

# NSC - Nutrition Guide for Swimmers

The most important thing for swimmers is to look at some of the many alternative dietary and nutrition information sources available and, do what best suits their eating habits, exercise regime and is good for a growing body. If you look through books, magazine articles or the web, the following information will form the basics in most, and are intended only as an introduction on nutrition to our swimmers.

Teenagers that have been swimming for a while will understand the importance of nutrition better, but they should always be looking at ways to monitor and boost performance, which includes quantity, quality and the nutritional value of their food intake.

## **Introduction.**

When any athlete is competing or training they must resource their workload with energy. Energy is the food for the muscles and it is stored in the muscle tissue as *Glycogen*. *Glycogen* comes from carbohydrates which are broken down into sugars which the blood stream carries to the muscles.

When carrying out competitive swims or tough training the swimmer will use up large amounts of glycogen and without having available sufficient and easy to use glycogen the body will adapt to support the swimmer. Firstly by having no glycogen to use the metabolism will start to break down body fat which will use up more oxygen, which may lead to the swimmer getting lactose acid build up and cramp. The worst effect if doing long training sessions is that the body will use muscle protein to support the work, which is self defeating as the swimmer will not be increasing strength with work, but could actually be decreasing muscle mass.

The following advice is broken into topic headings so that swimmers and parents can extract information on specific parts of the swimmers day, whether that be training or competition day.

## **Each night.**

Swimmers should eat a high carbohydrate meal any night before training or competition so that the muscles can build up glycogen levels whilst the body is resting. The evening meal is also important for nutrients so that

the blood circulates protein, vitamins and minerals for the muscle tissue to use whilst the swimmer is resting, repairing and building tissue.

If the swimmer is a fussy eater and may be taking part in early morning training or event prepare some food ready for eating quickly in the morning when it is needed.

### **Morning Training.**

Most young swimmers will not want to get up early for morning training, so getting up even earlier to eat before the session is unlikely. Even in this case the swimmer needs to have some energy intake or else the training will be carried out using other sources energy.

Swimmers should eat a decent snack around 30 minutes before the session, which is possible with travel and changing time before entering the water. This snack needs to be easily available carbohydrate, and this category includes fruit, as an item or smoothie, fruit juice, jam sandwich and the like. The swimmer will also need plenty of hydration which is covered further on.

### **Morning competition.**

Dependant on where the swimmers are competing will make a difference to the eating possibilities prior to a gala. If the swimmer has more than two hours before their swim - not warm up, but first swim - then they should consume a high carbohydrate meal between two and four hours to top up the glycogen reserves.

Do not eat a meal under two hours of the swim as it will still be being digested by the body and swimmers do not want to be swimming on a full stomach.

**The general intake swimmers will have for this meal include:-**

Cereal

Porridge

Baked potatoes with suitable fillings

Spaghetti and pasta dishes -

Fruit, with toppings such as jam and honey, in sandwiches preferably

Rice

Vegetables

If time is against this option then smaller intake and energy drinks become important, but if it means getting up 30 minutes early on a race day and having that fuller high carb diet make the effort.

### **Competition nutrition**

If there is less than a 30 minute break between races swimmers will get no benefit from eating and should rely on high energy drinks, juices or fruit smoothie.

When the swimmer gets a break of between 30 minutes and an hour they will have to balance out the possible benefit from a snack, but it depends if they will be doing the one race or more than one race afterwards.

If a break between 1 and 2 hours is possible due to gap between swims, or planned break in the gala swimmers should take on a small amount of solid high carbohydrate/low fat food as listed previously. Eat small and not within an hour of the swim to allow digestion.

If the gap between swims is at least two hours then consider a substantial meal to replenish energy levels in the muscle tissue and blood stream. Many swim venues will not have suitable food stuffs on hand, so a pre-prepared bowl of rice, fruit cocktail or cold pasta is the normal foodstuffs in cool bags around the venue. If swimming at a larger venue then a low fat, high carbohydrate hot dinner may be available, but keep away from foodstuffs that are fatty and take a long time to break down. Chips, bacon butties and the like smell nice, but are not going to optimize performance for the next race.

When taking on any food stuffs detailed above swimmers need to accompany these with lots of suitable liquids - see hydration info below

### **Post swim feeding**

Whether doing training or competitive swimming competitions the swimmers body will deplete glycogen as the muscles work, and this needs to be replaced. Seeking optimum performance and benefiting from training, means feeding and resting the body so it will be ready for the same level of exertion in the future.

