

# The Window of Opportunity—Layman's Version (Non-Technical)

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## The Importance of Post Exercise Nutrition

During a hardcore workout nutrients are drained from your body, and muscle wasting hormones are off the charts! Both of these factors are destructive to your dreams of massive muscle growth. The goal of a post workout shake is to replenish the fuels lost from your workout and to stop muscle breakdown. Most importantly to provide the fuel you need for freaky muscle growth.

This paper is based on several articles composed in JHR, including [The Window of Opportunity](#) (semi-technical) and [A Scientific Investigation into the Rationality of Post Workout Carbohydrate Consumption](#).

## Water and Electrolyte Replenishment

A dehydrated muscle is a weak muscle. Your ability to crank out heavy weight will severely suffer if you are dehydrated. Proper hydration is critical to gaining size.

Another vital variable is electrolyte replenishment. Of particular interest is replenishment of the electrolyte *sodium*.

If your post workout shake is lacking sodium, rehydration is dramatically delayed. This is obviously not conducive for growth, or performance. Your post-workout shake must contain both proper amounts of water and sodium.

## Glycogen Replenishment

Glycogen is the storage form of the carbohydrate glucose. As exercise intensity increases, your body has a greater reliance on carbohydrates; particularly, muscle glycogen.

Resistance training is highly dependent on glycogen stores. This is why glycogen replenishment is an essential component of post exercise nutrition. You need to consume both carbohydrates and proteins post exercise to optimize glycogen replenishment.

Concerning which carbohydrates to consume, a 50/50 combination of Dextrose and [Maltodextrin](#) is optimal for glycogen replenishment. For the rational behind this recommendation refer to, [Dextrose, Maltodextrin, and Sodium an In Depth Analysis](#) as well as, [Pre Contest Week - An In Depth Analysis](#)

You need to consume your carbohydrates along with [Whey Protein](#) for maximum results.

## Reducing Catabolic Hormones

All body builders have a sworn mortal enemy—cortisol. This hormone acts to breakdown muscle tissue, and creates a catabolic environment, contrary to growth.

The most effective way to decrease these catabolic hormones is:

- To consume an easily digested carbohydrate
- Stack it with an easily digested source of protein

## Protein Synthesis and Degradation

Skeletal muscle protein synthesis can be defined as the formation of whole muscle proteins, from individual amino acids.

Protein degradation can be defined as the breakdown of proteins, into individual amino acids and peptides.

Muscle growth is ultimately the difference between protein degradation and protein synthesis. Therefore, we want to both minimize protein degradation, and maximize protein synthesis.

Consuming protein is generally responsible for enhancing protein synthesis; while carbohydrates play an intricate role in decreasing protein degradation. The role carbohydrates play in protein synthesis is in debate. However, it appears that when easily digested carbohydrates are accompanied with proteins, the enhanced effect from these nutrients increases muscle growth.

For more information on protein, and relevant references, refer to [The Ultimate Protein Guide!](#) You can also read our peer reviewed manuscript on protein here, <http://www.abcbodybuilding.com/proteinaccepted.php>

## Nutrient Timing—The Window of Opportunity

There is a short window of opportunity post exercise, in which glycogen replenishment and protein synthesis is optimized. If you wait too long to consume your post workout shake, this window of opportunity will be gone.

- If carbohydrates are not consumed in a timely manner post exercise, glycogen replenishment is hindered.
- If you do not consume protein immediately after a workout, performance, protein synthesis, and ultimately, muscular hypertrophy, will be delayed.
- You must taper the post workout solution over 45-60 minutes. This will maximize nutrient absorption and decrease fat gain

For more information on this and references, refer to [Pre Contest Week - An In Depth Analysis.](#)

### **Protein Intake**

Post workout, you must consume 0.22 grams of protein per pound of body weight no matter if you are cutting or bulking.

### **Optimal Carbohydrate Intake**

Bulk-up:

- 5 grams of carbohydrates per every 10 pounds of lean body bodyweight.

Cut-up:

- 2.5 grams of carbohydrates per 10 pounds of lean body weight.

Lean body fat is your bodyweight after you have subtracted your body fat percentage.

