



FOUR FUELING PLANS FOR ENDURANCE ATHLETES

BY SCOTT SAIFER

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Endurance athletes have four fueling regimens, each necessary for success and each appropriate for a certain time in the yearly and weekly training cycles.

The Main Fueling plan, eaten on a daily basis in the off-season, and all the time in season except event day and a day or two before event day, keeps an athlete lean and healthy. (See the Leaning Out and Generally Healthy Plan). The Pre-Event Fueling Plan, eaten the day or two before the event and the morning of the event, tops off the energy stores prior to an event. (For beginning athletes the long training day each week should be counted as an event, unless weight loss is desired). The Training and Event Fueling Plan keeps your energy levels high during exercise. The final plan is what you do to recharge and reward yourself after an event. Different foods and quantities are appropriate to each of these four plans. Understanding what and when to eat will help you along your way toward new peaks of athletic excellence.

So what are the components of the four eating plans?

Main Eating Plan. The main all-the-time plan is a good "healthy", balanced diet (see on following page). It is low in fats, especially the saturated fats found in butter, red meat, and deep-lard-fried foods. It includes little or no processed sugar or white flour, including cakes, cookies, and candies and white breads. (Even if the candies are labeled as athletic energy foods or drinks.) It includes generous amounts of protein (about one quarter to one third of a gram per pound of body weight, per day, depending on how much exercise you do.) The protein is distributed so that you get a little in every meal or snack. The main plan includes a lot of fruits, vegetables and whole grains, and limited amounts of pasta, bread and potatoes. The starch content of the main plan depends on the amount of exercise you do: very little on days with one hour or less of exercise, up to huge quantities if you exercise six hour or more per day. Eating in this way all the time will help make you lean no matter how much or how little you exercise. If you are losing weight, aim to lose no more than one pound per week.

The pre-event fueling plan is followed starting a day (short event) or two (longer event) before the event and is like the main eating plan, with an added serving of pasty foods (pasta, brown rice, whole grain bread, or potatoes) in each meal. "An extra serving," does not mean "as much as you can eat." The pre-event fueling plan is lower in protein than the main eating plan as a percentage of total calories, but not in absolute amount of protein. In the final 10 hours the pre-event menu should be rich in easily digestible foods so you won't have to carry a bowel-load of partially digested food during the event.

The Training and Event fueling plan consists of very high carbohydrate foods with a little protein and almost no fat. This is where your athletic energy foods, bananas, fig bars, yams gels and sports drinks come in. If you eat enough during an event or hard training ride, you should not be ravenous immediately afterwards. If you drink enough you should need to pee within the first half hour after getting off the bike. Your urine should be C&C (Clear and Copious). Gel-type energy foods give you a big rush and a big crash, so be sure to carry enough for the whole race or session, roughly one every 25-30 minutes from beginning to end, or start using them later. Carry enough food that you can begin eating about 45 minutes in and have a big bite every 15-20 minutes throughout the event or session. A total of 250-350 calories per hour works for most athletes but you'll have to find your own level. More is better so long as you don't end up feeling full or bloated. See below for a list of recommended foods and drinks.

The post-event refueling plan serves to recharge you physically and psychologically. Immediately after a race or hard training session eat or drink some easily digestible carbohydrate and protein and drink a lot of water. Recovery drinks, whether they are laboratory-based mixes or yogurt/egg/banana/fruit juice smoothies, can really help you get back-in gear for the next day, but avoid high glycemic index foods more than 20 minutes after exercise. After your warm-down and getting into clean clothing go for some food you crave. This is the only time of the week (and year) that I would recommend eating a double-bacon cheeseburger with fries (and a malt. If you exercised five hours or more) If you've stuck to your other three eating plans and raced sixty miles or more, you've earned it!



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The Leaning Out and Generally Healthy Eating Plan, From Wenzel Coaching

This plan consists of a number of rules, some of which will be important in losing unwanted weight. I can't say for sure which components are most important to you, so try to follow all of them as closely as you can. You'll also read underlying concepts before getting the recommendations. This way you will understand why you are doing what you are doing, and that should help keep up your motivation.

