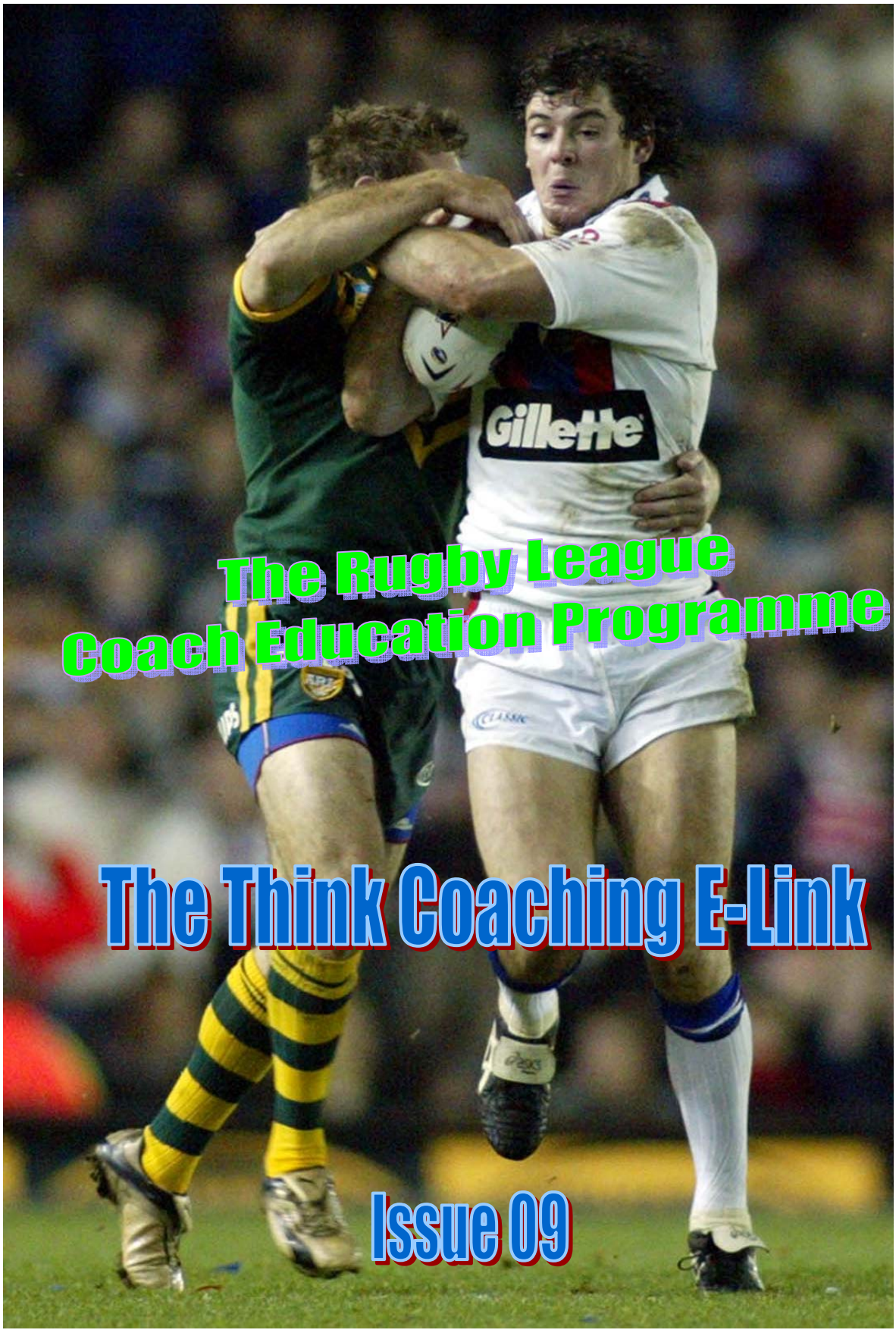


The Rugby League Coach Education Programme

The Think Coaching E-Link

Issue 09

Welcome to Issue 09 – Hydration

Introduction
Following our issue which looked to give some introductory guidelines and information on "Nutrition". This issue looks at the important topic of hydration. It's a very topical subject in many ways. Evidence last weekends Powergen Challenge Cup game in Toulouse and the difficulty experienced by the Widnes players despite the game being in effect played in four quarters with water breaks being taken at the half way point of each half.

