

## The Muscle Protein Connection

Most athletes know that adding a good source of protein at meal and snack times helps keep you fuller longer. Protein takes longer to breakdown in the stomach and helps stabilize blood sugars so the empty stomach feeling and hormones that signal hunger are delayed. Including a regular serving of protein at each meal and snack is a smart strategy to reach and maintain a healthy weight and good for athletes. Here are a few lesser know tips.

1. **Balance your protein throughout the day.** Eating a consistent amount of protein regularly throughout the day is important for muscle strength. The research studies while relatively new have similar results. They each suggest that the average American's dietary habit of eating too little protein at breakfast and lunch and then eating far too much at dinner is not an efficient method for building muscle during the early hours and is wasteful at the end of the day.

### *Traditional American Low Protein Breakfast*

The University of Texas released a study where healthy adults were fed 90 grams of protein differently throughout the day.

**Group 1:** 30 gms protein breakfast, 30 gms protein lunch, 30 gms protein dinner

**Group 2:** 10 gms protein breakfast, 15 gms protein lunch, 65 gms protein dinner

Group 1 experienced 25% more muscle synthesis by providing the right-mix of nutrition to promote muscle growth and repair during the earlier hours.

2. **20 Grams is where we peak.** More protein is not better, *a cup will only hold so much water* and the same is true of muscle. Research by Moore DR, Robinson MJ and Fry JL published in the American Journal of Clinical Nutrition suggest that consuming 20 grams of protein is where we peak when it comes to stimulating muscle creation immediately after exercise. They showed an incremental increase in response of muscle creation up to 20 grams, but no differences in response between 20-40 grams. In fact, too much protein ends up being burned as energy or converted into fat if your calorie intake exceeds your needs. Remember that muscle synthesis is optimal within 30 minutes of exercise, so time your snack accordingly or back your workout into your next meal.
3. **What if you are trying to lose weight?** Several studies have shown that a low-calorie, high protein diet in combination with increased exercise may increase weight loss. However, in most of these studies calories from protein were increased at the expense of carbohydrate calories. Since muscles store energy in the form of carbohydrate (glycogen), this isn't a good option for a competitive athlete. Inadequate carbohydrate leads to early fatigue, increased risk of injury and impaired focus. The upside? People who maintain a low-calorie, high protein, low carbohydrate diet with exercise

reduce their loss of lean body mass. This means they lose more fat, less muscle.

So what's an athlete to do? Reduce your saturated fat, excess sugar and empty calories. Keep your intake of lean proteins and low-fat dairy higher in conjunction with whole grains and fresh fruits and vegetables, but skip the extra spreads, dressings, baked goods and sweets. You'll accomplish your weight loss goals, while minimizing your muscle loss.

**How much protein do you need?** Recommended daily protein intakes are:

- Healthy adult: 0.8 grams/kg
- Endurance athlete: 1.2-1.4 grams/kg
- Resistance athlete: 1.6-1.7 grams/kg

An endurance athlete weighing 160 pounds requires 87-102 grams of daily protein. 160 pounds divided by 2.2 pounds/kilograms x 1.2-1.4 grams/kg = 87- 102

**Common Sources of Protein**

Food or Beverage	Serving	Protein (grams)
Lean Chicken, Turkey, Fish, Beef	3 ounces (Deck of cards)	21
Egg	1	6
Low Fat Cheese (or ¼ cup Low Fat Cottage Cheese)	1 ounce (Index Finger)	7
Tofu	¼ cup	10
Low Fat Milk, Soy, Yogurt	1 cup	6 to 8
Beans, Peas or Lentils	½ cup (1/2 Baseball)	7
Peanut Butter	2 Tbsp. (2 Thumb Tips)	8
Nuts or Seeds	¼ cup	8
Whole Grain Pasta, Brown Rice or Potato	½ cup	3 to 5
Whole Grain Breads	1 slice or ½ bun	2-3

**Bottom Line?**

- A well-balanced diet, adequate in protein is important all day long.
- Many recovery drinks are too high in protein, contain excess sugar and are expensive with no additional muscle growth benefit. A Greek yogurt, low fat chocolate milk or bowl of cereal post work is effective recovery snacks.
- If you are overweight and trying to lose weight, a low-calorie, high lean protein; carbohydrate rich diet with regular exercise is optimal.