It is widely accepted that there is an optimum timescale where this replenishment is fastest which is immediately after the swim and up to 30 minutes post swim. During this time the metabolism wants to replace

the glycogen in case of further exercise and will do this at the fastest possible rate. Then there is a tailing off up to 2 hours after which take up will not be as fast, but take up will occur. It is recommended that swimmers eat 50 to 100 grams of carbohydrate as soon as they have finished their training or race, but definitely within 30 minutes.

Ideally a swimmer will complete their training session or events and immediately take on some carbohydrate, even before they shower and change. Consider a nutrigrain bar, apple, banana, fruit shake or suchlike as the first course. In general the above would be about one third of the total carbohydrate required but it is readily available to digest immediately to the blood stream. When changed whether going to School post morning training, or home prior to a meal take on board the rest of your carbohydrate dose in this most opportune time.

The next full meal swimmers have should be hearty and low fat with a good balance of nutrients to support the body. For the club swimmer there are plenty of sources of information on what foods to eat, and your coach can give guidance. As some children grow they will have growth spurts, hormonal changes, choices of vegetarianism and the like. There are plenty of websites to offer advice, and specialist nutritionists after speaking to a Doctor if swimmers experience problems with diet versus exercise regime.

### **Cool down**

The swimmers cool down post training is vital as an active recovery as it the removal of lactate in the muscles from the previous exercise. The cool down should be a steady pace in which the blood circulation is high enough to remove the lactate. Too slow and the circulation doesn't get all the lactate removed, too fast the muscle will start to make more lactate and use up any glycogen in the muscle tissue.

Cool down is usually possible at training as the session includes a cool down. Also at large events or venues there is a separate pool available for cool down. The problem usually occurs at smallest club meets where cool down isn't available post swim and this is where the swimmer must believe there is benefit in cooldown as they can do some land based recovery to remove the lactate. The swimmer must target the same muscle groups that they have used in the swim so consider a short light jogging session, plenty of stretching, arm rotations etc to cool down the muscles you have just exerted.

## **Hydration.**

Everybody needs fluid each day, with athletes such as swimmers needing to substantially increase their uptake every day. Without sufficient fluid intake performance will be inhibited greatly, the blood will not carry nutrients around, and mental performance may drop off. For children who are swimming for clubs the effect of not being well hydrated will be noticeable in feeling lethargic, possibly having cramp and not performing well at School.

If the swimmer drinks until they no longer feel thirsty they will only have replaced only around half the fluids they have lost. Swimmers need to drink about 150% of the fluid they have used to fully hydrate their bodies, and as little as two percent loss of hydration can cause 10% drop in performance. Any swimmer that puts in hours of training week in week out, but doesn't look after their hydration on race day is potentially starting with a 10% handicap to their competitors.

A general amount of fluid intake per person per day is based around 1.5 litres, and that is suitable fluid not too much coffee, fizzy or diuretic drinks. Swimmers will need to drink far more than 1.5 litres per day including some well before a session, just before sessions, during sessions and post sessions to maintain their fluid levels.

The following are pointers to the amounts of fluid required, and chosen to make swimmers and parents aware of general pointers, and vary on swimmer body size. Recommendations are not to drink too much water as salts and sugars in drinks help keep a balance in the body, so consider energy drinks, or a small amount of cordial should be added to tap water.

- Drink half a litre of chosen fluid 2 hours prior to swimming
- Drink around 200mls of fluid just before training and races

Swimmers should continue to drink during training sessions, about 200mls every 15 minutes, between half a litre and 1500mls per hour session - in relation to swimmer size.

When having completed a training session, and either with the following meal or not, continue to drink fluids as the benefits are enormous. Without sufficient fluids the body will struggle to get nutrients around the body whilst at rest, which is when the muscles and tissues replenish, and build.

## **Sleep**

There isn't a set time for anybody to sleep, and everybody has different needs through their lives. For growing children who wish to do the amount of exercise swimming takes they must appreciate the need for rest and especially sleep. As mentioned earlier the bloodstream carries around the nutrients, but some other metabolic actions come into being whilst the swimmer sleeps.

Quality and quantity of sleep makes the person calmer the following day so more able to deal with issues they will face and working with the coach. Due to no exertion the muscles will top right up with glycogen, and repair any damage. Growth hormone is also released during sleep so the body will be adapting to what it is being asked to do in training.