

RECOVERY

What you eat and drink from one training session to another has a very significant impact on your nutritional recovery. Consuming the total amounts of carbohydrates, protein and fat that you require for your 24 hour recovery is essential. But for up to 4 to 6 hours after moderate to hard training, you can make the most of your nutritional recovery because the rate at which you can replace muscle fuel, specifically muscle glycogen, is accelerated at that time. Making the most of this accelerated recovery window is especially important when you need to train again in less than 24 hours. Paying attention to recovery nutrition in the hours after training can also improve rehydration efforts.

CARBOHYDRATES AND RECOVERY

Carbohydrate intake should be a primary consideration immediately after exercise. Delaying CH intake by even two hours can slow down the replenishment process. Both liquid and solid CH are adequate for refueling. However, high GI CH foods like sports nutrition supplements and breads and cereals, may enhance glycogen re-synthesis. CH should be taken immediately after exercise and be consumed again 2 hours later. For the rest of the day, CH can be consumed as a series of snacks or a few larger meals, depending on your training schedule. Eating a balanced mix of low- and high GI CH's throughout the day will support the glycogen recovery process. **For your ultimate recovery partner, check out our BIOGEN RECOVERGEN [here](#).**

PROTEIN AND RECOVERY

Studies where researchers provided the same amount of calories when comparing a carbohydrate-only dose to a carbohydrate-and-protein combination dose indicate that Ch alone can be used for optimal recovery. What is certain is that having protein contribute about one fourth of your recovery snack will not compromise muscle glycogen recovery. Consuming protein immediately after exercise may in fact speed up the repair of muscle tissue and provide important nutrients for the immune system. 10 to 20g of high quality protein is more than adequate for your immediate protein intake. **Check out some of our Protein options [here](#)**

FLUID AND RECOVERY

Rehydration is top priority after training. The goal is to fully restore fluid losses from one training session to the next. The guideline is to consume 720 ml of fluid for every 0.5 kg lost during training. This is sufficient to replace both sweat and urine losses. Check the colour of your urine to evaluate the hydration efforts. **Biogen offers a ready-to-drink format 'ElectroLITE' product, free of sugar and artificial colourants. Check it out [here](#).**

SODIUM AND RECOVERY

Sodium may not only stimulate the drive to drink but can also enhance the rehydration process. Sweating results in large fluid losses and relatively small sodium losses. When you finish exercise, the blood volume and total body water are reduced, but there is a mild increase in blood concentration and its sodium content. Consuming large amounts of plain water after exercise dilutes the blood before the full blood volume is restored. This shuts down the thirst mechanism and you will urinate to bring the concentration of the blood to a normal level. The end result is the production of a large amount of diluted urine before being fully hydrated. This negative effect can be offset by consuming some sodium after exercise. More fluid will be retained and better hydration will be achieved. The guideline is, for exercise greater than 90 minutes; consume 250 mg sodium with rehydration. **See below sodium content in Biogen PERFORM-X range products:**

[Biogen Carbogen](#) : 265 mg per serving
[Biogen Cytogen](#) : 260 mg per serving;
[Biogen Energy Gel](#) : 110 mg per sachet



PREVENTING OVERTRAINING:

Overtraining syndrome can be effectively eliminated through a logical training program that allows for adequate rest and recovery with proper nutrition and hydration. Studies of marathon runners suggest that even athletes who consume a high-carbohydrate diet require 7 days after a marathon to return muscle glycogen to prerace levels. A continuation of regular training before full muscle glycogen resynthesis, will inevitably lead to performance degradation. Athletes must understand that rest is a useful and necessary part of training, particularly after a hard and intensive training session. Low glycogen stores reduce the time one is capable of exercising, so regular consumption of carbohydrates is recommended to maintain or replace glycogen stores. This requires, ideally, a carb intake of 7 to 10g per kg bodyweight per day.

The timing of CH ingestion is also important and may influence glycogen storage and resynthesis. It is recommended that endurance athletes consume CH immediately after competition to encourage restoration of glycogen stores. A delay of 2, 5 hours or more, leads to poor glycogen replacement and subsequent days of exercise will show the negative effect of reduced endurance. Athletes should be encouraged to experiment with sports beverages or gels to optimize training sessions and achieve peak performance. Ultimately it is the CH level that determines if the athlete will 'hit the wall'. That is when glycogen stores are depleted, and the athlete will no longer be able to maintain a strong pace. Consumption of a CH beverage with small amounts of Sodium is useful for fluid absorption and for maintaining the drive to drink.