

## PROTEIN SMOOTHIES For Endurance Athletes



If there is one thing that you should change about your current eating/post workout recovery habits, it would be the addition of protein smoothies. A smoothie accomplishes many objectives at the same time. First and foremost it gives your body excellent building/recovery materials. Most people need to eat more raw fruit, more high quality protein and more Essential Fatty Acids (EFA's.) Smoothies are an easy and tasty way to accomplish this. Also, by adding smoothies to your daily eating habits, you avoid the probable chemical laden/empty food that you would have eaten instead. For post workout purposes, smoothies are a vital piece in the recovery puzzle. When your body finishes working out, the muscles have a 15-45 minute "glycogen window." This window is your only chance to quickly restore your muscle's glycogen levels quickly and easily. The whey protein combined with the fresh/frozen raw fruit will produce a slurry mixture that will hit the bloodstream much more quickly and restore the muscle and liver glycogen much more effectively than solid food choices that have no protein, ie..bagels, bananas. Solid food may still be eaten and should be eaten. But, drink the smoothie first and then eat a meal (more carbs + protein) about 30-60 minutes after that depending on how long you worked out for/how much you weigh and how hungry you are. As a general rule, when exercising an hour or more, make sure to have a meal after the smoothie. On the shorter and easier days, sometimes a good thick smoothie will hold you for a couple of hours. If you have not done a workout, you can still have a smoothie for breakfast, lunch or snack (leave out the carbo pro) as they are just great meal replacements. If you try to purchase a smoothie from a Jamba Juice or something similar, make sure you request to add enough protein to equal at least 20 grams and go without the frozen yogurt varieties. The optimal recovery drink ratio is 4 grams of carbs to 1 gram of protein, so add up what your putting in the blender. If you want to use the smoothie as a snack/meal replacement, then go with 1-2 grams of carbs per 1 gram of protein.

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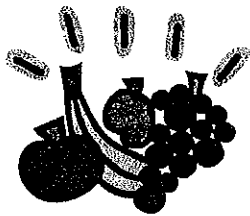
### BASIC RECIPE:

1-1.25 cups fresh or frozen fruit(20-25 grams carb)  
1-2 scoops (~20-40 grams) whey protein isolate  
1 cup liquid—soy milk, rice milk, distilled water, juice  
1-2 tablespoons flax seed oil  
\*0-2 scoops Carbo pro (0-50grams)  
(depends on post workout carb needs)

### OPTIONAL ADDITIONS

emergenC vitamin packets  
1 scoop green food powder  
Garden of Life "super seed"  
Creatine monohydrate  
Glutamine  
Plain yogurt

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### INFORMATION ON SMOOTHIE INGREDIENTS

**Fresh or frozen fruit:** Fruit contains the sugar fructose. Fructose is the only carbohydrate that will restore liver glycogen and is therefore an important ingredient. In seasonal local fresh fruit is always a good choice. At other times, frozen fruit is a great option. The cheapest source is Costco's frozen fruit selection. These bags of fruit are also very good quality as they have been selling some organic blueberries in addition to strawberries and mixed berries as of late.

Another option is to peel, break into pieces and freeze bananas in little baggies. Freeze  $\frac{3}{4}$  to a whole banana per person per bag or double that if you are always fixing smoothies for two and have a blender that can handle the load. Experiment with fruit combinations to find ones you like. Fresh mangoes, pears and strawberries are great.

**Whey protein isolate:** A high quality protein that is easier to digest and lower in fat than other forms of protein. Whey protein is also cheaper, non heat damaged and uncontaminated form of protein as well. In

order to rebuild muscle and repair cellular damage sustained during prolonged or intense exercise, one must eat sufficient amounts of protein not only after exercise, but throughout the day. There are many places that one can purchase whey protein. The prices vary according to the type of whey protein. Whey protein isolate is the highest quality and can run a little more money. Other whey proteins are blends of hydrosolates, isolates and filtered whey protein. These are still high quality protein sources, but realize that you get what you pay for. Locally, a brand that is economical and pretty good, although not completely isolates is Optimum Nutrition. 1 scoop (about 23 grams) works for many endurance athletes less than 185 lbs (use more if you weigh more.) On occasion, after extremely hard or very long events, one would use more protein.

**Liquids:** Distilled water is the first choice for a liquid. Sometimes adding soy or rice milk will give the smoothie more of a creamy texture. After long workouts juice is a must. After a short day, you may not need juice. The preferred juice would be fresh squeezed grapefruits. Adds great zing, help alkalize the blood and rev the metabolism. Please avoid using cow milk.