It's also the case that many of the coaches that subscribe to this e-zine coach teams that play in the summer. Hopefully the information is this issue will be of some assistance and will help them in their coaching.

Coach Development News

Last week saw the launch of another Coach Development project. Nineteen coaches in Cumbria are now part of a project that will help them develop their skills and knowledge to the benefit of the game within the region.

ARTICLE 1

Drinking on the job

By Bronwen Greenaway and Helen O'Connor

Athletes, even the professionals, tend not to drink enough fluid to keep pace with sweat loss. This is
called "voluntary dehydration" and can be an athlete's worst enemy. Sweat loss totalling only 2% of body weight is common and can cause fatigue and reduced skill.1 Ignoring fluid and energy requirements during exercise can result in dehydration and poor performance at the worst possible time.

This article that published originally in *The Coaches Edge*(www.coachesedge.com.au) investigates drinking on the job with the help of two leading sports dietitians, Bronwen Greenaway, who works with the South
Sydney Rugby League Club, and Helen O'Connor who consults to the Sydney Swans, Canterbury Rugby League Club and the NSW Institute of Sport. It is in itself an article that summarises a number of other articles and studies.

What are the benefits of drinking sports drinks *during* exercise?

· **Delivering enough oxygen to your muscles**
During exercise the body delivers more oxygen to working muscles by increasing heart rate and the volume of blood pumped per heart beat. When an athlete is dehydrated, blood volume and oxygen delivery to the muscles decrease.
· **Keeping your cool**
During exercise body temperature increases. Left unchecked, an athlete's core body temperature may become dangerously high. When sweat evaporates it takes heat away from the body, so getting a good sweat up is vital for staying cool – and to sweat well you need to be well hydrated. Sports drinks stimulate rapid fluid uptake from the intestine. They also stimulate thirst, which can increase voluntary consumption by 90%
when compared to water and 45% when compared to other flavoured drinks.
· **Fighting fatigue**
Sports drinks containing carbohydrate delay fatigue by providing readily available energy, and by minimising dehydration which increases the body's use of carbohydrate. In a video analysis of soccer players during a game, those who consumed 400 ml of sports drink at half time ran 40% more in the second half,
compared to those who drank a placebo. It's not only soccer. Reductions in physical and mental fatigue have also been reported in other team and racquet sports. One study also showed that athletes given a glucose drink before and during resistance training were able to perform an increased number of repetitions for the same weight than those given a placebo.
· **Fighting cramp**
Sports drinks contain sodium can help to prevent hyponatremia (low blood sodium) and may reduce the risk of cramp in susceptible individuals.
· **Brain Fuel**
Sports drinks help to prevent hypoglycaemia (low blood sugar) during exercise. Hypoglycaemia lowers concentration levels and can be devastating in sports where skill, strategy or technique are important.1 Athletes may feel excessively tired, shaky and may even faint as a result of hypoglycaemia.
· **Staying healthy**
Upper respiratory tract infections like cold and flu appear to be more common in people who are training heavily. Hormones such as adrenaline and cortisol suppress the immune system9 but consuming adequate carbohydrate with the help of a sports drink appears to keep these hormone levels in check.
· **Boosting performance**
You do not have to be an endurance athlete to benefit from a sport drink. A number of recent studies show performance improvement when a sports drink is consumed during strenuous exercise lasting for around an hour. This can amount to a 12% boost in performance, double the benefit of plain water. The other benefits of sports drinks, including greater fluid absorption from the intestine and encouraging greater voluntary fluid intake, are also important for team or other sports played for an hour or so.

