

Warming up and Cooling down.

One of the most important factors in injury prevention is warming up and cooling down, and should not be neglected.

Warming up refers to a preparatory phase at the beginning of an exercise session. Warming up generally involves a period of low-impact exercise regimes which prepare the body for the more strenuous aspects of the sporting activity. Warming up is an important aspect of exercise in reducing the risk of injury that would possibly happen if over stretching occurred, without the person being physically warmed up and prepared for the exercise.

Cooling down refers to a short period at the end of an exercise session. The cooling down phase, again, tends to involve a short period of low-impact exercise which gradually returns the body to its 'resting state'. The cooling down phase is believed to reduce the risk of muscular soreness which may occur the day after an exercise session, and reduce the risk of fainting or collapse after such a session.

The Warming Up Session

An exercise session should always commence with a period of warm up. In some cases it may take the form of a series of specially designed preparatory exercise, whilst in other sessions it will simply involve performing the activity at a low density before increasing the intensity to the desired level. The warming up period is important for the following reasons:

- It gets the body ready for the physical exertion that follows. This optimizes the physical condition, enabling the body to cope more easily with the activity. It also enables the athlete to get the most benefit from the session.
- If the warm-up session has specific movements relating to the sporting activity the muscles can be re-educated in preparation for the coming activities.
- It reduces the risk of injury (cold muscles do not stretch very easily) and it reduces the risk of premature fatigue which can occur if the cardiovascular system is unprepared for strenuous activity.
- It prepares cardiac function for increased activity and reduces the risk of stress being placed on the heart.

A typical warm-up may involve some 'loosening exercises' followed by a few minutes of low-impact aerobic activity and then a series of stretching exercises. This may last for approximately five to fifteen minutes depending upon the intensity of the session which follows. Loosening exercises at the start of the warm up may include activities such as 'stretching' and 'running on the spot'. These are gentle activities which begin to prepare the body for exercise and are especially important if the athlete has been inactive for a while.

The aerobic exercise may involve activities such as cycling on an exercise cycle. This has the effect of increasing the heart rate, diverting blood to the exercising muscles and raising the overall temperature of the muscles.

Dynamic stretching exercises provide the final phase of warm up and ensure that the muscles and tendons are prepared for the exercise. An important reason for stretching exercises is to prevent the muscles and tendons from being overstretched during the session. Such a warm up will also prepare the joints for physical activity.

The Effects of Warm Up on the Body are:

- Cold muscle, tendons and connective tissue do not stretch very easily. Stretching without a warm-up is therefore unlikely to produce the best effects. Warming up also relaxes the body and muscle which further allows them to be stretched effectively. It is also believed that cold muscles and tendons are more prone to damage since they are more likely to tear when cold.
- A warm-up increases the heart rate gradually, and aerobic exercise prepares the heart and cardiovascular system, together with the muscles, gradually, for exercise.
- A warm-up also causes the blood to be diverted to the exercising muscles. This is achieved by getting the blood vessels that supply the muscles being used, to dilate. This extra blood is diverted from areas of the body not as important for exercising, such as the gut.
- Exercising, without warming up, may cause the muscles to work without an adequate oxygen supply. This forces them to use anaerobic processes to supplement their production of Adenosine Triphosphate (ATP). As a consequence, lactic acid accumulates and the muscles may become prematurely fatigued.

A warm-up increases the temperature of the body. This increase in temperature facilitates and speeds up many of the processes associated with exercise metabolism. It increases the rate of nerve impulse transmission, the rate of oxygen delivery to the muscles and the speed of the reactions associated with the production of ATP. Therefore, in this context, a warm up may be said to optimize the condition of the body.

Cooling Down

A cool-down involves a short period at the end of an exercise session during which the physical activity of the body is gradually reduced to almost its resting level. A cool-down therefore often involves a period of low-impact aerobic exercise which is gradually reduced, followed by a few gentle stretching exercises. This has a number of effects.

The gentle aerobic activity helps to get rid of any metabolic waste products which may have accumulated during the exercise session. The benefits of an active recovery are believed to be related to the muscles continuing to receive a more extensive supply of oxygenated blood, which will also assist with the removal of metabolic waste products.

During exercise the blood is being pumped around the body by the action of the heart. However, the blood is assisted in its return to the heart via the venous system and muscular contraction. If an athlete stops exercising suddenly, the heart continues to beat fast, sending blood around the body, but, because the exercise has ceased, the blood is no longer assisted in its return to the heart. It is suggested that this is one of the reasons why people sometimes feel faint after exercise. During a cool-down, the heart rate is gradually lowered to its resting level and the venous return continues to be assisted by the actively contracting muscles, thereby preventing this problem.

After exercising, and following the cool-down period, the athlete's heart will still need a period of time to settle back down to its full resting rate but should be within 30 beats of what it was before the exercise session started. This will, of course, be influenced by the overall physical condition of the individual. It may also be influenced by the content of the session, with more demanding sessions requiring a more extensive cool-down. The cooling down period also provides an opportunity for the inclusion of additional stretching exercises, which may be desirable especially if they were not included as part of the main session. The inclusion of stretching exercises within the cool-down period not only helps to gradually lower the activity level of the body at the end of the session, but it may also prevent stiffness the following day.

The cool-down period is also likely to take place when the body is warm, making the muscles more receptive to stretching. The most effective stretching can therefore be performed at this time.

Article Source: <http://EzineArticles.com/933514>