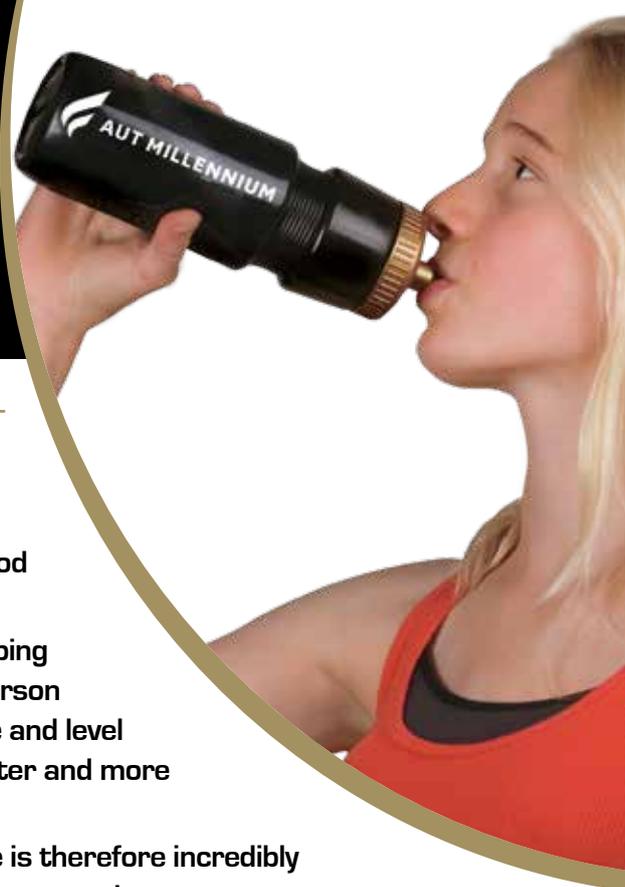


HYDRATION FOR SPORT



The importance of Hydration

The majority of your body is made up of water. This water in turn has many vital roles including keeping blood flowing, regulating blood temperature and enabling your muscles to contract.

During exercise, water is lost in the form of sweat, as a way of helping to maintain a stable body temperature. Sweat losses vary from person to person and can be affected by an individual's genetics, body size and level of fitness. Also most people are likely to sweat more as it gets hotter and more humid, as well as with an increased level of activity.

Drinking the right amount of fluid before, during and after exercise is therefore incredibly important to replace losses in sweat, maximise performance and prevent the numerous undesirable effects of dehydration.

DEHYDRATION AND PERFORMANCE

Dehydration can affect both physical and mental performance. With increased levels of dehydration, there is an increase in heart rate and body temperature, giving the perception that the activity is harder than it really is. Along with these physical changes, studies have shown that fluid losses of around 2% of an athlete's body weight (e.g. 1.3kg in a 65kg athlete) can also cause a substantial drop in performance.* Being aware of your fluid losses during training, by weighing in before and after the session, and devising a suitable personalised hydration plan is therefore a great help.

CAN YOU DRINK TOO MUCH?

Too much of most things isn't good, the same applies with fluid. Having more than you need can cause discomfort, and in extreme cases can dilute the blood too much causing blood sodium levels to fall dangerously low. This is a condition called hyponatraemia which can be life-threatening. Hyponatraemia can occur in prolonged events (over 2 hours) where large volumes of low sodium drinks are consumed and sweat losses are small.

Consuming sports drinks that contain sodium and matching fluid intake with sweat losses minimises the risk of hyponatraemia.



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HOW MUCH SHOULD YOU DRINK AND WHEN?

It is impossible to suggest specific guidelines for all athletes to follow when it comes to hydration quantities, however there are some general points to consider which will help you formulate your own hydration plan:

BEFORE TRAINING

Always start exercise in a well-hydrated state. Look to make sure your urine is pale in colour and abundant in the hours before you start training. Try not to drink too much as being overhydrated is unlikely to benefit your performance and may cause discomfort. Trial this in order to achieve a healthy balance.

DURING TRAINING

Develop a plan during your exercise, based on your sweat rate. Here is how to work it out:

1. Weigh yourself before exercising, in minimal clothing, preferably with an empty bladder.
2. Start your training, keeping track of how much fluid you consume.
3. Weigh yourself after training, in minimal clothing. Dry off sweat with a towel.

Example Calculation:

Weight before: 70kg

Weight after: 69kg

Fluid consumed: 1.5 litres

Training duration: 3 hours

Fluid loss = Weight before – Weight after
70kg – 69kg = 1kg

Note: A 1kg weight loss during exercise equals a 1 litre fluid loss.

Sweat loss = Fluid lost + Fluid consumed
1 litre + 1.5 litres = 2.5 litres

Sweat rate = 2.5 litres divided by 3 hours
= 0.83 litres/hour or 830ml/hour

Repeat this process during different training sessions, at varying times of the day and in a range of seasonal temperatures, keeping a record of your sweat rate. Over time you will see a pattern emerge showing how much fluid you lose depending on the conditions, and how much you need to replace after training.