If you restrict your food intake such that the calories you eat are less than you expend in your daily life, you will lose weight. This is true whether you eat bizarre combinations of foods, liquid foods only, or a healthy variety of wholesome foods. To achieve a weight-losing condition you can increase your activity level, or decrease your food intake, or both.

It should be noted however that many hours of hard exercise are needed to use the calories ingested in a single large meal. Therefore it is much easier to lose weight by reducing calorie input while maintaining activity than by maintaining calorie input while increasing activity. Any eating plan that decreases your food intake, whether it is by eating only grapefruit or only butter, or counting and restricting total calories, or carefully counting and balancing fat, carbohydrate and protein, will result in weight loss if it reduces caloric intake below expenditure. Only a good, healthy eating plan will result in extensive fat loss while maintaining performance however. The foods you eat also determine how long you will go before you are very hungry again, so choice of food can affect how easy or hard it is to cut total calories.

Two important questions: Can you stick to the regimen long enough to get to your target weight and body composition? And can you adopt a life-style that will allow you to stay at your targets? Once you have lost weight, if you return to your old eating habits, you will return to your old weight. Weight loss must be achieved through changes that you can sustain.

A warning: hunger is your body's way of letting you know that you are losing weight, that you are in a mode of metabolism in which you are metabolizing your own fat and muscle tissues for fuel. **YOU MUST EXPERIENCE SOME HUNGER TO LOSE WEIGHT OR FAT.** However, if you experience tremendous hunger you will probably binge overeat, so this eating plan is designed to keep you from experiencing really tremendous hunger. I'd like you to be neutral or a little bit hungry and lose weight slowly. On super restrictive diets you may lose weight faster, but you will also experience more hunger and be more likely to go off the diet. Most people can safely and comfortably lose between one half pound and one pound per week while maintaining energy levels for exercise and a sunny disposition. People who are dramatically overweight can safely lose somewhat faster. No one should lose more than 2 pounds per week for an extended period.

You experience hunger when your blood sugar drops as well as in some other situations. Here's a short and simple biochemistry lesson. After a meal or a sugary snack, your blood sugar rises as food is digested in your gut and absorbed through your intestine. Insulin is a hormone that signals your body tissues to pick up sugar from the bloodstream. When you have a large meal or sugary snack, insulin levels quickly rise to control the rise in blood sugar. Fat tissue stores extra sugar as fat. Muscle tissue stores extra sugar as glycogen, which is exercise fuel. As you complete digestion of a meal, the insulin level drops along with the absorption of food from the intestine. After a sugary snack or other high glycemic index meal (see below for a list of glycemic indices of some common foods) that is very quickly absorbed and gives you a burst of energy, insulin remains high after the absorption is completed. Since insulin tells tissues to scavenge sugar from the blood, blood sugar levels drop and you feel hungry again. High GI foods also cause more of their glucose to be made into new fat and less into glycogen than lower GI foods. Oops. Protein, complex carbohydrates, fibrous foods and fat, all of which are absorbed more slowly than sugar or starch, tend to keep the blood sugar and insulin levels relatively stable.

Enough biochemistry! On to the rules (Remember that these rules are for most of the time, but not for during or just before challenging training or competition)



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Rule Number 1: Cut out all processed sugars. This is the hardest rule to follow, but probably also the most important. Do not eat white table sugar, cookies, cake, donuts, sports drinks, sports energy foods (except during exercise), jam, jelly... Avoid sweetened bread, and anything else that tastes sweet from added sugar. Learn to read labels: Look out for sucrose, glucose, fructose, dextrose, and corn-syrup. You need not avoid things that have some sugar but don't taste sweet. Sugar is addictive. You will probably feel tired, draggy or ravenously hungry for two days to one week as you adjust to a sugar free life-style. The worse you feel, the worse addicted you were. Feel free to eat lots of fresh fruit. Research shows that while fatter and thinner people often get similar total amounts of sugar, fat people get it as added sugar while thin people get it in fruits.

Rule #1A: Reduce your consumption of high glycemic index foods if you want to lose weight and you are exercising seven hours per week or less. Cut out the potatoes, white flour, white bread, bananas and other starches except to the extent that you need them as exercise fuel. This does not apply during exercise. During exercise, emphasize high glycemic index foods.

