Protein's Role in Weight Loss:

Revisiting the Controversy

By Dorene Robinson, RD CDN

A good scientist's viewpoint is always contingent on available information. In any scientific debate there will be evidence falling on both sides of the fence—the question is where does the bulk of the evidence fall?

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The data shows that protein is more satiating than carbohydrates or fat.

Last time I wrote on this topic[1] I had failed to locate anything I considered credible evidence supporting the effectiveness of higher-protein regimes, and I made a good case for why high-protein diets offered more hype than help. Over the past couple years however the growing body of data on protein and weight loss has swayed my view. So, today we're revisiting the controversy and giving protein it's due!

HEALTH PROFESSIONALS HAVE HISTORICALLY BEEN NEGATIVE ABOUT HIGH-PROTEIN DIETS

Why? In my opinion it's mainly because popular high-protein diets (Dr. Atkins' New Diet Revolution, Enter The Zone, Protein Power, Sugar Busters, etc.) suffer from the same difficulties found in almost all "popular press" weight loss books. These mainly consist of clearly false claims about the mechanisms behind a given diet's effectiveness. In the case of the high-protein diets these generally include the following:

1. **False Claim:** Dietary fat doesn't makeyou fat.
   Fact: Higher fat intakes tend to be associated with higher calorie intakes, and are consistently associated with higher body mass indexes (BMIs).[2]
2. **False Claim:** There is a metabolic advantage to high-protein diets.
   Fact: When calories are controlled, clinical trials consistently find no difference in weight loss between diets.
3. **False Claim:** Insulin makes you fat.
   Fact: Higher carbohydrate diets are associated with lower not higher BMIs,[3] and insulin resistance does not independently promote weight gain.[4]
4. **False Claim:** You should avoid all foods with a high glycemic index (GI).
   Fact: What's relevant is the glycemic load of an overall meal or diet, not the GI of individual foods.[5]
5. **False Claim:** Calories don't count.
   Fact: The only way to gain (fat) weight is overconsume one's current personal metabolic needs.

With so many errors of fact it's arguably human nature to write off high-protein diets completely. What's changed? While the misinformation hasn't changed, several new research studies by well known obesity researchers are forcing health professionals to take a second look.

CLINICAL TRIALS: ASSESSING THE EVIDENCE

There are two approaches to clinical trials comparing the affect of different dietary regimes on weight loss. The most common approach is to control for calories (put both treatment groups on the same number of calories) and then see which group loses more weight. In this type of trial researchers consistently find no statistical difference in weight loss between diet groups—regardless of the type of diets being compared.[6,7,8,9] Hence my oft-repeated statement: "It all comes down to calories!"

The second approach does not control for calories. Instead it gives both groups instructions on how to follow a particular dietary regime and compares weight losses. This approach is more "real world," i.e. it reflects how much people tend to spontaneously eat on a given regime. In this type of clinical trial we consistently see that subjects lose more weight on the higher-protein regimes (in the short-term, see below) when compared to high-carbohydrate or balanced diets.[10,11,12]

PROTEIN AND APPETITE REGULATION

The difference in results between the two types of clinical trials is believed to be a result of the positive effects of protein on appetite regulation. While the body of research on macronutrients (protein, carbohydrates, and fat) and appetite regulation is limited, "the consistency of the findings is striking," states Dr. Richard Mattes, appetite researcher at Purdue. The data shows that (solid not liquid) protein is more satiating (allows you to go longer before hunger returns) than carbohydrate or fat.[2,13]

Furthermore there's little difference between carbohydrate and fat on appetite regulation (opposite of what I learned as an RD). Carbohydrate has an advantage only for the first hour after eating.[2,13]

SHORT-TERM VS. LONG-TERM DIFFERENCES

Most clinical trials comparing weight loss from different diets have been between six and 12 weeks with a few as long a six months. The first clinical trial lasting a full year was published in *New England Journal of Medicine* May 2003.[11] This trial was of the second type (not calorie controlled), where free-living subjects were instructed how to follow either Atkins' or the Food Guide Pyramid (US Dietary Guidelines) and The LEARN Program. The data showed significantly higher weight loss (more than double) at 3- and 6-months for the Atkins' group. However at 1-year the difference in weight loss between the two groups was no longer statistically significant!