Special Situations
· **Environmental deception**
You'd expect athletes to be better hydrated in cool weather. However, while sweat rates are usually lower, athletes tend to drink less so they end up with similar levels of dehydration. Inhumid conditions, when sweat doesn't evaporate as well, the risk of dehydration and overheating increases. Heated indoor swimming pools and venues with poor ventilation are well known for their dehydrating effects.
"Heat Cramps Saints' Style" Herald-Sun 9.4.02
In the AFL, St Kilda recently blamed its narrow loss to Fremantle on dehydration. Rainy, humid conditions resulted in four of their key players cramping and spending time on the bench. In keeping to their usual pre-game drinking routine the players had failed to account for the dehydrating effect of the humid conditions

· **Travel**
Acclimatisation to hot, humid conditions may take up to two weeks23 but for teams playing each weekend that sort of time is not available. Air travel can also increase dehydration so when the two are combined fluid intake should be increased.

Opportunities to drink
Thirst is a poor indicator of fluid needs and fluid intake should be matched to sweat rates rather that trusting what the athletes feel. A drink's temperature and flavour strongly influence how much we consume, with cool, flavoured drinks preferred over water during exercise. Coaches, trainers and athletes need to analyse the opportunities to drink in their sport (e.g. half time, time outs, on the bench etc) and be proactive in using these times to optimize hydration.

Practicing drinking
By having an individualised drinking plan, athletes can be clear on their fluid needs and the best ways to meet these comfortably during exercise. Athletes can 'teach' their body to tolerate more fluid during exercise by gradually increasing fluid intake during training.

Summary
· Drinking regularly *during* exercise helps to prevent dehydration and heat stress.
· Sports drinks like Gatorade enhance rehydration, delay fatigue and help to maintain skill and concentration *during* exercise.
· Athletes are advised to:
- individualise a fluid intake plan
- practice fluid intake strategies *during* training

Practical tips to help your athletes drink-up *during* exercise

· **Develop an individualised drinking plan and practice at training**
- weigh before and after exercise (1kg lost = 1 L of fluid deficit)
- aim to replace all that fluid loss
- use individually labelled drink bottles to monitor intake
- urine colour and volume can be a useful guide (aim for plenty with a clear/pale colour prior to exercise)

· **Favour a scientifically formulated sports drink over water.**
· **Provide adequate breaks and reminders to drink *during* training and competition.**
· **Educate athletes about dehydration risks and the warning signs**
- faltering performance
- inability to concentrate
- feeling hot and tired
- headaches during and after exercise

ARTICLE 2

Why Children Have Special Fluid Needs

By Suzanne Nelson Steen, D.Sc., R.D.

While the most important part of any athlete's diet is fluids, the type, amount, timing, and even temperature of fluids consumed by a preadolescent child before, during, and after exercise play an especially critical role in maintaining the health and optimal performance of your child athlete because they react differently to exercise and heat differently than adults, or even teenagers.

Children are at increased risk of dehydration and heat-related illness because they:

1. Sweat at a lower rate (both in absolute terms and per sweat gland)
2. Tolerate temperature extremes less efficiently
3. Get hotter during exercise
4. Have more skin surface for their body weight (that results in excessive heat gain in extreme heat and heat loss in extreme cold)
5. Have hearts that pump less blood; and
6. Adjust more slowly to exercising in the heat (a child may require five or six sessions to achieve the same degree of acclimatization acquired by an adult in two or three sessions in the same environment).

As a result, parents, trainers and coaches need to:

1. Educate youth athletes about the importance of hydration and the dangers of heat-related illness
2. Take precautions to minimize the risk of heat illness; and
3. Ensure that they drink enough fluids before, during and after sports.

ARTICLE 3

Fluid Guidelines For Young Athletes

By Suzanne Nelson Steen, D.Sc., R.D.

