



NUTRITION & TRAINING

Mark Wolff – 32Gi Director

Proper nutrition plays one of the most crucial roles when it comes to sports performance. What you put into your system consistently through the day will influence your ability to perform. I always tell athletes it does not matter how fit, fast or strong you are, if you do not eat correctly you will never reach your full potential.

With this in mind the question often asked is what should you eat before, during or after training or racing session? However a step needs to be taken back here, because how you eat from the time you wake up in the morning until you go to sleep at night plays the most critical factor. It does not help to eat well only before a training or racing session when most of the time you are not eating well at all.

Here are a few guidelines to eating healthily in order to benefit properly from pre, during and post training nutrition.

Eat Foods that Agree with you

A lot of people indulge in foods purely because they enjoy them even though in the back of their minds they know it impacts them negatively. Examples of this are foods which cause digestive discomfort such as dairy, wheat or gluten foods which can cause intolerance in a variety of forms. If you do suffer from digestive discomfort or allergies you need to analyze your nutrition first and cut out certain types of foods until you discover what is causing the issue.

Eat Consistently for Energy

Eating too few meals or skipping meals because you cannot eat in the mornings, or you want to lose weight actually has the reverse effect. It activates fat cell production as the body enters a starvation mode, and this can eventually lead to adipose tissue build up and an undesirable and unhealthy body. In the same token energy levels are completely unbalanced because the body will be sitting in a fatigue zone. Eating consistently of course with the correct foods will enable you to have balanced energy levels, better mental focus and a stronger immune system allowing you to perform at your best. The average person should be eating around 5-6 healthy meals a day but when you are training you should be eating more.

Avoid excessive indulgence and stimulant foods

Eating & drinking too many indulgent foods sends your body into a spiral. Stimulants such as caffeine can have a benefit but excessive consumption will be detrimental. You should try to limit coffee or tea to a cup a day preferably in the morning, or after a workout. Alcohol actually impacts the body's ability to recover properly and at the same time it will impair performance if consumed anywhere from 48-72hrs before an event. Sugar loaded foods such as chocolates, pastries and breads also cause blood glucose issues and can affect your energy cycles negatively.

The Percentages Game



Eating healthily is a percentages game. As an example I consume 60 healthy meals a week. If I eat 5 of the 60 meals which are considered to be indulgence or treat meals, it still means that over 90% of my diet is very healthy. However if I only eat 20 meals a week and 5 of them are indulgent meals it means that 25% of my diet is out the window. Monitor your eating on a weekly basis in order to get a good snapshot of where your percentage level of healthy nutrition lies.

Drink Plenty of Fluids

It is recommended drinking at least 2 liters of water a day. That is for an average person who does not train. Add training and stimulants such as coffee into this equation and this need climbs drastically. For every cup of coffee you drink, add 2 additional glasses of water. When you train you need to replace lost fluid, always drink to thirst when exercising.

Eat a variety of Healthy Foods

Vary your foods in order to give yourself a wide range of nutrients. Eat plenty of fruits and vegetables at least 5-6 servings a day. Healthy complex low GI carbohydrates such as quinoa, wild rice and unprocessed oats which provide more blood glucose stability meaning healthier energy levels. Ensure you consume healthy unsaturated fats with a focus on Omega-3 and easily digested proteins such as lean meat or vegetable proteins.

Meal Prioritization

Many people tend to put a focus on dinners as the meal of the day. The truth of matter is that the biggest emphasis needs to be put on breakfast. Eating a solid healthy meal within 30 minutes of waking up, is the best way to get your day started, and the easiest way to lose weight, maintain balanced energy levels and mental focus and it sets the precedent for the rest of the day. Skipping breakfast will only lead to health concerns and weight gain eventually.

Go Natural

Eating fast and processed foods is a sure way to move towards health issues. This should be limited as much as possible if not avoided at all costs. Try to eat foods that are more natural and require as little cooking as possible. When cooking food it's always better to cook on lower temperatures for longer periods of time, this will maximize nutrient volume in the food and reduce the risk of burning which in itself also has health issues.