AFTER TRAINING

Aim to replace your final fluid loss at the rate of 1.25-1.5 litres for every 1kg body weight lost.**

PRACTICAL CONSIDERATIONS

The type of training you do will dictate the practicalities of drinking before, during and after sport. With team sports

for example, palatable drinks need to be easily accessible in breaks of play. During cycling, or prolonged endurance training, easy ways to transport fluid needs to be considered e.g. attached to your bike, worn on a fluid belt or picked up from hydration stops on a course or track. Be smart with your strategies and plan ahead.

WHAT IS THE BEST FLUID TO DRINK?

Plain water is ideal in exercise sessions that are of low to moderate intensity and last up to 1 hour in duration.

Sport waters – These are often flavoured water with a small amount of added carbohydrate and sodium. Although there is no research to suggest that they enhance performance, they are often considered more palatable than plain water, encouraging fluid consumption which reduces the risk of dehydration.

Sports drinks – These have been very precisely configured to contain the exact combination of water, electrolytes (e.g. sodium and potassium) and carbohydrate (4-8%) to actively increase the rate of hydration and in turn help to enhance performance. These are ideal during prolonged, intensive exercise.

Low fat milk – After exercise, low fat milk makes a great recovery drink. Not only

does it help with rehydration, but it also provides valuable protein and calcium.

Alcohol – Alcoholic drinks are not suitable immediately after exercise. They delay recovery and repair processes as well as having a potential impact on an athlete's ability to rehydrate effectively.*** Ensure you have eaten a well-balanced recovery snack and are fully rehydrated before consuming alcohol after exercise

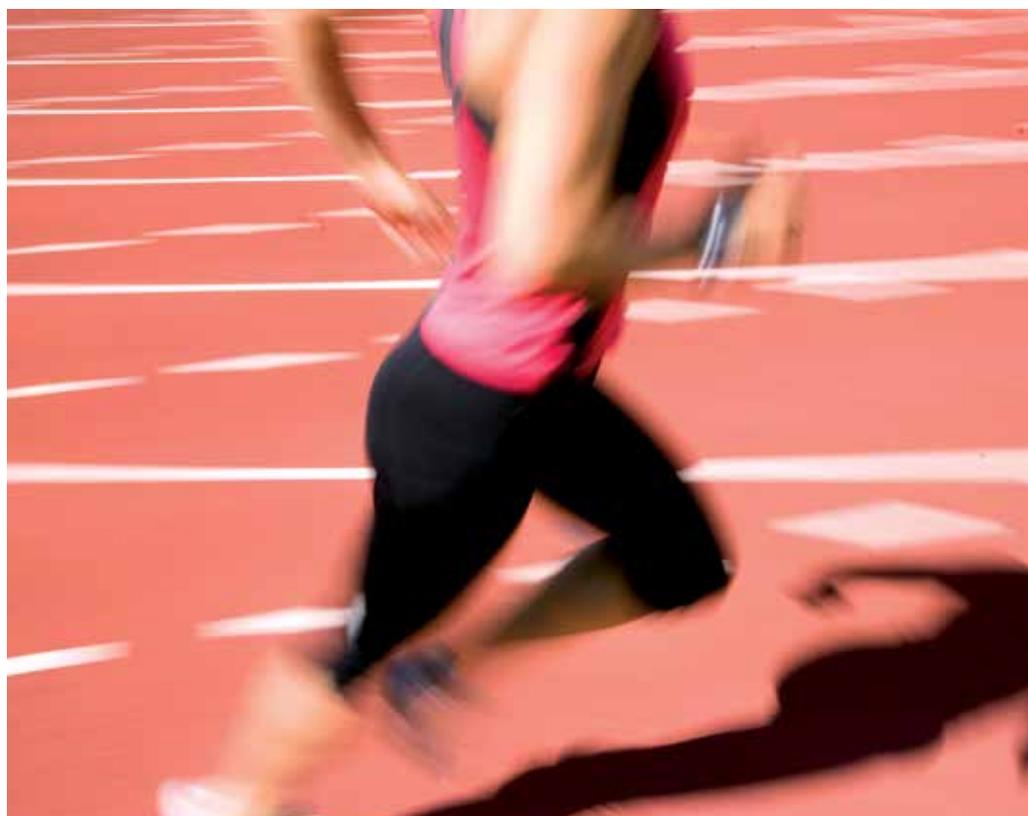
TOP TIPS

- Try to aim for pale and abundant urine before you start exercising
- Aim to match sweat rate with fluid intake during exercise
- Practice your fluid plan for competition during training sessions
- Use water for low intensity, short duration sport
- Consider sports drinks for higher intensity exercise and endurance training

* Louise Burke et al 2006. Clinical Sports Nutrition, 3rd Edition, Fluid and CHO intake during exercise. pg 394

**Nutrition for Athletes 2012. A practical guide for health and performance. Water and salt needs for training, competition and recovery. Pg 22. International Olympic Committee

*** Louise Burke et al 2006. Clinical Sports Nutrition, 3rd Edition, Nutrition for Recovery after training and competition, pg 424.



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For more information and to obtain further copies of any of the *Eating for Your Sport* Nutrition Advice sheets, visit www.nutrition.nestle.co.nz or www.mish.org.nz

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