Surprising, as it may seem, the most important part of an athlete's diet isn't what they eat, it is what and how much they drink. Hydration before, during and after exercise is especially important for preadolescent children because they have special fluid needs compared to adults, or even teenagers. As a parent or coach, you are responsible for taking precautions to prevent heat illnesses in exercising children and making sure they drink enough fluids.

One of the most important functions of water is to cool the body. As a child exercises, his muscles generate heat, raising his body temperature. When the body gets hot, it sweats. The evaporating sweat cools the body. If the child does not replace the water lost through sweating by drinking more fluids, the body's water balance will be upset and the body may overheat.

To keep from becoming dehydrated, your child must drink fluids before, during and after exercise. To promote fluid intake in kids, fluids containing salt (i.e. sports drinks such as Gatorade) have been shown to increase voluntary drinking by 90% and prevent dehydration compared to drinking plain water. To ensure that your child is drinking enough, you should see that she drinks fluids according to the following schedule:

Ages 6 to 12:

Before Sports

Drinking fluids prior to exercise appears to reduce or delay the detrimental effects of dehydration.

- 1 to 2 hours before sports: 4 to 8 ounces of cold water
- 10 to 15 minutes before sports: 4 to 8 ounces of cold water

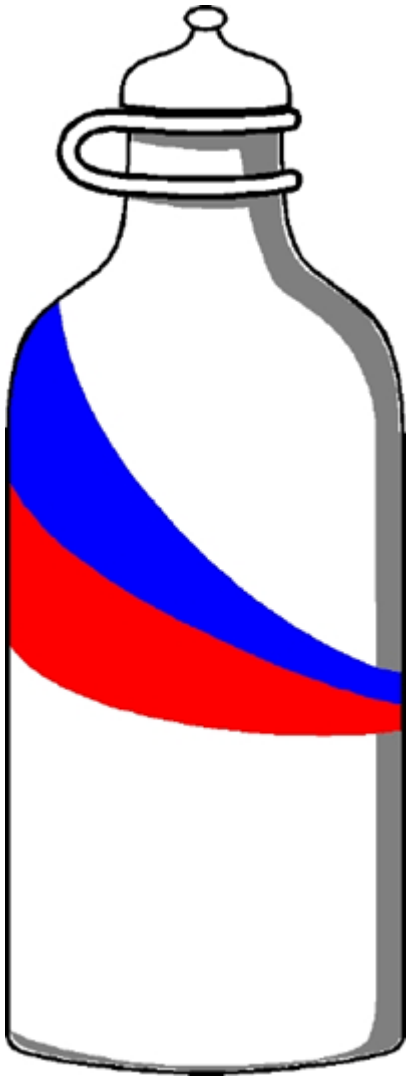
During Sports

- Every 20 minutes: 5 to 9 ounces of a sports drink, depending on weight (5 for a child weighing 88 pounds, 9 ounces for a child weighing 132 pounds)

After Sports

Post-exercise hydration should aim to correct any fluid lost during the practice.

- Within two hours: at least 24 ounces of a sports drink for every pound of weight lost



Ages 13 to 18:

Before Sports

Drinking fluids prior to exercise appears to reduce or delay the detrimental effects of dehydration.

- 1 to 2 hours before sports: 8 to 16 ounces of cold water
- 10 to 15 minutes before sports: 8 to 12 ounces of cold water

During Sports

- Every 20 minutes: Between 5 and 10 ounces of a sports drink, depending on weight

After Sports

Post-exercise hydration should aim to correct any fluid lost during the practice.

- Within two hours: at least 24 ounces of a sports drink for every pound of weight lost

Article 1 appeared originally in the Rugby League Coaching Magazine and is produced here for educational purposes only by their kind permission.
The Rugby League Coaching Magazine website has a wide variety of products that are useful for coaches. They can be contact via this link http://www.rlcm.com.au/home.htm

Have the issues raised in these articles been of any use to you?
Would you like to see further articles on the subject?

Drop us a line at haydn.walker@rfl.uk.com