TRAINING & RACING NUTRITION

THE FUEL FACTOR



One of the biggest topics of discussion is how one should be eating before during and after a training or racing session. Nutrition plays an extremely important role and if planned and focused on correctly you will definitely notice a big difference in your performance, fitness and health.

A number of factors need to be taken into account in deciding your nutrition regime and these are:

- What time will you be training
- How long will you be training for
- What intensity will you be training at
- When will you be training again
- Weather conditions you will be training in

These questions are very important as each requires a different approach.

If you plan on getting up extremely early in the morning it's very difficult to sometimes consume food at that time, especially since on days when you don't wake up early to train your breakfast meal is a few hours later. So how do you know if and when you should eat? Let's first talk a little physiology to explain how the body operates and then with this in mind it will be a lot clearer in deciding how and when to fuel yourself.

Humans were created with natural energy systems or stores mainly fat, glycogen (muscle & liver) & protein. However protein is a very poor form of fuel, the focus when it comes to racing and training needs to be on the fat and glycogen stores. Glycogen is the quickest accessible fuel in the body and a person who has topped up glycogen stores will be able to provide anything from 90-120minutes of energy to their system. Fat is a longer access path, but a truly desirable one as a gram of fat has twice the power as a gram of carbohydrate. Have you ever seen fat fall off a grill into a fire, it bursts into flames, this is very similar to what happens in your body, it fires the muscles extremely well when harnessed, it's an incredibly strong form of fuel and if you are efficient at using your fat stores it will see you a long way. Now the next question is how do you tap your fat stores? This is really dependent on the type of athlete you are what you consume and the rate of intensity you are performing at. Fat requires oxygen to be properly utilized (aerobic) level of activity. If you can picture someone racing at a high intensity and he can barely breathe well then you are not tapping into your fat stores as you are not able to take in sufficient oxygen to be utilized for fat conversion. In this case glycogen will be used. At this high rate of intensity an athlete will on average see 90 minutes of fuel, if he is really in a good condition up to 120min of fuel.

The fitter you become the more efficient you will be at using your fat stores at a higher intensity. This just demonstrates the importance of pacing yourself during an event in order to ensure you are able to spare as much glycogen as possible by using fat as the primary source of fuel.

How long does fat last? The average man can run 40-50 marathons on his fat stores alone, even if he has a low body fat content.

The next consideration is type of food consumption during training. Taking in certain foods, energy drinks or gels will certainly impact your ability to harness fat as a primary source of fuel. The way it works is that if your body has plenty of glucose sitting in the blood stream the brain will direct the body to take the shortest path meaning let's try and get rid of the glucose first. If there is not sufficient glucose the brain will search for other sources i.e.: glycogen or fat. Bare this in mind when deciding what you want to consume on a training session. Let's now put this all together into a structured way of eating dependent on your training goal.



Getting up early in the morning as mentioned above does not mean you have to eat before the session. It will depend on how long you are training for and the intensity. If the ride is going to be 2hrs or less, then going out with just a bottle of water will be fine. Loading on unnecessary sugars, is certainly not required and will only lead to weight gain, and it will also limit your ability to become efficient at using your fat stores. Training the body to become more fat efficient will be very beneficial. The most important thing to consider for a ride of this duration whether high or low intensity is recovery. You need to stabilize your blood sugar levels in order to mitigate the onset of excessive eating due to low energy levels and you need to ensure glycogen level replenishment so that you can still perform at your next workout.

If sessions are going to last longer than 2-3hrs then it's preferable to consume a pre-training meal and something during the session to keep your energy levels balanced. A pre-training meal can be anything from a low GI cereal, slice of toast with peanut butter, jam or banana. Do not spike your blood sugar levels before training or racing session, it will see you hit a sugar low and it will be difficult to recover from it. During the training session water and food, or an energy drink can be used to keep levels up. Again the type of food and energy drink you consume should be kept in serious check. Athletes tend to abuse sugar products and often think their bodies deserve and can handle the amount of calories they are consuming because they train hard. This could not be further from the truth. Weight gain, diabetes and heart conditions are not unique to non-athletic people yes the risks are lowered but not significantly if you don't eat correctly.

