in major medical and scientific research institutions throughout the world and published in top-notch medical and scientific journals that confirm what we and others have been saying for years—the low-carbohydrate diet is superior to the low-fat diet not only for weight-loss but for improvement of virtually all of the components of the metabolic syndrome as well.

It is a delicious twist of fate that the tables have turned on PCRM and the group’s fellow travelers who, now, faced with this ever-growing body of credible scientific literature must themselves

resort to the worst kind of anecdotal reporting: using a group of respondents to the PCRM website—and an extremely small group, at that—to imply that low-carbohydrate diets are a hazard to the entire population of dieters who follow them.

PCRM reports that “in the fall of 2002, [PCRM] began a pilot program testing the feasibility of an online registry for identifying people who may have suffered health complications related to high-protein, low-carbohydrate diets.” After one year of a “modest internet advertising campaign” by PCRM to “notify consumers of the availability of this registry” a total of “188 individuals reported experiencing problems with high-protein, high-fat, carbohydrate-restricted diets.”

At whom was this “modest internet advertising campaign” directed? How is the PCRM online registry found? The PCRM report doesn’t say, but one supposes the campaign was directed to and the registry found by people who have a predisposition to the PCRM philosophy. So it is reasonable to assume that people finding the PCRM online registry would have an axe to grind with the low-carbohydrate, non-vegetarian diet and lifestyle and would be more prone to report problems.

Even if we make the unlikely assumption that these respondents are all enthusiastic followers of low-carbohydrate lifestyles who have run afoul of their diets, the PCRM numbers are so tiny as to not even approach significance: 188 respondents in one year. The most recent and credible survey we’ve read estimates that there are somewhere in the neighborhood of 32 million people following some version of a low-carbohydrate diet in the United States alone (the PCRM report doesn’t say whether the respondents to their registry were from America only or from throughout the world). Even if that 32 million number is halved, it would mean that the respondents to the PCRM poll would represent only 0.00001125% or one one-thousandth of one percent of these people following a low-carbohydrate diet, a number easy to not get too excited about. (One wonders what kind of numbers PCRM would have garnered had they put out the request for positive experiences on a low-carbohydrate diet.)

When we look at the problems that the majority of this one one-thousandth of a percent of people report we find that the majority of them suffer from constipation (44%), loss of energy (42%), and bad breath (40%). Not exactly the kind of serious medical problems calling for “the urgent need for monitoring” nor the proposal that our “public health authorities begin tracking the use of high-protein, high-fat, carbohydrate-restricted diets used for weight loss or maintenance and record adverse events” as the PCRM report recommends.

PCRM applied its anecdotal analysis to “health problems associated with high-protein, high-fat, low-fiber, carbohydrate-restricted diets” without really specifically defining the macronutrient composition of these diets. One of the problems in the medical literature is that there is no definition of a “high-protein” diet or a “carbohydrate-restricted” diet. Many studies refer to a diet composed of 40% carbohydrate as a low-carbohydrate diet, which it is when compared to one containing 55-60% of its energy as carbohydrates, but this really isn’t a low-carbohydrate diet as used by the vast majority of followers of low-carbohydrate diet plans.

Other papers report data on diets containing 5-10% of calories as carbohydrate and call them low-carbohydrate diets, which they certainly are, but not the same low-carbohydrate diet as those containing 40% carbohydrate. Another complicating factor is that most researchers use percentages of macronutrient composition to define their study diets whereas we and others who prescribe low-carbohydrate diets along with virtually everyone who follows some form of a low-carbohydrate diet use absolute grams of usable carbohydrate to set the parameters of the regimen. Anyone following a low-carbohydrate diet knows how precisely many grams of carbohydrate per day he or she is taking in but doesn’t have a clue as to what percentage of caloric energy that represents. Another problem is that these diets are referred to in a number of ways—high protein diets, low-carbohydrate diets, high-fat diets, carbohydrate-restricted diets, etc. Although these terms are used interchangeably they really aren’t. A low-carbohydrate diet doesn’t have to be a high-protein diet; a high-fat diet isn’t necessarily a low-carbohydrate diet; and, nor is

a high-protein diet necessarily a high-fat diet. In order to bring clarity to this dietary debate, a definition of just what a low-carb diet is needs to be established.

