

NUTRITION FOR DIVING

Diving is an international sport with major competitions including World Cup events, World Championships, Commonwealth Games and Olympic Games. Senior elite competition is divided into individual and synchronised springboard (1m and 3 m) and platform (10 m) events for men and women. Skill and power relative to body weight are important in determining a diver's success. Synchronised diving has been recently introduced to the Olympic Games in 2000 and involves two competitors diving simultaneously from the springboards or platform.

Training

Elite divers train in excess of 20-30 hours per week. Morning and afternoon sessions lasting for 2-3 hours are undertaken on most days. Divers train on dry land as well as in the pool. During training sessions, divers repeatedly practice a new skill or sequence of skills within a dive and work on strength and flexibility. Training usually starts at an early age as years of skill and strength development are required.

Competition

Preliminary rounds are generally held on the morning and finals in the evening of the same day. Each competitor must perform a set number of dives with limit (usually 4-5) and dives without limit. Each dive is marked separately out of 10 in increments of half marks. Men perform eleven dives in the 3 m springboard event, while women perform 10 dives. In the 1 m springboard event, men perform 6 dives and the women perform 5. In the platform events, 10 and 8 dives are performed respectively. A diving meet can last four to six days with the competition for board or platform being held on separate days.

Physical Characteristics

The skill and agility of a diver requires that the athlete be small, lean and well-muscled. This body composition provides physical advantages including increased mechanical efficiency, increased power-to-weight ratio and a favourable image to diving judges.

Common Nutrition Issues

Body Fat Levels

Divers are encouraged to maintain a lean, well-muscled physique. For some divers it can be difficult to achieve or maintain a physique that allows them to compete at the highest possible level. Most of their training is skilled based and explosive in nature, so likely energy expenditure during training is low compared to other athletes. Consequently, divers may consume a diet low in kilojoules, placing them at risk of inadequate nutrient intakes such as carbohydrate, calcium and iron. It is important for divers, particularly females to eat nutrient-

rich foods at meals and snacks to meet daily nutritional needs. High-fat snacks (e.g. chips, chocolate) and nutrient-free carbohydrate rich foods and fluids (e.g. lollies, soft drink) are not encouraged as regular choices but as occasional treats.

Although males may more easily achieve required body fat levels compared with female divers, some male divers need to follow a low energy diet in order to shed unwanted muscle. This is mostly true of senior male divers, as most young male divers need large amounts of nutrient-rich foods to keep up with the added demands of growth and training. This can be difficult with training and other commitments impacting on opportunities for meals and snacks if not organised ahead of time.

Training Nutrition

Some divers avoid eating a regular breakfast before early morning training sessions as they feel solid food causes discomfort while training. Divers experiencing this problem should try a carbohydrate-rich drink such as low-fat milk, a smoothie or juice before the session. This will help maintain blood sugar levels throughout training, particularly during long sessions.

Due to a diver's busy lifestyle (training, school, university or work commitments), finding time to eat regular meals and snacks can also be a challenge. Creative meal planning and preparation is needed to ensure nutrition doesn't suffer if having to eat "on the run".

Suitable snack choices for between training sessions are nutrient-rich foods that provide the carbohydrate, protein and vitamins necessary for recovery and repair. Good transportable snacks include fruit, crackers with cheese or peanut butter, low-fat flavoured yoghurt, dried fruit and nut mix and assorted sandwiches.

Competition Nutrition

Divers need to develop a meal plan that fits in with their competition schedule. This may vary from day to day. Divers should choose foods they are familiar and comfortable with. Practicing pre-competition eating before training sessions helps divers to identify which food choices suit them best. One challenge that may exist is making sure that divers adjust their energy intake over the competition period to account for their reduced energy requirement (due to a decreased training load). Unwanted weight gain can be an issue if this does not occur particularly if divers are competing regularly in overseas competition.

Divers that suffer from pre-competition nerves or like feeling 'light' prior to competition should include a liquid meal supplement or milk (cow or soy) drink as their pre-competition snack. The priority for divers during competition is to maintain blood sugar levels given the length of a competition session and top-up fluid levels particularly when diving outside in hot, humid conditions. In outdoor competition, divers should avoid direct sun exposure between dives as this will accelerate sweat losses.

Bone Development and Strength

Dietary calcium along with weight bearing activity, menstrual status and overall nutritional adequacy of the diet are major factors in determining bone mineral development in female athletes. Dietary calcium intake should be assessed in female and male divers with low energy intakes. It is important for female divers to have calcium-rich foods (such as low-fat dairy products) at meals and snacks to ensure that their dietary calcium needs are met.

Eating Behaviours

As previously mentioned, divers require a lean physique if they are to perform at a high standard. The focus on achieving and maintaining an optimal body composition places divers (especially females) at a higher risk of disordered eating practices. It is essential that the sports physician, sports dietitian, coach and diver maintain regular communication so that potential problems can be identified early. An appropriate, healthy, weight management plan should be constructed for a diver if weight management is an issue.

Fluid Balance

Dehydration is likely to be detrimental to a diver's performance as it decreases skill and concentration. A diver's training and competition environment is often warm and humid, (especially on pool deck), which can increase fluid loss from the body. Divers should consume fluid regularly during both dry land and pool training to prevent dehydration. This is particularly true when training or competing outdoors in hot, humid conditions.

This fact sheet is based on AIS / National team athletes and is therefore specific to these athletes. Written by AIS Sports Nutrition, last updated August 2009. © Australian Sports Commission.