

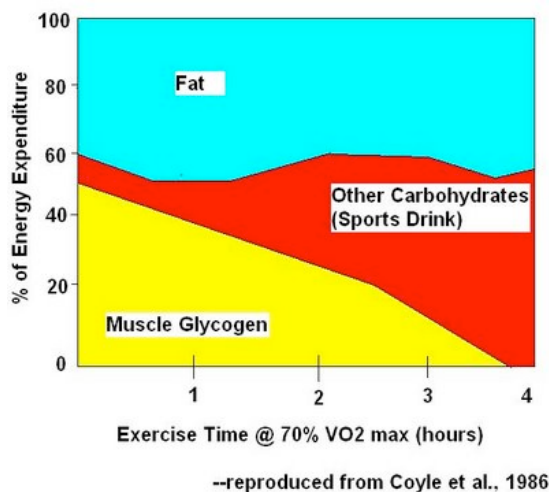


## Ride Nutrition

Learning to properly fuel your body before, during, and after training may improve performance (and mood). During various training cycles, learning how much to consume and how often you need to consume proper calories will ensure you are maximizing your training potential.

### GLYCOGEN DEPLETION ON-THE-GO

The following graph depicts how various fuels are used to attain 100% of your energy when exercising:



It is important to note that the exercise bout depicted is 70% of VO<sub>2</sub> Max, which many of us would consider a “recovery” pace. Your

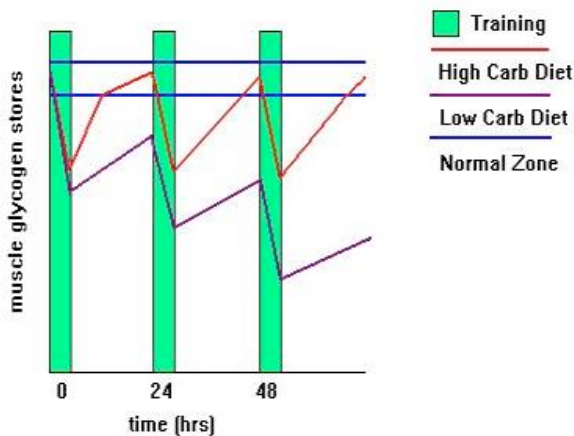
body needs energy in the form of blood glucose to function properly through the entire exercise period. Over half of this energy is initially provided by muscle glycogen (yellow). After 4 hours muscle glycogen is nearly depleted. The graph shows that you can substitute the energy loss from depleted muscle glycogen with direct carbohydrate ingestion (red).

Cyclists can fend off a “bonk” (i.e., a severe depletion in available energy stores, mainly muscle glycogen, which adversely affects performances) by simply cruising and eating. This may be more difficult at high intensities, or when training for more than 4 hours at endurance pace. In these instances, you have to “train yourself to eat” during exercise.

### GLYCOGEN DEPLETION DAY-TO-DAY

To quote Neil Shirley, professional cyclist from the Kelly Benefit Professional Cycling Team, “You are not only eating for today, but also eating for tomorrow.” As you learned, in the previous section, ingesting carbohydrate while riding is essential to maintaining your blood glucose while your muscle glycogen depletes throughout the ride. There is more to the story though. The following graph shows

what occurs with muscle glycogen through repeated bouts of exercise over repeated days:



Notice in the graph that the training level is the same on each day of a 3-day period. Athletes ingesting a high carbohydrate diet (red line) are able to almost completely replenish their glycogen stores for the next exercise bout. Athletes ingesting a low carbohydrate diet (purple line) are unable to replenish their glycogen stores, and start the next exercise bout at a deficit.

The following tips ensure you are consuming the proper calories at the proper times to ensure you ride strong throughout a training ride and through repeated days of training rides. Adhering to these tips require commitment, foresight, and a willingness to experiment and learn.

## BREAKFAST

*Ensure you are getting plenty of carbohydrates to fuel your daily rides.* Aim for 500 to 1,000 calories for breakfast on medium to long training days. Many cyclists choose a whole-grain source such as plain oatmeal, because it is a high-carbohydrate and

moderate-protein food, which in most cases is easy to digest. Fruits and vegetables are also a good choice.