PCRM and other groups and individuals who are anti-low-carbohydrate diet typically define the low-carbohydrate diet as the Atkins Diet, which in its original form was an extremely low, almost no carbohydrate, very high-fat diet that bears little resemblance to the low-carbohydrate diets recommended by us and others (including the current Atkins plan). Most people on low-carbohydrate diets focus on limiting their intake of carbohydrates to 30-70 grams per day and let the fat and protein content of their diet fall wherever it may within this carbohydrate restriction.

Compared to the standard American diet, most people following a low-carb diet end up consuming significantly fewer carbohydrates, about the same or marginally higher amounts of protein and fat, and a smaller number of total calories.

(There is little question that the reduction in calories drives the weight-loss engine of the low-carbohydrate diet, a point seized on by PCRM and others as somehow being a slight to the low-carbohydrate diet. More about this later.)

The vast majority of medical studies published within the past few years have used this modified low-carbohydrate diet as the basis for comparison. Unfortunately, although this modified diet is substantially different from the original Atkins Diet, PCRM and others along with help from the media persist in referring to it as the Atkins Diet. An example: a recent research paper in the *New England Journal of Medicine* describing the effectiveness of our specific version of the low-carbohydrate diet, which is substantially different from the Atkins Diet, in reducing weight and improving health was hailed by the media as the “vindication of the Atkins Diet.” Before we move into what the research data shows about the effectiveness of the modified low-carbohydrate diet, let’s take a look at just how surreal this entire debate has become.

The PCRM report states that “high-protein, high-fat, low-fiber, carbohydrate restricted diets, such as the Atkins Diet, when used for prolonged periods, are expected to increase the risk of multiple chronic diseases and other health problems.” One would assume that according to PCRM that the low-carbohydrate diet would be worse than the standard American diet, but if we look closely is their assumption valid?

A typical American lunch, one eaten by hundreds of thousands, if not millions, of people in this country every day is a hamburger, fries, and a soft drink. To modify this basic lunch to fit the low-carbohydrate regimen dieters would remove the bun from the burger, avoid the fries and have a salad instead, and drink water or some other non-caloric beverage. In the eyes of the PCRM these simple modifications have converted this typical American lunch into a “dangerous” high-protein diet destined to ruin the kidneys, destroy the bones, and permanently damage the hearts of anyone who follows it. In making these modifications, however, low-carbohydrate dieters get rid of the trans fats and refined carbohydrates in the bun, miss out on the large amount of fat (including trans fat) and high-glycemic carbohydrates in the fries, pass up the quarter of a cup of high-fructose corn syrup in the soft drink, and get a fair amount of carotenoids, flavinoids, lycopenes, fiber, and other anti-oxidants and phytonutrients in the salad. And, significantly reduce the caloric content of the lunch. You will note that the protein content remained unchanged. One would think that the PCRM would applaud these modifications, but instead they decry them. Surreal indeed!

## **Weight Loss**

The caloric restriction that is a by-product of carbohydrate restriction accounts for the majority of the weight loss found with low-carbohydrate diets. Most, but not all. A recent review of low-carbohydrate diets in the *Journal of the American Medical Association* stated that virtually all of the weight loss brought about by these diets came as a result of caloric restriction and when compared with low-fat diets there was no difference in efficacy as long as the two diets were equal in calories. A careful review of the individual studies comparing low-fat to low-carbohydrate diets

almost always shows that over the course of the diets the people on the low-carbohydrate diets consume slightly more calories than those on the low-fat diet. A couple of recent studies showed a more pronounced and significant difference in the weight loss verses caloric intake between the two diets. One study done at the University of Cincinnati demonstrated greater weight loss in a group of women following a low-carbohydrate diet containing slightly more calories than a low-fat diet. Researchers from Harvard recently reported that subjects could eat 300 calories more per day on a low-carbohydrate diet than those following a low-fat diet and still lose the same amount of weight over a 12-week period. Where does this extra weight loss come from? It is known that dietary fat increases the production of mitochondrial uncoupling proteins, and there is some evidence that carbohydrate restriction might increase the proton leak across the mitochondrial membrane. Either or both of these actions would increase the loss of energy without reducing the caloric intake, but both these mechanisms as well as other theories need more study for clarification.