Rule #2: Balance in every meal. Every meal should include some low-fat protein source (fish, poultry, pork, tofu, tempeh, beans, yogurt, cottage cheese...), some low or moderate glycemic index complex carbohydrate source (whole wheat pasta or bread, beans, lentils, brown rice, oats, corn...), a little bit of fat (it's okay to sauté but not deep fry), and a lot of vegetables or fruit. Don't be afraid of fat. The more fat-free-products become available, the fatter Americans become. Could there be a connection? Fat has a powerful appetite reducing effect, so a small amount of fat actually helps you be comfortable eating less. Fat does not reduce appetite until it reaches the intestine, so fat at the beginning of a meal will do more to help you eat less than fat at the end of the meal.

Rule #3: Drink water and lots of it. Drink water before you eat. Urine would ideally be clear and colorless most of the time. Avoid both sugar waters (sodas, lemonade, sports drinks) and fruit juices. Orange juice has about as many sugar calories as Coca-Cola. Drink water and eat fruit. If you must drink other than water, drink diluted fruit juices. Add as much water as won't ruin the flavor. (This does not apply during training. During training use a sports drink that includes both calories as carbohydrate and electrolytes.)

Rule #4: Lot's of vegetables. Eat a balanced mix of protein and carbohydrate foods from the beginning of the meal, but if you're still not comfortably full after having eaten enough protein and carbohydrate complete the meal with raw, steamed or boiled vegetables and salads. Avoid over-consumption of raw spinach however. (Raw spinach contains oxalic acid which will chelate calcium preventing it from being absorbed from your gut into your bloodstream. A spinach salad now and then is okay, but a daily bag of spinach will eventually cause cramping.)

In the long run, weight loss or weight maintenance is about behaviors, so the rest of these rules are about eating behaviors and the psychological states that trigger them. These are especially valuable to those who seek to lose weight or to keep weight off, and will not be relevant to those who naturally arrive at a good racing weight.

Rule #5: No matter what your mother said, and no matter how many children are starving in Africa, **you don't have to clean your plate.** Never eat to the point where you are uncomfortably full. Always leave the table still able to eat more.

Rule #5A: No monster salads or monster plates of veggies. Even though a whole head of lettuce may have only 75 Calories, that doesn't make eating one a good idea. A bulky meal that stretches your stomach makes you less sensitive to the bulk of your next few meals. Your stomach then has to be fuller before you feel satisfied so you stay hungry longer and eat more.

Rule #6: Eat in courses. Take a small amount of food on your plate at one time. After you finish, ask yourself if you are still very hungry. If you are not hungry or barely hungry, be done eating. If you are still hungry, take another small serving of something else. Don't take the whole loaf, package or pot of anything to the table or couch with you. Put some of whatever in a bowl so you'll have to be conscious about refilling it. Don't put yourself in the position of being full but having to eat more because there is some dish you haven't tasted yet.



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Rule #7: Don't eat to be polite. You don't need to try a little bit of everything that someone makes when you are a guest. Heap on the praise for what you do eat and then declare yourself full.

Rule #8: In restaurants, assemble a meal out of salads and appetizers. Given the huge portions in many restaurants, you can get enough nutrition from salads or an appetizer-sized portions. In Mexican restaurants, pick one thing you like rather than go for the four-item combination. You can always come back again and try the other items. Order the smallest pizza that might satisfy you. You can always get a salad to fill you up.

Rule #9: Don't go overboard. Anything that makes your diet difficult to stick to increases the chances that you won't be successful in losing weight or in keeping it off. It's better to lose half a pound or a pound per week until you reach your target weight than to lose two or three pounds a week for two or three weeks. If you lose more than one pound per week, (half a pound for some people) you may lose strength and power, so reduce slowly.

Rule #10: Identify your triggers. Many people diet well until some emotional situation comes up and then look for comfort in food. Do you eat in response to stress? Boredom? Relationship troubles? Fatigue? Try to identify what's happening before you finish the whole box. Go for a walk or call a friend instead of overeating.

Rule #11: Weigh yourself daily, but average the weight weekly. Your weight will fluctuate by a few pounds from day to day, especially when heavy training is affecting hydration. Rather than being concerned about your weight each morning, keep track of your average weight for each week. That will be a good indication that you are really gaining or losing weight.