*Ensure you are getting some protein.* Protein satiates your morning hunger and provides nutrition to rebuild your muscles and maintain enzymatic pathways. Many cyclists choose not-fat milk or eggs.

*Drink plenty of water* or even include small amounts of juice or sports drink. These provide calories, hydration, and electrolytes.

*Try not to load up on fat* because it takes longer to digest and requires more water to help with absorption. Please note that restricting too much fat is also not a good idea, because fat is necessary for normal bodily and hormonal function.

## ON THE BIKE

*Consume 200 to 300 calories per hour.* Energy bars consumed with energy drinks will usually provide a complete nutrition profile—carbohydrates, proteins, electrolytes, even a little fat. I believe “real” food is always a better choice, though.

*Eat “real” food.* Bring along sandwiches—e.g., PB&J, or ham and cheese—and healthy, savory cookies, like Fig Newman’s (i.e., Paul Newman’s brand, which are wheat- and dairy-free, moist, and delicious).

*Eat a little at a time* and use water to help dissolve and digest the food. In this manner, it is more palatable and leaves one feeling less heavy.

*Ensure you are obtaining an adequate amount of salt.* Cyclists can sweat out between 1 to 3 quarts of sweat per hour depending on their physiology, ambient temperature, and humidity. Each quart of sweat may contain up to 1,000 mg of salt. It is recommended that 250 to 500 mg of salt are ingested per hour, unless you are directed by a medical professional to consume a low-salt diet.

*Choose a sports drink,* which is palatable, provides adequate electrolytes, and does not cause gastric distress. A good choice is 150 to 300 calories of maltodextrin (glucose polymer) with 250 to 500 mg of table salt added.

## **LUNCH**

*Don't eat very little while you ride, then sit down at lunch and gorge yourself.* Your body will not be able to properly process a large amount of food to adequately replace your glycogen stores and initiate recovery.

*Eat slowly at lunch* and if you are still hungry when you have finished your meal, wait 5 minutes before hurrying to order more food. Your stomach may be slightly upset from riding, and eating quickly usually increases discomfort.

*Don't restrict calories,* but try not to make choices that will leave you feeling heavy and bloated—i.e., fatty and processed. Bad choices might be heavily fried food, prepackaged foods, corn syrupy sodas, and large amounts of processed bread.

*Eat lunch.* This may seem like a no-brainer, but sometimes the brain tells the body after exercise, “Don’t eat.” That’s just a nervous

system response. Don’t avoid lunch because you may not be feeling very hungry—you will pay the price later on down the road when you run out of fuel.

## **POST-RIDE RECOVERY**

*Eat about 300 calories* upon finishing a training ride. Choose a well-balanced snack (i.e., mostly carbohydrates and a little protein).

*Drink plenty of water.* A general guideline is 1 liter of fluid per pound of body weight lost while riding.

*Eat on the return journey home.* Choose an extremely easy pace for the last few miles to allow your body to settle and relax. Start recovery eating at this time before you return home and become distracted by showering, changing clothes, e-mailing, talking on the phone, etc.

*Eat about another 300 calories,* 1 hour after you eat your immediate post-ride snack.

## **DINNER**

*Eat dinner and eat well.* Choose lean meats, fruits, and vegetables for dinner. Whole grains can be good choices too, but the majority of your carbohydrates should come from fruits and vegetables.

*If you feel as though you need to have a dinner with portions that are larger than usual,* then it might be an indication that you did not consume enough calories during breakfast, on-the-ride, lunch, or post ride. Adjust your nutrition accordingly to avoid

sitting down to huge meals at the end of the day.

## **CONCLUSION**

The off-season is a good time to learn how much to consume and how often you need to consume proper calories to ensure you are maximizing your training potential. Proper riding nutrition (breakfast, lunch, on-the-ride, post-ride, and dinner) will help avoid a bonk by ensuring you have proper blood glucose to maintain exercise during glycogen shortage.

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**DISCLAIMER:** Robert Panzera is a NSCA Certified Strength and Conditioning Specialist and Level 2 USA Cycling Coach. He does not hold a university degree in nutrition nor does he claim to be a registered dietician, certified nutritionist, or medical doctor. The information in this handout is based on his educational experience, racing and training experience, and the references cited.