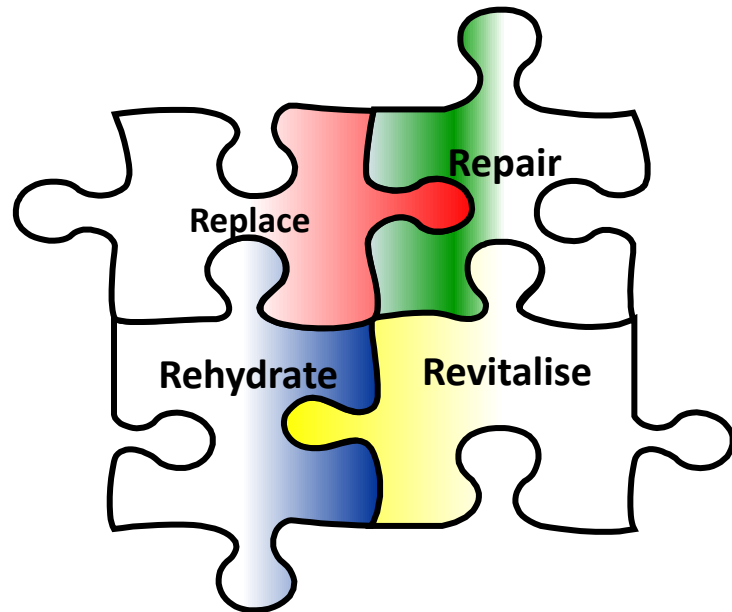


Putting the pieces together.

The swimming nutrition jigsaw puzzle.

The ideal diet for a swimmer is not about one magic food or nutrient. Protein, fat, carbohydrate, fluid, micronutrients, phytochemicals, and fibre all have their role. Achieving the right balance, at the right time is like putting together a jigsaw. To ensure swimmers are able to train and compete optimally they need to think more holistically and not simply focusing on one particular piece of the puzzle. The swimming nutrition jigsaw focuses on key nutrients and groups of nutrients that can enhance a swimmers training performance and physical development.



The pieces of the puzzle

Repair and Rebuild

This piece of the puzzle highlights the value protein containing foods have in the repair and regeneration of growing muscles. The body is constantly growing and breaking down protein. Traditionally protein was only the focus of the strength and power athlete. Swimmers need to pay attention to the importance of protein, not only for muscle tissue development but for the development of other key cellular and immune machinery that can enhance training performance.

The strategic timing of protein regularly throughout the day is essential for optimum repair and regeneration. Like most things not enough won't get the job done and too much gets wasted. Think of it like filling a cup, fill the cup half way and there is not enough for optimal muscle tissue growth and repair, over fill it and you are wasting it. The goal of protein is to eat adequate amounts often over the day. Swimmers should focus on moderate regular intakes of protein at all meals and snacks throughout the day to maximise the benefits of the protein they are eating.

PRACTICE TIP

- Include lean high quality protein sources such as lean meat, chicken, fish, eggs, dairy products, nuts, beans, or tofu in sufficient amounts to provide the required ≈15-30g of high quality protein in your meals and snacks.

Revitalise

A range of vitamins, minerals, anti-oxidants, phyto-nutrients and good fats are all necessary for recovery and performance. Swimmers often focus on major nutrients like carbohydrate, and protein and neglect the revitalising nutrients which can help maintain immune function, improve cellular recovery and drive favourable training adaptations. Swimmers in general are good at eating more carbs and protein as training intensity and duration increases. However, they are not good at eating more revitalising foods, like fruits and vegetables, and foods containing good oils during this time of increased nutrient need.

Minerals like Iron, Calcium, Zinc, Magnesium, Potassium all play **critical roles** in exercise performance. Without sufficient intake of these nutrients training performance can suffer. Vitamins like the B-vitamins, Vitamin C, E, A and K are all necessary for energy metabolism and to supporting the body's immune system. Good fats help to optimise cell function and are essential in the production of hormones, which are critical especially around puberty. **Swimmers who overly restrict fat intake during their development years may be compromising effective hormonal function.** The latest area of interest in the revitalising food is the emergence of the phyto-nutrients. These nutrients are abundant in colourful fruits, vegetables, herbs and spices and help the body adapt to training and boost the immune system. With all this in mind swimmers should be eating a diet full of - **colourful fruits, vegetables, herbs and spices.**

PRACTICE TIP

- Make it the junior swimmer's **goal to consume as many different colourful natural foods in a training day as possible ie. fruits, vegetables, herbs, and spices.**

Replace

Muscles are like batteries and store energy in the form of glycogen (muscle carbohydrate) to be used quickly when hard work begins. When the battery is empty a swimmer needs to replace what the muscle has used (recharging it) by eating carbohydrate containing foods. Differences in training programs will influence the amount of carbohydrate needed.

Carbohydrate intake should be based on the age of the swimmer, gender, duration, intensity and frequency of training. Additionally carbohydrate should be consumed as nutrient dense foods rather than energy dense, refined carbohydrate foods, which are high in energy and devoid of other nutrients.

Certain young swimmers undertaking large training volumes may need to consume higher proportions of these energy dense carbohydrate snacks to simply meet their energy requirements but these athletes should not underestimate the benefits of the other pieces of the nutrition jigsaw. High carbohydrate needs is not an excuse to consume poor quality foods.

PRACTICE TIP

- Consume adequate nutrient dense carbohydrate sources (high fibre wholegrain bread, pasta, rice, couscous, barley, fruit and starchy vegetables) at meals and snacks especially around hard training sessions.

Rehydrate

Staying hydrated is important but dehydration in swimming is different to other land based activities. In the pool the body doesn't need to sweat as it cools itself by losing body heat to the water. This means water loss via sweating is much smaller than land based sports, and there for the risk of dehydration much less. Therefore fluid intake may be less important in pools that are temperature regulated especially in easy training sessions.

However swimmers should also be aware that as water temperature increases closer to their body temperature the efficiency of water to cool decreases. Meaning on hot days when you are working hard and the pool temperature is over 29°C cool fluids are essential in

maintaining performance. Junior swimmers have underdeveloped cooling mechanisms and may require more fluid than senior swimmers to allow the body to stay cool especially at the height of summer in outdoor pools.

PRACTICE TIP

- Encourage your swimmer to drink often out of the pool. Cool fluids should be available to swimmers throughout the day (water is sufficient). If your swimmer is getting out of the pool to go to the toilet (this includes in the pool) often they are probably drinking too much.

The general principles of completing the Swimming nutrition jigsaw are simple. All meals should have all pieces of the puzzle in them. Missing one piece means your swimmer is missing out on a piece of their recovery and development. It is important to realise that every swimmer is different and to ensure you are getting the pieces of the puzzle right for your swimmer talk to someone in the know like a sports dietitian. www.sportsdietitians.com.au

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