Rule #12: Athletes need salt. Athletes need salt. Unless you have diagnosed high blood pressure or a family history of high blood pressure, you don't have to go out of your way to avoid salt. Salt to taste, but don't go overboard, either.

Rule#13: Think about nutritional needs as you plan your meal but before you begin to eat. Don't eat to the point of being comfortably full and having eaten enough calories and then realize that you've left something out like your protein or fiber. Plan variety in every meal and cover all you bases on the first go round.

Some closing comments: Adopt these rules as lifestyle changes. You can't think of them as something you are just doing now to lose weight. We are trying to get you onto a sustainable regimen of healthy eating. When you reach your target weight, you can relax the rules a little, but you'll have to be vigilant not to regain the lost weight. For people who need to lose weight for their riding, all the rules are supposed to help you eat less. It is quite possible to follow all the rules and still eat more. If you do this you will gain and not lose weight. Take control of your eating.



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Recommended Training and Racing Foods (Test any possible race food in training several times before using it in a race. Race foods need to be easy to open, not too messy, easy to digest and tasty enough that you will eat them with enthusiasm.)

Fig bars
Bananas
Boiled potatoes (in plastic bag with salt)
Yams (Microwaved until very soft)
Dry fruit
Pretzels
Crackers
Sandwiches (PB & J, Jam and cheese, meats only on cold days)
Energy bars (but not protein bars)
Energy gels (but plan to use one every 20-40 minutes once you start)
Fresh fruit (tends to be low-calorie so combine with other foods)
Cookies
Banana/Zucchini or other bread-cakes

Recommended Training and Racing Drinks (Test any possible race drink in training several times before using it in a race. Race drinks need to contain carbohydrate and electrolytes and taste good enough that you will drink them with enthusiasm)

Any athletic energy drink (nor recovery or protein drink)
Diluted fruit juice with a small pinch of salt

Recommended Pre-race or Pre-Training breakfasts (Test any possible pre-race food in training several times before using it in a race. Pre-race meals should be easy to digest, low in fat, high in carbohydrate, moderate in protein, easy to prepare and available anywhere you travel. Practice with several possible pre-race meals in case your favorite is not available at a particular race.)

Unsweetened Oatmeal or whole grain(1-2 servings) w/ yogurt/cottage cheese/milk and cut fresh fruit
Whole grain toast with butter, 1-2 scrambled, boiled or fried eggs and fresh fruit
Bagel w/ cream cheese, bowl of cottage cheese and fruit
Meusli (not sweet granola) with milk and cut fruit
Rice gruel with peanuts, feta and olives

Recommended Non-Exercise Day Breakfasts for those losing weight (These meals are lower in carbohydrate than the exercise day meals)

Cut fresh fruit with yogurt and walnuts (optional fresh or dry mint)
Half grapefruit or slice of cantaloupe with cottage cheese



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AVOID Pre-race or Pre-Training Foods (These are foods to avoid before hard exercise)

Bacon, ham, sausage or other fatty meats
Pancakes (except before very long rides where you don't need to be strong early in the ride)
Sweet stuff

AVOID EXCEPT DURING TRAINING FOODS (These are high glycemic index foods that will decrease your endurance in your next training session and also cause your body to store more fat. Use these only during exercise, after warm up and before cool down.)

Soda
Energy drink
Cookies
Energy Bars
Gels
Highly processed dry cereals (Rice Crispies, corn flakes, oat flakes...)
White bread
"Juice drink" products that contain more sugar than fruit
Candy

RECOMMEDED SNACKS FOR THOSE WISHING TO LOSE WEIGHT OR STAY LEAN (These are low and moderate glycemic index)

Peanuts (salt okay but not sweet)
Pistachios
Almonds
Walnuts
Carrot sticks of baby-cut carrots
Celery sticks
Cherry tomatoes
Whole grain crackers with cheese in moderation
Fresh Fruit: Apples, Peaches, Pears, Kiwis, Oranges, Strawberries and berries generally but not watermelon

RECOMMEDED SNACKS FOR THOSE WISHING TO GAIN WEIGHT (These vary in glycemic index but are calorie dense for those who have trouble eating enough to maintain weight)

Peanut butter
Salami
Ice Cream

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for all levels of endurance athletes.**

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