

## **CHILDREN AND HEAT**

The physiological and structural difference between children and adults places children at a greater risk of suffering from heat illness. These differences impact on a child's ability to respond to environmental heat and acclimatise to heat. These differences include:

- a larger surface area/body mass ratio which affects their ability to dissipate heat when environmental temperature is greater than skin temperature (Falk 1998). This can be an advantage when heat loss is necessary, but is a disadvantage when radiant or convective heat gain occurs;
- immature sweating mechanisms which require a greater increase in body temperature before the onset of sweating (Araki et al 1979); and
- fewer and smaller sweat glands which limit the production of sweat (Araki et al 1979, Falk 1998, Wagner et al 1974).

## **HOT WEATHER POLICY FOR CHILDREN**

**At ambient temperature greater than or equal to 30 degrees Celsius, children have greater difficulty getting rid of heat than adults.**

## ***STRATEGIES FOR REDUCING THE RISK OF HEAT ILLNESS (Children)***

The following strategies should be considered for sport and physical activities involving children. The strategies should be considered in conjunction with strategies for reducing the risk of heat illness for the general population and the hot weather policy for children.

### ***1. Shade and drinks***

Organisers of activities that are conducted in hot conditions must provide sufficient shade and regular drinking opportunities. This is particularly critical where the fitness and state of acclimatisation of the young participants are uncertain.

It is recommended that water or fluids be provided whenever children are being active. More fluid, however, appears to be consumed by young people when the drinks offered are perceived as palatable to them. Therefore, for children and adolescents having trouble drinking adequate tap water, flavoured drinks may need to be considered. Conversely, the high energy content of some flavoured drinks may be unnecessary during exercise in athletes who have a genuine rather than an aesthetic need to lower body fat levels.

It is recommended that young athletes begin regular drinking routines using water or fluids during training and competition. Regular and effective drinking practices should become habitual to young athletes before, during and after activity. Individuals should monitor weight changes before and after workouts and know the amount of fluid that they are likely to require.

### ***2. Acclimatisation and overweight children***

In addition to the risks associated with activity in the heat for unfit and unacclimatised

young people, coaches/supervisors of overweight children and adolescents should take extra precautions to lessen the potential for heat gain. It is recommended that, whenever activity in hot conditions is unavoidable with these children, coaches/supervisors decrease the volume and duration of physical activity and increase opportunities for drinking, rest and shade as a matter of priority.

At the onset of hot weather, the young athlete may take longer to acclimatise. It is therefore recommended that training volumes (duration and intensity) decrease during the first few weeks of hot weather. Increased times for rest, using access to shade more frequently and increasing the number of mandatory drinking breaks are recommended for the young athlete when the weather becomes noticeably hotter.

### *3. Clothing*

In addition to the clothing recommendations made for the general population, it is recommended that summer-based sporting organisations select uniforms that minimise heat gain and that coaches, teachers and parents encourage children and adolescents to wear appropriate clothing in layers that can be easily removed during activity.

### *4. Heat illness register*

To improve the understanding of activity in the heat by children and adolescents, it is recommended that a register of heat-related illness be established. This may comprise a system within which all aspects of heat-related illness incidents are recorded. Items of note may include the individuals afflicted and their symptoms, the time of the incident, the environmental conditions, the physical activity undertaken, the immediate treatment and subsequent action taken.

The system is recommended to help identify individuals who have previously experienced some form of heat illness and therefore may require additional attention to ensure that they adopt prevention strategies.