As a practice I personally try to harness my fat stores as much as possible, this means keeping my insulin levels low enough to tap into them. This means eating predominantly low GI foods unless I am pushing myself at an extremely high rate for a long period of time, which is very rare for most people.

Many athletes always look at consuming a certain amount of carbs or calories per an hour during a session it's not just about the amount of calories consumed but very much the type of calories consumed. When doing endurance events the most valued thing is energy stability, by taking in stimulants and spiking your blood glucose levels you are doing yourself a disservice as you are creating imbalance and a roller coaster or pendulum effect. Once the pendulum starts swinging it's very difficult to keep it in the middle, you want to limit this swing as much as possible and maintain balance.

Recently there has been a lot of discussion on protein & fat fuelling and this is a route that can be explored. Prof Tim Noakes has discussed the ability of body to be extremely efficient at using its own natural energy stores by fuelling with mainly fat and protein. This requires a strict change in diet and mitigation of most carbohydrates. It can take the body many weeks to adapt to this type of routine and it is not easy by any means, however it could be of a benefit if your body has the ability perform under these nutrition criteria.

THE HYDRATION FACTOR



Proper hydration is one of the most important factors when it comes to doing exercise especially endurance sport. It's also the area most people get confused and tend to land up in trouble during a sporting event.

Rehydration is defined as replacing the fluid lost during exercise. The body is a fine balance and under hydrating or over hydrating can lead to issues. Generally dehydration is not the major issue we are faced with when doing endurance sport. A person can still perform slightly dehydrated and dehydration can be resolved fairly quickly by upping fluid intake. The most common problem we are seeing in endurance sport today is over hydration. This is consuming excessive amounts of liquid when not required by the body. Overhydrating is a very real threat as it can lead to hyponatraemia which can lead to severe health issues. Most athletes fear becoming dehydrated during an event and tend to pre-empt thirst by drinking frequently without actually understanding when and how much fluid the body requires.

Take note that the body is only capable of absorbing a certain amount of liquid over a period of time. It also depends on the type of liquid consumed. A carbohydrate or electrolyte drink is faster absorbed than plain water. The problem with over hydrating is there is no real solution to the problem during a sporting event. How do you get rid of the excess fluid and re-create an electrolyte balance. It can be a very difficult and dangerous situation to be in. Symptoms associated with over-hydration can be very similar to dehydration and it is often misdiagnosed. Signs can be nausea, dizziness, muscle fatigue, cramping and irritability.

So how do we know if we are drinking too little or too much? A while ago I read an article by Dr Ross Tucker who explained it perfectly. He mentioned every human is born with a specific gift a basic instinct which is the mechanism of thirst. When our bodies become depleted of fluid our electrolyte levels become unbalanced and more concentrated such as rise in sodium triggering craving for fluid intake. A person needs to listen to their body's requirements and needs to drink to thirst. There is no need to pre-empt thirst as nothing can signal the most appropriate time to take in fluid more than your own body's mechanics.

It was mentioned earlier that weather conditions will play a key role in determining how much fluid you will most likely require in an event, and this is very important to understand. If the weather is cold there is less fluid lost and so the amount of liquid consumption will be a lot lower than on a day when it's hot and humid when more fluid is lost due to sweating. A common mistake that athletes make is they will take an energy drink as their caloric intake for a sporting event. However if the weather conditions are cold it means they will drink less, meaning they will take in far less calories than desired. I always advocate that one must keep the nutrition separate from the hydration requirement.

On a cold day I would look more at food solids as a source of fuel as opposed to liquids because the body's fluid requirements will be lower. The other solution is to take a concentrate of your energy drink, in other words mix it to less fluid to ensue you get the desired amount of calories. The only



problem is that it might be overly sweet and not very desirable, and then you will need some water to dilute it. An interesting fact is that gels become a problem on a cool day. A gel is highly concentrated and when consumed it should always be consumed with a certain amount of water, around 250-280mls is usually recommended. Failing to do this can lead to gastric distress which is a high concentrate of sugar in the gut which can lead to stomach cramps or other issues. Don't fall into this trap. You need very carefully plan and experiment with hydration under a variety of conditions to understand what works best for you.