Clearly, low-carbohydrate diets give more weight loss bang for the calorie buck, but even if they didn't, even if the weight loss were the same with low-fat and low-carbohydrate diets of equal caloric content, the low-carbohydrate diet would still be the diet of choice for other reasons. As everyone who has ever dieted knows, it's not just the amount of weight that is lost that is important, but where this weight loss comes from. Everyone would agree that dieters would prefer to lose fat rather than lean tissue, which is precisely what happens with low-carbohydrate diets. Studies done at the University of Illinois, the University of Connecticut and other research institutions have shown that subjects following a low-carbohydrate diet lose more fat and less lean body tissue than those subjects following a calorically equivalent low-fat diet. In fact, in some cases, subjects on low-carbohydrate diets even gain lean body mass while losing fat on low-carbohydrate diets, a finding virtually never observed in subjects following low-fat diets.

### **Cardiovascular Disease**

It would seem a bad bargain to trade weight loss for a substantially increased risk for heart disease, which is the case that the PCRM makes in its report. While conceding that low-carbohydrate diets are effective for bringing about weight loss, the PCRM cautions that these diets are "associated with increased risk of...heart disease." A strange statement since the very studies the PCRM references as showing that the low-carbohydrate diets "facilitate modest short-term weight loss" also demonstrate that low-carbohydrate diets improve lipid profiles and enhance insulin sensitivity in their followers, both changes that are known to substantially reduce the risk for heart disease. Virtually every study done on low-carbohydrate diets shows that weight loss is accompanied by either an improvement or no change in heart disease risk factors. Few, if any, studies of low-carbohydrate diets show a worsening of heart disease risk factors. Most authorities agree that excess body fat is a risk factor for heart disease; so even the studies that show no improvement in other risk factors in subjects on low-carbohydrate diets actually do demonstrate a lowered cardiovascular disease risk implicit in the weight loss they bring about.

### **Osteoporosis**

PCRM is on a little more solid footing when it claims that the Atkins Diet can cause bone loss, but PCRM misses the point entirely when considering the modified low-carbohydrate diet we and others recommend and that most people now follow. Studies going back almost a century describe the bone loss that can occur in people following a predominately meat diet. A diet high in meat alone creates a mild metabolic acidosis in the human body. This metabolic acidosis or excess acid created by the metabolism of meat has to be buffered or neutralized, which the body does by leaching calcium from the body's storehouse of calcium, the bones. On a day-to-day basis the amount of calcium lost from the bones in this way is insignificant, but over a decades-long period of time can result in osteoporosis. Meat, however, is not the only food that produces such a response. Along with meat, the other two main offenders are grains and cheeses, especially hard cheeses. That's correct: eating grains causes a metabolic acidosis just as meat does. When you consider the cheeseburger, a staple of the American diet, it's easy to see why osteoporosis abounds. So, the PCRM correctly points out that the Atkins Diet, which in its original version

recommended primarily meat and cheese, could cause osteoporosis if followed for the long term. But what about the modified low-carbohydrate diet? Does it do the same?

Most plant foods, other than grains, bring about the opposite metabolic situation; whereas meat consumption causes a metabolic acidosis, green leafy and colorful vegetables and low-glycemic fruits bring about a metabolic alkalosis. The reduction in acid-producing grain consumption along with the alkaline response of the very plant foods recommended on the modified version of the low-carbohydrate diet offsets and neutralizes the acidity from the meat so that there is no net metabolic acidosis and no long term bone loss.

### **Impaired Renal Function**

Fear of kidney damage has long been the bugaboo of people following low-carbohydrate diets. It's doubtful that anyone pursuing a low-carbohydrate diet for any length of time hasn't been told at least once that his or her kidneys are in danger. Here again the PCRM doesn't disappoint; the group is right there leading the chorus. And PCRM doesn't beat around the bush: "High-protein diets are associated with reduced kidney function," so says its report. No equivocation there. But once again PCRM has missed the boat. If we are to believe PCRM, we had better leave the buns on our burgers and eat every fry in the box to protect our kidneys.