**Flax Seed Oil:** This oil supplies the Essential Fatty Acids. The dominant fatty acid in flax seed is Omega 3. Our food is filled with tons of omega 6 fatty acids, which are not completely bad, but most people end up with too much of it and not enough omega 3. The human body functions far better with large amounts of omega 3 fatty acids. The right fatty acids will be used by the body to build and maintain healthy cells, shorten recovery time, enhance growth, develop the brain, reduce inflammation, protect joints, provide materials to make hormones and increase your metabolic rate. One should buy flax seed oil sold in dark containers in the refrigerated sections of most any health food store.

**Carbo pro:** A powdered complex carbohydrate. After a long endurance activity of over 60 minutes, one needs more than the fruit and juice in the smoothie. In this case, adding some Carbo-Pro would be a great idea. This complex carbohydrate will help restore the muscle glycogen used during the aerobic activity. If your body weight is less than about 130, then 1 scoop may be enough. The heavier you are and/or farther you go, the more you will need (up to 3 scoops.) make sure to boost protein accordingly. This product can be purchased at the Salt Lake Running Co.

**EmergenC, Green Food, Super Seed:** These are all fabulous additions to any smoothie. Any one can use more of these nutrients. EmergenC greatly aids in recovery. Besides the vitamin C it always has, there are good amounts of potassium in it too. Green foods and Super Seed add grundles of good stuff to the smoothie. These items will turn your normal smoothie into a serious super food that will nourish and rebuild your body like nothing else can. These items can be found at any health food store.

**Creatine and Glutamine:** Many people who have heard of these associate them with bodybuilding. However, they play a great role for endurance athletes as well. These supplements greatly add recovery, increase muscle strength and bolster the immunity system. These can be added in powdered form, measured using a teaspoon. One can get these at any health food store.

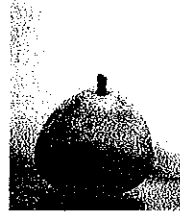
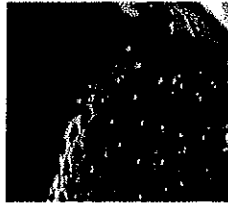
## A WORD ON BLENDERS

The blender is the most used tool in a healthy person's kitchen. Investing in a good one is worth the money. Check for a blender that has metal teeth on the bottom of the jar that won't strip out when blending frozen fruit. Hamilton Beach makes a decent one. The blender of all blenders is the Vitamix Super 5000. It is the same kind of blender used in the commercial smoothie business. The home models have a 7 year warranty and will not only blend anything, but last forever. You can also purchase a second dry blade jar to grind fresh grain into flour, or chop herbs.

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## Daily Eating Habits

1. Eat 5-6 times.
2. Choose a protein and low glycemic carb each time. (see chart below)
3. Drink only filtered or distilled water. (~64 oz/day + 24 oz/hr during excer.)
4. One protein smoothie, minimum, with 1.5 tbs. flax seed oil.
5. One large dark green salad, topped with cut up veges.
6. Take multivitamins/antioxidants/fish oil caps in divided dose (morn/eve.)
7. Alter #2 if meal is post aerobic workout of more than 35 min. Eat at least 2 servings of carbohydrate, preferably in smoothie form for faster absorption and muscle glycogen replenishment. You can use 1 scoop carbo pro for 2<sup>nd</sup> serving in smoothie. Apply this rule to the next meal as well if workout was at a high intensity.



### Meal Planning Chart

PROTIENS	CARBOHYDRATES	VEGETABLES
Whey Protein	Sweet potato	broccoli
Turkey breast	yam	spinach
Chicken breast	orange squashes	asparagus
Ground Turkey	brown rice	carrots
Buffalo	wild rice	cauliflower
Salmon	whole wheat pasta	green beans
Ahi Ahi	oatmeal	green pepper
Tuna	barley	mushrooms
Top round steak	beans	tomato
Top sirloin steak	corn	peas
Lean ground beef	whole wheat pita	artichokes
wild game	sprouted grain bread	cabbage
egg whites	whole wheat tortillas	celery
low fat cottage cheese	apple/orange/pear	cucumber
protein bar	strawberries/mango	onion
Cod	grapefruit juice	bell peppers
	mixed/blueberries	dark salad greens

Choose a portion of protein and carbohydrate from each column to make a meal. Add a serving of vegetables to at least two of your daily meals. Vegetables are unlimited.