



FACT SHEET

Optimising Hydration Before, During and After Exercise

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The maintenance of a hydrated state is a major challenge to the athlete yet it should be a focus of athlete preparation as optimal hydration is an important contributor to the quality of both training and competition performance.

Research studies have well-demonstrated the negative effect of dehydration on exercise performance. Some research suggests performance is impaired with as little as 1 – 2% bodyweight deficit due to fluid loss.

Fluid loss in heavy exercise can exceed 3 litres/hour for such sports as cycling, rowing, running and team sports and, 2-2.5 litres/hour when swimming. As each litre of fluid is a kilogram weight loss it is easy to get to the 2% bodyweight deficit.

Along with staying hydrated there is the need to maintain an appropriate salt balance (especially sodium) to allow normal functioning of the nerves and muscle cells.

There are 2 major types of dehydration that have a negative impact on performance:

- Chronic dehydration: not keeping pace with normal daily fluid loss.
- Acute dehydration: fluid loss which occurs during exercise.

The good news is each is easily managed with a well-designed fluid intake strategy.

Chronic Dehydration

Dehydration occurs when resting fluid loss is not fully restored on a day to day basis. This resultant involuntary dehydration can contribute to a reduced exercise capacity and performance.

As a guide to maintaining basal fluid intake it is recommended that the athlete should drink 5-6 ml of water per kilogram of bodyweight every 2-2½ hours 5 times a day.

Table 1 gives the amount you should drink 5 times per day against a series of reference weights.

Some general indicators of chronic dehydration include:

- Changes in bodyweight (1kg change in weight equals a 1 litre change in water balance).
- Changes in the colour of urine (reduced urine output and darker colour normally reflects a dehydrated state).
- Be wary of increased lethargy and elevated heart rate.
- Headaches can also be a sign of dehydration.

Table 1: Basal Water Requirement by Bodyweight (5x per Day)

Weight (kg)	Volume (ml)	Weight (kg)	Volume (ml)
35	175	75	375
40	200	80	400
45	225	85	425
50	250	90	450
55	275	95	475
60	300	100	500
65	325	105	525
70	350	110	550

Acute Dehydration

Acute dehydration will occur during training and competition when it is impossible to ingest sufficient fluid to match what is lost in sweating (greater than 3 litres/hour). Athletes need to take water in pre, during and after the event to match the fluid lost during exercise.

To understand your fluid loss in exercise you can use a set of scales. Weigh yourself before and after the exercise. Each kilogram lost is equivalent to a litre of fluid lost.

You will voluntarily drink the largest volume of fluid when it is around 15° Celsius. Sports drinks are effective in aiding rehydration and will also provide a source of carbohydrate and sodium to improve their replenishment.

During exercise you should be aiming to consume around 250 ml of water or sports drink each 15 minutes. This is the maximum amount of fluid you can transfer from the stomach to the gut for absorption into the body.

Post Exercise Hydration

The replenishment of the fluid lost in exercise should occur as soon as possible as part of post-exercise recovery plan. The amount of fluid you need to replace can be estimated by the change in your weight pre to post exercise.

For each kilogram of weight lost across a training session or competition you need to drink 1.5 litres of fluid. This allows your body to continue sweating while you cool down, replace the fluid lost in exercise and to remove the waste products by producing urine.

Sodium Replenishment

The repletion of electrolytes post-exercise is important in both allowing normal function and in assisting the rehydration process. Of the different electrolytes sodium appears to be the key to effective rehydration.

Sodium is available in sports drinks (eg PB fluid and electrolyte replacement drink), oral rehydration fluids (such as gastrolyte) and in vegemite. So vegemite on toast can be used to replenish sodium as part of your post-exercise recovery strategy.

SUMMARY

- You need to take in 5-6 ml of water for each kilogram of your weight 5 times a day to prevent chronic dehydration.
- Sports Drinks can provide by the water and electrolytes required for effective rehydration.
- Weighing yourself before and after exercise helps determine your fluid loss. Each kilogram lost is a litre of fluid that you have lost.



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