Most researchers believe that this "regain effect" is pointing to the fact that people simply tire of restrictive diets. It may be that six months is about the maximum amount of time that people are willing to stick to a highly restricted carbohydrate intake.

DASH (Dietary Approaches to Stop Hypertension):

A diet that was created for a series of National Institutes of Health (NIH) clinical trials, which have shown that hypertension can be reduced as much by diet as by hypertensive drugs. The DASH diet is also the foundation of the Healthy Eating and Weight Management guidelines in the *Beyond Fitness* nutrition and weight manaagement education materials used in health clubs nationwide.

So, is there a dietary style that provides enough protein to impart appetite regulation benefits, while also promoting health, that people can stick with long-term?

WEIGHT LOSS MAINTENANCE

Our best clue comes from the National Weight Control Registry (NWCR)—a database of over 3,000 people who have maintained significant weight losses (an average of 30% of their initial body weight) for an average of 5.5 years.[14] NWCR subjects report eating an average of 20% protein, 55% carbohydrate and 25% fat. This macronutrient distribution, which is very similar to the DASH diet (see below), may prove to be the key to long-term weight loss maintenance.

NEW RDAS

September 2002 the Institute of Medicine's (IOM) Food and Nutrition Board revised the RDAs for protein, carbohydrates, and fat.[15] The main change within these recommendations was a broadening of the ranges of dietary carbohydrate and fat.

It's interesting however to notice that the IOM already considered up to 35% of total calories as protein to be a healthy and safe choice for adults, "protein intakes may range from 10 to 35% of energy intake to ensure a nutritionally adequate diet."[15] The new RDA ranges are as follows:

Acceptable Macronutrient Distribution Ranges (AMDR)

For Adults (% of total calories)

	2002	Old Guidelines
Protein	10-35%	Same
Carbohydrate	45-65%	50% or more
Fat	20-35%	30% or less

FIGURE 1

PROTEIN NEEDS ARE HIGHER DURING WEIGHT LOSS

A great deal of research was conducted in the 1980's to identify the optimal levels of protein, carbohydrate, and fat that would preserve lean body mass and maintain health during weight loss. Based on that data it is believed that persons should consume at least 72 to 80 g of protein per day (or 1.0 to 1.5 g/kg "Ideal body Weight," [see figure 3] whichever is greater) when following a reduced-calorie intake.[16,17]

To ensure that these minimum levels are being met we need to think about protein in absolute terms rather than as a percentage of calories, as noted by Dr. Donald Layman, diet researcher at University of Wisconsin.[18] This is demonstrated below (figure 2), where you can see that as calories decrease the percentage of protein required to meet the minimum protein needs for weight loss increases.

Minimum Protein Requirements for Reduced-Calorie Diets

Calorie Level	Protein (g)	% Calories as Protein
1,000	72 to 80	28.8 to 32.0
1,200	72 to 80	24.0 to 26.6
1,400	72 to 80	20.6 to 22.6
1,600	72 to 80	18.0 to 20.0

FIGURE 2

To compare the "1.0 to 1.5 g/kg method" to the 72 to 80 g/day guideline use the following clinical definition of "Ideal Body Weight:"[19]

Ideal Body Weight[19]

Men: 105-lbs. for the first 5 feet plus 6-lbs. per inch above 5 feet.

Women: 100-lbs. for the first 5 feet plus 5-lbs. per inch above 5 feet.

FIGURE 3

BETTER QUALITY WEIGHT LOSS

While not always reaching statistical significance, the consistent trend is that higher-protein intakes limit the loss of lean body mass during weight loss so that a greater percentage of the loss is coming from fat stores.[8] "You will almost always find that higher protein diets produce a higher loss of body fat with a sparing of body protein," notes Dr. Layman.[18]

CONCERNS

Health professionals have repeatedly cautioned the public about the theoretical hazards of high-protein diets; new data has forced a reevaluation of these concerns as well:

- **Bone Mineral Density (BMD):** There is no question that urinary calcium losses increase with protein intake. What we've learned recently however is that calcium

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absorption from the gut improves as protein intake increases resulting in fewer fecal losses. The net affect? Higher protein intakes may actually protect BMD during weight loss. In a 6-month randomized clinical trial subjects on 1.6 g/kg vs. 1.0 g/kg of dietary protein lost significantly less BMD even though they lost significantly more total body weight.[12] A caution still remains: you need optimal calcium intakes (1,000 to 1,500 mg/day) along with the protein. These are higher intakes than Americans currently achieve on maintenance-level calorie intakes, and are likely to require some supplementation.

