

# Science Sunday #10

## *Nutrient Timing: What the FACT is a nutrient?*

### Macronutrients

- Fat 9 calories per gram
- The body needs fatty acids for energy, insulation (homeostatic being) and absorption of fat soluble vitamins (A,D,E, K)
- Add flavor and texture to our foods

### Main types of Dietary Fats are

1. Saturated fats: solid at room temp, found in animal sources
  2. Unsaturated fats: plant sources such as olive oil, avocados, nuts
  3. Trans fats: found in commercially baked goods, snack foods and margarines, these are saturated fats that are NOT solid at room temperature due to being hydrogenated
- Carbohydrates 4 calories per gram
  - The body needs carbs for energy! The only fuel the brain will burn
  - The body stores carbs in the form of glucose in the blood, muscle and liver

### Two types of carbs:

1. Complex carbs: starches that must be broken down into sugars before the body can utilize them
2. Simple carbs: only have to be converted into glucose before the body is ready to consume them

Bulk of carbs intake should be complex because these will contain your B vitamins and dietary fiber

- Protein 4 calories per gram
- Building blocks of human tissue
- Also an energy source but with very little efficiency

### Two types of protein (amino acids)

1. Essential: amino acids a person must consume from their daily intake
2. Non-essential: the liver can synthesis these amino acids from the intake of other amino acids found in food

- Alcohol 7 calories per gram

Fermented from the other three macronutrients, performing no function in the body other than for energy.

- The only macro nutrient regulated by the Olympic Committee

## How do you know you're meeting your macronutrient needs?

1. Based on body size and activity levels.
2. USDA has guidelines on the nutrition facts that give you percentages based on a 2000 calorie diet\*
3. It is most defiantly a very individual thing.

## How close are YOU coming to meeting your 2000 calorie Macro Nutrient goals?

### Micronutrients

- No energy content
- Vitamins: water soluble (B vitamins) and fat soluble (A, D,E and K vitamins)
- Minerals: iron, magnesium, calcium,

I found a fantastic link from Healthline:

<https://www.healthline.com/nutrition/micronutrients#types-and-functions>  
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### Reaching your micronutrient goals are based on 2000 calorie USDA guidelines

- Notable that 1200 calorie minimum for micro nutrients
- Making sure your micronutrient intake from foods is critical for optimizing health

### Pre-workout nutrition

- Glycogen: Sugar stored in the muscles. Its SO critical to make sure muscles are as loaded with potential energy before the start of a workout. Without this energy, intensity will suffer and the primary catalyst for goal achievement is greatly diminished.
- Amino acids: some people believe supplementing with amino acid pills or powders can help boost their energy through a workout. While this won't hurt, reality is 1 gram of aminos which provides 4 calories of raw energy doesn't fuel for much longer than 20 seconds of exercise.
- 'False energies' like caffeine: pre-workout cocktails are SUPER popular and tho it doesn't hurt to have a little boost, the reality of exercise output is simple. Muscles that don't have energy don't move and caffeine isn't a supplement for potential energy, it only provides a false sense of ability and in reality without a good nutrition split, will increase anxiety above all other elements.
- What's the best way to ensure your pre-workout nutrition is optimized? Eat a healthy and well balanced diet days leading up to any exercise bout.

### Workout Nutrition

- Blood glucose: blood sugar levels keep muscles going and ensure that muscle glycogen stores provide energy for movement. Keeping the tank topped off is important.
- Supporting muscle glycogen stores ensure that movement can not only continue but propel participants through workouts that are not only intense but increasing intensity on a regular basis. Its not a bad idea to add a little more workout fuel (such as fruit during workouts) to keep energy levels on tap.
- Optimizing recovery: fact is when a person is fueled before and during their workout it supports the most critical component of exercise progress: recovery.

## Post Workout Nutrition and the recovery.

- 'The Golden Hour': There's a popular notion that the best time to eat is directly after a workout, at least within one hour of ending any workout session. Studies have shown that this helps maximize the muscles ability to restore glycogen and energy stores. Is this true? Here's an idea: do an experiment. Week one: after each workout eat anywhere from 2 to 3 hours after a workout. Document your performance numbers. Week two: eat directly after a workout and document your performance numbers. Compare numbers from the different weeks. The results will speak for themselves.
- Protein vs. Carbs for recovery: here's a subject you could debate for years. Oh wait, the debate still continues. Reality is it's a very individualized thing and a lot of the post workout split depends on your dominant exercise activity. Anaerobic athletes such as power lifters and football players like to go for protein rich recovery sources. Endurance dominant athletes tend to favor carb rich food sources right after a workout. Which would work best for you? Best to start with a well balanced nutritional split.
- Micro nutritional recovery: water soluble vitamins, fat soluble vitamins, magnesium and calcium, its all enough to make your head spin...or its much less of a factor as long as you're intaking enough food volume. Hopefully more than 1200 calories a day and as close to 2000 calories (or more depending on body size and activity levels) as is possible. What happens when you're not eating enough? Micro nutrient deficient. Best to start with a well balanced nutritional split.