RECOVERY

As an endurance athlete I cannot stress enough how important the recovery process is. Rest of course is the most important form of recovery, however to maximize recovery and health nutrition plays one of the most vital roles. There are 4 main types of recovery areas to consider

- Rehydration
- Glycogen Replenishment
- Muscle Recovery
- Blood Glucose Stabilization

Rehydration of course is fluid consumption and a sugar drink after a long session is absolutely fine. It will help with glycogen replenishment and assist in stabilizing your blood glucose levels. Muscle recovery comes from rest but there are nutrients which assist with this process. Most athletes overdo it after a workout. They have this fantasy that because they train hard anything they consume afterwards will never impact them. As I said it's a fantasy, not a fact. Most weight gain and health issues occur after exercise because an athlete has failed to properly recover from a nutrition point of view. Consuming excessive sugar after a workout will lead to the onset of hunger cravings shortly afterwards and chocolates could become the order of the day.

The most appropriate way to recover is to eat or drink a balanced meal which consists of protein and carbohydrates. Generally immediately after a session I would recommend a recovery shake which has good ratio of protein to carbohydrates. Ratios vary from a 1:2 – 1:7 ratio depending on the manufacturer but all have been shown scientifically to have a benefit. Just have in mind though the higher the carbohydrate ratio the most risk there is of a pendulum swing and weight gain. Preferably I would look at a 1:2 – 1:3 ratio. For an endurance athlete this is perfect. A protein shake does also not have to come in a tub one can make it out of natural foods, just by making a smoothie with fruit, peanut butter, milk or yoghurt. Of course time and convenience are a factor and having powder in a bottle is far quicker.

Your recovery shake should be consumed within 20 minutes of completing exercise this way the recovery process is maximized from an absorption and stability point of view. The absorption rate is much higher immediately after exercise but at the same time your blood glucose levels need



stability and the longer you wait to put something in the tank the lower your blood glucose levels will dip eventually leading to fatigue, possible nausea and even excessive eating.

Once this is done plan your next meal at least within the next hour, it could be your breakfast, dinner or snack, but because your metabolic rate is firing on all cylinders make sure not to leave a large time gap between meals. Eating frequent healthy meals this will ensure an excellent recovery and have you ready for the next session.

TIPS

There are many examples one can give of common nutrition mistakes. I have highlighted a few which hopefully will provide you with some insight into thinking more carefully when it comes to nutrition.

One of the most common errors athletes make is that they tend to neglect nutrition. When I say that I mean that they train hard and rest hard but they don't put any focus on what they eat. Many athletes wake up the day before a race deciding at the last minute how they are going to fuel themselves for their upcoming event. This is a big no. As meticulous as your training and recovery goals are, so should your nutrition be. Nutrition needs to be trained as well. An athlete needs to train his gut, his body and his mind. You need to know what works best for you and this needs to be experimented with during training. An idea which you might find useful is that once every week or second week I do what I call a training nutrition session. I do a session which is slightly slower than race pace, but I use this session to fuel myself and test my nutrition. It's more like a mimic of how my race will be. I find this session to be the most useful in that it really allows you to get a complete feeling for how your body will respond close to race conditions. If it works for you great if not go back to the drawing board and re-evaluate your nutrition regime.

There are no quick fixes when it comes to a proper nutrition plan. We are all unique and what works for one person will not necessarily work for the next. It's an area where constant thought and effort need to be put into until you reach your desired result. Nutrition is also never a constant. As we age as we become fitter or if we become ill it will constantly require tweaking and changes to ensure our bodies get the appropriate nutrient intake to perform at its best.

© 2012 by The 32Gi Distribution company (Pty) Ltd
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without prior written permission of The 32Gi Distribution Company (Pty) Ltd.