Warm Up and Cool Down

There is no doubt that time spent on warming up and cooling down will improve an athlete's level of performance and accelerate the recovery process needed before and after training or competition. As a result, the coach must encourage the athlete to regard the warm up and cool down as an essential part of both the training session and competition itself.

Warm Up

Muscle stiffness is thought to be directly related to muscle injury and therefore the warm up should be aimed at reducing muscle stiffness.

Warming up should at least consist of the following:

- 5 to 10 minutes jogging - to increase body temperature
- 10 to 15 minutes dynamic stretching exercises - reduce muscle stiffness
- 10 to 15 minutes general and event specific drills - preparation for the session or competition. e.g. for a runner
    - Lower leg drills
    - Leg drills
    - Technique drills
- 4 to 8 easy run outs over 30 to 60 metres - focus on correct running technique (Tall, Relaxed, Smooth and Drive)

Dynamic stretches are more appropriate to the warm up as they help reduce muscle stiffness. Static stretching exercises do not reduce muscle stiffness. For further information see the following articles:

- How does static stretching affect an athletes performance
- Dynamic versus passive stretches
- Static vs. Dynamic Flexibility

What are the benefits of a warm up?

Performance may be improved, as an appropriate warm up will result in an:

- Increased speed of contraction and relaxation of warmed muscles
- Dynamic exercises reduce muscle stiffness
- Greater economy of movement because of lowered viscous resistance within warmed muscles
- Facilitated oxygen utilization by warmed muscles because haemoglobin releases oxygen more readily at higher muscle temperatures
- Facilitated nerve transmission and muscle metabolism at higher temperatures; a specific warm up can facilitate motor unit recruitment required in subsequent all out activity
- Increased blood flow through active tissues as local vascular beds dilate, increasing metabolism and muscle temperatures
- Allows the heart rate get to a workable rate for beginning exercise
- Mentally focused on the training or competition

Cool Down

Cooling down should consist of the following:

- 5 to 10 minutes jogging/walking - decrease body temperature and remove waste products from the working muscles
- 5 to 10 minutes static stretching exercises

Static stretches are more appropriate to the cool down as they help muscles to relax, realign muscle fibres and re-establish their normal range of movement. These stretches should be held for approximately 10 seconds.

What are the benefits of a cool down?

An appropriate cool down will:

- aid in the dissipation of waste products - including lactic acid
- reduce the potential for DOMS
- reduce the chances of dizziness or fainting caused by the pooling of venous blood at the extremities
- reduce the level of adrenaline in the blood
- allows the heart rate to return to its resting rate