### **Post workout Shake Supplementation Summary**

Follow these supplement guidelines post exercise. We've divided up the supplements in two categories; absolutely vital and vital. While taking all of these supplements post-workout is optimal, we understand that not all athletes can afford such expenses. If this is your situation, we recommend the following:

Absolutely vital:

- A 92% water solution mixed with sodium
- 5 grams of carbohydrates per every 10 pounds of lean body bodyweight on a bulk and 2.5 grams of carbohydrates per every 10 pounds of lean bodyweight on a cut. Your carbohydrates must come from a 50/50 combination of Dextrose and [Maltodextrin](#)
- .22 grams of protein per pound of body weight or 0.48 grams of whey protein per kg of bodyweight. Your protein must come from [Whey Protein](#) and the solution needs to be tapered over 45-60 minutes.

Vital (Supplements rank ordered):

- 5-10 grams of creatine
- 5-10 grams of glutamine
- A multi-anti-oxidant formula
- 1 gram or more of [HMB](#)
- 200-400 mcg of chromium

### **Where you can Purchase These Supplements**

Purchase glutamine, creatine, whey protein, shaker bottles, and maltodextrin in our online store, <http://www.abcbodybuilding.com/championsups.php?id=21&subId=60>

## Post Workout Calculator

Need help calculating your ratios?

No problem! Just use our quick and easy to use Post Workout shake calculator, created by Adam "Old School" Knowlden. Simply plug in your weight, LBM, whether you are cutting or bulking, and a formula will pop up for how much water, carbohydrates, sodium, and protein you should consume post exercise.

[Post Workout Shake Calculator](#)

## Are These Recommendations Set in Stone?

One thing we want to stress is that these recommendations are **not** set in stone.

Try different methods, or slight modifications to this protocol, to see what works best for your body.

For instance, you might begin your cut by maintaining a bulking post workout shake, and then later on, tapering your shake down to a cutting protocol to increase fat metabolism. Also, on a bulk, you would obviously not want to have as many carbohydrates post exercise after a calve workout, compared to training a much larger muscle group, such as thighs. Therefore, if you just train a small muscle group such as calves, or if your volume is very low; it may be advisable to use a cutting post workout shake, rather than a bulking formula, even if you are bulking. Conversely, if you are on a cut, and perform a very high volume workout, such as a full body routine, you may want to try a bulking post workout shake, because your glycogen stores will be severely depleted.

Because of all these variables, we strongly recommend you start a post-workout section of your bodybuilding journal in which you list various ratios and the effect they have on your performance, recovery, gains, and body fat levels. This process requires patience but will produce the best individual ratios.

## Split Training

Training twice a day is an excellent protocol for stimulating muscle growth and gaining strength (see, [Specificity Part VI](#) for a review). However, because we tend to be less active later in the day, our insulin sensitivity (our capacity to take in and store glucose in the musculature) is typically not as high at night. Therefore, we advise having a smaller post workout shake for your second post workout shake. For instance, if you are bulking, you may use a bulking post workout shake during your first routine, and a cutting post workout shake during your second routine.

## How to Taper the Post Workout Shake

One important aspect we advise is spacing out the timing of the ingredients of your post-workout meal.

To better explain, here is a two phase outline of the post workout shake:

**Phase one:**

*Immediately:*

1. A combination of 50% of your carbohydrates coming from **Dextrose** and 50 % of your carbohydrates coming from **Maltodextrin** with the proper grams of whey protein, along with the appropriate amount of water and sodium.
2. Shake or blend all the ingredients well.
3. Dish out and consume your creatine. Consume one half of the shake, directly following your workout. Allow this solution to settle in your stomach for approximately 10-15 minutes.

**Phase two:**

*10-15 minutes later:*

1. Scoop out and consume 5-10 grams of L-Glutamine.
2. Ingest any anti oxidants with your shake at this time, along with Chromium.
3. Continue tapering your post-workout meal for the duration of the time remaining from the initial 45-60 minute period.

**Summary**

*Part 1:* Drink half the elixir over a five-minute time frame; allow settling of solution for 15 minutes. Total Time for Part 1= 20 minutes

*Part 2:* Taper the remaining solution for the allotted time. Total Time for Part 2= 40 minutes

*Total Time for ingestion of post workout meal= **60 minutes.***

Keep it Hardcore,

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