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What Causes Weight Gain

For most people, this is weight loss season—we're trying to reduce our body weight and body fat, not increase it. Scientists, on the other hand, have been trying to figure out how we gain weight based on the nutrients we eat. In other words, would eating a high-protein diet with lower fat cause us to add more body fat than a low-protein diet with more fat, or vice versa? The answer has ramifications for weight loss as well as for weight gain in those who might need to gain weight. A study published this week gives us a little insight into this question.

The Study

I've written about many studies over the years, but this is one of the only studies that kept the subjects sequestered in a metabolic ward for 12 weeks. Doesn't that sound like fun? The 25 subjects were compensated for their time, of course, but three months is a long time—after all, *Survivor* is only 39 days, or about half the study's duration.

The reason for the sequestration is that the researchers needed to completely control what the subjects ate in order to find out whether varying amounts of protein affects how people gain weight. More specifically, they wanted to find out what, if any, differences there were between subjects who ate 5%, 15%, or 25% of their calories from protein.

Subjects were 18 to 35 with a BMI of 19 to 30; they were tested for body fat, resting metabolic rate, total energy expenditure, and more. Then they were placed on one of three diets with the aforementioned protein content. Caloric and carbohydrate content was standardized for each diet—that means as protein increased, fat decreased, and vice versa. Because this was an overfeeding study, the subjects were overfed an average of 950 calories per day more than their baseline caloric intake.

One more important fact you've got to know: the subjects didn't know which diet they were on, and the staff who worked with them didn't know either. All the food was prepared in the metabolic-ward kitchen and made to look the same no matter the protein content. Think about how difficult that was to pull off.

Now think again: would you want to be sequestered for 12 weeks so scientists can make you fatter? Even if I really needed the money, I'd flip burgers before I'd take that gig.

The Results

All subjects gained weight. Those on 5% protein gained the least amount of weight at seven pounds. The medium- and high-protein groups both gained about 13 pounds. However, almost all the weight that was gained in the 5% group was body fat whereas the other groups gained half their weight as lean tissue—which doesn't mean it was all muscle. Researchers theorized that it cost more energy to metabolize the extra protein, and that was supported by the metabolic-rate data: those on the low-protein diet exhibited a decrease in resting metabolic rate, while the other two groups showed an increase in metabolic rate. That means just lying in bed, the low-protein group was using fewer calories to keep their bodies functioning and thus storing more calories as fat.

What does this mean to you and me? Because most of us want to lose weight, it may not seem apparent but think about this: as the protein content increased, the fat content decreased. Look at the fat instead of the protein. Fat

doesn't take very much energy to be absorbed, processed, and stored: roughly 3% of its total calories. Protein takes a lot more energy to absorb and process, upwards of 20% of the calories taken in. Because researchers kept carbohydrate intake and the number of additional calories the same between groups, it was the fat content that drove metabolic rate and storage: the more fat in the diet, the more was gained as body fat. The higher protein content resulted in less weight being stored as fat because it had less fat to begin with and protein costs us more energy to metabolize.

The Bottom Line

I think there are three important messages from this study, keeping in mind that there were only 25 subjects.

- First, if you want to gain muscle while training, increase protein intake and decrease fat. That should insure that you will gain only muscle if you're training hard.
- I also think that if you're trying to lose weight, while it's still about the total calories, ignoring protein content may prevent us from losing body fat. If we eat quality carbohydrates, then a higher percentage of protein will lower our fat intake, and that should help us lose body fat.
- One more thing: if you're stuck at a plateau, increasing protein and decreasing fat may help you get unstuck and back to losing again. Just make sure you're healthy enough to increase your protein intake and for that, you have to check with your physician.

What are you prepared to do today?

Dr. Chet

Reference: JAMA. 2012; 301(1):47-55.

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