Studies from around the world have shown that the amount of protein contained in the modified version of the low-carbohydrate diet does not harm the kidneys. Even studies in patients with diabetic kidney disease show they will harm their kidneys more by increasing their carbohydrate intake and running up their blood sugars than they do by increasing their protein intake. In the late 1980s a group did an extensive study in Israel comparing the kidney function of people of all ages who ate a high meat diet with the kidney function of those on a vegetarian diet. The study showed that although both groups suffered a slight reduction in kidney function with age (it's a sad fact of life—as we age function of just about everything including the kidneys decreases) the degree of loss of function was indistinguishable between the groups. Another recent study of kidney disease in diabetics performed at the University of California in San Francisco demonstrated that caloric reduction was a more potent force in protecting damaged kidneys than restriction of dietary protein. In fact, this study used a low-carbohydrate diet to restrict the calories. The whole idea that protein in the amounts eaten in modified low-carbohydrate diets damages kidneys is a vampire myth that refuses to die no matter how many stakes have been driven through its heart by a multitude of medical studies.

One last point on this subject, an admittedly anecdotal one, but illustrative. The one group of people who eat more protein than any other single group is serious body builders. These people eat anywhere from three times to eight times the amount of protein recommended in any low-carb diet, and do so for long periods of time. What does this do to their kidneys? It must not do much because it's never been reported in the medical literature. If the PCRM were correct about protein damaging kidneys there would be lines of body builders cueing up outside of dialysis centers all over the world.

### **Colorectal Cancer**

The idea that meat intake definitively causes colon cancer is another vampire myth that refuses to die. Studies have indeed shown that increased intake of meat might cause colon cancer, but so have an equivalent number of studies shown that refined carbohydrates might cause colon cancer. The studies that the PCRM mustered for its report of course show an increased risk, otherwise PCRM wouldn't have mustered them. When a situation exists where there are dueling studies it's always prudent to look at a meta-analysis, which is a study of all the studies. Dr. Michael Hill, a British epidemiologist, performed and published such an analysis. He reported that overall there is no evidence that meat causes colon cancer, or any other cancer, for that matter, and stated that since many cancer-fighting nutrients are in meat, a reduction in meat intake might be more likely to increase cancer risk than reduce it.

By a curious coincidence the day the PCRM chose to release its report bashing low-carbohydrate diets was the same day pop star Michael Jackson surrendered to authorities in Santa Barbara County. Upon his release after posting bail the singer was reported by his attorney to have said: "Lies run sprints, but the truth runs marathons." It remains to be seen how this aphorism applies to Mr. Jackson himself, but there is little doubt that the endurance of the modified low-carbohydrate diet makes it the major contender for victory in the dietary marathon. As the data continues to accumulate and the studies increase in number, the efficacy of the modified low-carbohydrate diet will finally be established to the satisfaction of all.

Until then, however, the PCRM and other such groups with a political agenda will continue their feeble attacks on a diet that has helped millions. The weakness of PCRM's data even it admits publicly. Buried near the end of the PCRM report under the heading "Limitations," PCRM writes: "The key limitation of this report is that adverse health effects were self-reported and are not likely to have the same prevalence in the general population. Data collection was Web-based and no attempt was made to assure a representative sample." And yet the PCRM finds these data of a magnitude to require the "urgent need for monitoring" by our "public health authorities." The PCRM report and the disproportionate amount media attention it garnered are merely a sprint.

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### **About the Authors:**

Michael R. Eades, M.D., and Mary Dan Eades, M.D. are recognized around the world for their pioneering efforts in the field of metabolic medicine. The dynamic husband-and-wife team has helped literally millions of individuals lose weight and improve their health.

In their books, personal appearances and on network and cable television, the Eades are known for their common sense approach to health, nutrition, weight loss and exercise. They make complex medical and biological topics easy to understand.

Yet the true secret of their success is the enormous amount of time the doctors invest contributing to and reviewing the scientific literature and in consultation with other leading medical professionals.

During the course of their 15-plus year joint careers, the Eades have personally treated thousands of overweight and unhealthy patients who had literally given up all hope of losing weight and regaining their health. The doctors' success in their private practice led to their coauthoring the breakthrough bestseller, *Protein Power*, which awoke the nation to the benefits of reducing carbohydrates in the diet and replacing them with protein and quality fats. That book, first published in 1995, remained on *The New York Times* bestseller list for well over a year and has sold more than 3 million copies to date.

More recently, the Eades have focused their full-time energies on writing, research, lecturing and creating products aimed at helping the public to improve its metabolic health. Since *Protein Power*, the couple has published four other successful books, including the *Protein Power Lifepan* and *The 30-Day Low-Carb Diet Solution*.

Both doctors will be featured speakers at LowCarbiz' upcoming industry conference, [The Low Carb Summit](#), scheduled for January 2004 in Denver.