- **Blood Lipids:** The trend in clinical data indicates that total cholesterol, LDL cholesterol and triglycerides decrease, while HDL cholesterol increases on *reduced-calorie* high-protein diets (all desirable changes).[8,11] However, the drop in total and LDL cholesterol is believed to be mainly attributable to reduced-calorie intake and weight loss, rather than the diet itself. I would expect to see very different data for someone following Atkin's at a *maintenance* calorie level. More research is needed to definitively answer the safety question of popular high-protein diets and heart health. Clients should be encouraged to choose a heart-healthy higher-protein style by choosing lean proteins, etc.
- **Kidney Function:** Researchers have hypothesized that high-protein diets may adversely affect kidney function due to the stress associated with processing excess protein. Research published earlier this year that followed 1,624 women for 11 years indicates that for women with *existing* mild kidney dysfunction diets high in (non-dairy) animal protein do accelerate kidney decline. Compared to women with the lowest protein intakes (average of 61.0 g/day), women who consumed the greatest amounts of protein (average of 92.3 g day) were more than three times as likely to have a significant decline in kidney function. *No effect was found in healthy women.*[20]
- **Heart Disease & Cancer:** A high-protein diet that encourages sausage, bacon, pork rinds, etc., while limiting fruits, vegetables and whole grains is not a healthy diet—even in the short-term. Higher-protein diets however, exist along a continuum. By limiting processed carbohydrates and sugar, then choosing lean meats (especially poultry, fish and shellfish), dairy (or a calcium supplement), fruits, vegetable, nuts, legumes, and whole grains it is possible to get the fiber, phytochemicals, and nutrients needed to promote long-term health.

The Food and Nutrition Board discusses "Macronutrients and Healthful Diets" in it's September 2002 update of the *Dietary Reference Intakes*. Their review of high-protein diets corresponds with the new views discussed here on BMD, cardiovascular disease, and kidney health.[15]

THE BOTTOM LINE

While weight loss still comes down to calories, there appears to be a real advantage to higher-protein intakes regarding appetite regulation. That said, there's no need to follow the crazy and highly restrictive rules of "popular" high-protein diets. Individuals should be encouraged to eat balanced meals that always include a protein source while making sure they achieve at least the minimum levels of protein intake as discussed.

Our goal should be to point people in the direction of a health promoting diet [see heart disease] that also provides the optimal level of protein to best facilitate fat-weight loss and long-term weight maintenance. ■

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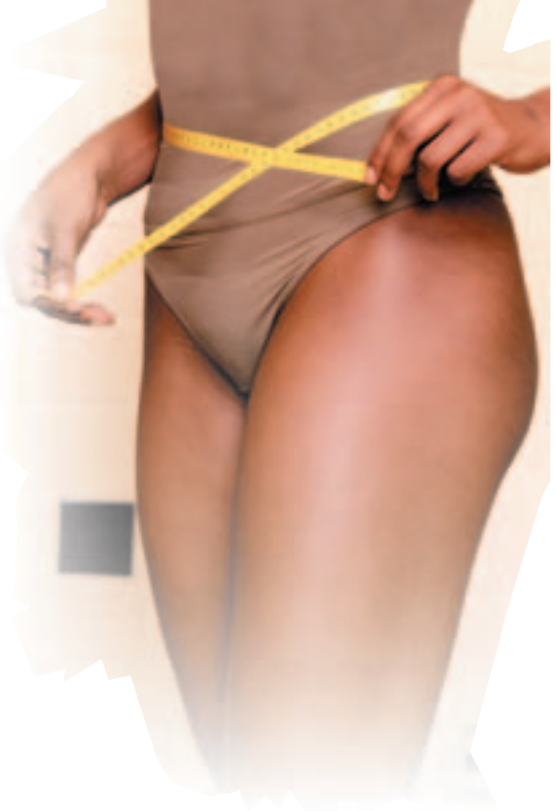

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