

ATHLETICS OMNIBUS – INJURIES AND ILLNESSES IN ATHLETICS

From the Athletics Omnibus of Richard Stander, South Africa

INJURIES

1. PREVENTION OF INJURIES

Prevention is always better than cure. 80% or more of all injuries or illnesses could be prevented by just applying a few basic principles and precautions:

- 1.1. Aches and pains** Aches and pains will be felt when something is wrong in the body. Enduring the pain can increase the degree of the injury. Pinpoint the problem and treat it properly.
- 1.2. Aeroplanes** The air conditioning in aeroplanes causes dehydration. Take in water every 30 minutes as long as you are on the aeroplane.

During long flights, the low cabin pressure will cause the feet to swell. The fluids in the stomach will also cause discomfort. It is advised to wear loose clothing during travelling on a aeroplane.
- 1.3. Age** With age the body loses its natural elasticity and the healing process become slower. As you grow older, the training loads must be reduced and recovery periods must be longer to avoid injury.
- 1.4. Alcohol** Alcohol dilates the blood to the body's surface, giving it a false sense of warmth, especially in cold weather. The body responds by perspiration faster to cool the body down and will eventually lead to dehydration.

A little bit of alcohol may calm the nervous, but it decreases hand-eye coordination
- 1.5. Altitude** There are less oxygen in the air at high altitudes. You may feel tired and breathless with hammering headaches.
- 1.6. Asthma** A person with asthma symptoms can not get enough air in the lungs. Their training sessions should be shorter and more frequent than the healthy athletes.
- 1.7. Bone growth** Bone growth takes place until the mid teens. Bone tissue during growth is soft and will alter growth patterns during excessive physical and weight training.
- 1.8. Breasts** If breast are not properly supported by a sports bra during training, the breasts will bounce and will become tender and painful due to friction and torn breast tissue.
- 1.9. Bunny hops** Full squad positions are not required in athletics. Therefore bunny hops should be avoided during training. The risk of tearing cartilages are far too big.
- 1.10. Clothing** Appropriate clothing must be worn during training. Thick, coarse material such as denim material restricts movement and increase friction. Nylon material do not absorb sweat.

Clean clothing should be worn to avoid infections and other illnesses.
- 1.11. Coffee** Some athletes may feel more alert after drinking coffee. It also stimulates the body to release fat into the bloodstream. Endurance athletes benefit from this because it takes longer for the body to starts drawing from its natural energy sources such as glycogen.

- 1.12. Colds** Head colds are caused by a virus. The body easily develop a cold during excessive training. Rest and take antibiotics and painkillers as well as lots of fluids. If a head cold is not treated, it will develop into flu.
- 1.13. Dehydration** Dehydration causes bad sport performance. During intense training or competition, the colour and smell of the urine should be monitored. If the urine has a golden colour or/and has a strong sent, the urine is too concentrated and will cause infections. Drink more water until the urine is clear and the sent is less obvious.
- 1.14. Diarrhoea** Diarrhoea infects the intestines. The first signs is stomach cramps or a running stomach. Always wash your hands before you eat and only drink water that is safe.
- In warm tropical areas, even ice creams, ice cubs and salads can carry diseases such as cholera, typhoid.
- 1.15. Diet** A normal balanced diet is essential during training. Abnormal eating habits ore irregular meals with effect the body's performance level negatively.
- 1.16. Equipment** Equipment that suits you must be used. Beware of old equipment handed to you from somebody else.
- 1.17. Fatigue** Fatigue is normally a sign that the muscles is running out of energy and becoming choked on waste products.
- Your fitness level will determine how long it will take before you will start feeling the symptoms of fatigue.
- 1.18. Flat feet** Flat feet are the flattening of the arch between the heel bone and the toes. Flat tend to be overused mush faster. Use arch supports during training and do exercises that will improve the foot arch regularly.
- 1.19. Flexibility** Muscles that are not flexible or not warmed up and stretched properly before use tear much easier.
- 1.20. Flu / influenza** Flu is more serious than a head cold. Never train with a temperature or with aching muscles.
- 1.21. Hair** Keep long hear tied up during training. Lose hair can block your view or blind you at curtail moments.
- 1.22. High arches** High arches an abnormally high arch of the foot between the heel bone and the toes. The foot contact with the ground is restricted to a small area and result in the overuse of foot muscles. Wear supportive shoes to lesson the impact of the contact with the ground.
- 1.23. Hypothermia** It is a dangerous chilling of the body. The pulse and breathing will be weak. They act irrational with slow responses, speech and vision. They are cold when touched. Remove all wet clothing and warm the body slowly with a blanket or sandwiched between two bodies. Application of sudden intense heat is dangerous. Seek medical help urgently.
- 1.24. Indigestion** The symptoms of indigestion is a pain in the stomach and is often as a result of tension. Antacids will give relief and avoid gassy drinks or slow digestive food such as proteins.
- 1.25. Jet lag** The body will feel fatigued after a long flight. Generally, your body needs 24 hours rest for every 1 hour time zone change when flying west. The impact of jet lag is significantly less when flying in the other 3 directions. Jet lag may also cause temporary impaired concentration, reduced appetite, constipation and diarrhoea. Hormonal changes may take place and in the case of women may influence the menstrual cycle.

- 1.26. Menstruation / periods** Women ovulate once a month and is called menstruation and can be painful at times. This do not diminish the performance level of women. Consult your doctor to help regulating the periods of menstruation. Using birth-control pills 2-3 months prior to a major event is suggested for women experiencing regular severe menstruation pains.
- The effect of menstruation vary tremendously from one woman to another and may be physiological as well as psychological. Symptoms vary from tension, headaches, general malaise, nausea, abdominal pain and the need to go to the toilet more frequently.
- 1.27. Nails** Nails of the fingers and toes must be kept short as they can be come danseurs tools that can cause serious injuries.
- 1.28. Pigeon toes** The toes point towards the other foot rather than forward and are as a result of overuse.
- 1.29. Pregnancy** If a woman was training regularly prior to pregnancy, the woman can continue training during pregnancy as long as it is comfortable and with no ill effects. Physical activity has no adverse effect on a normal pregnancy, but it should be adjusted as the pregnancy progresses. Stop competition 4-5 months into the pregnancy. Training can resume 6-8 weeks after delivery on condition that the uterus is back to its normal size. Women that breastfeed may experience difficulty when training resumes. The breasts must receive addition support during training soon after delivery.
- 1.30. Pulse rate** The pulse rate will go up during training and will return to normal after training. The pulse rate will also go up during illness and fewer and will not return to normal until the body is back to normal again.
- 1.31. Sex** There is no need to abstain from sex when training. Lovemaking calms premature tensions.
- 1.32. Smoking** The nicotine in tobacco contracts the artery and allows less blood through to the muscles. This cause high blood pressure. The smoke clogs the fine filters of the lungs and various chemical displace the oxygen in the red blood cells, resulting in less oxygen reaching the muscles.
- 1.33. Sunburn** Sunburn builds up slowly. Water and cloudy weather cools down the body and slows down the body's warning sensors of skin burning. Use moisturising creams particularly on vulnerable areas such as the neck, back, nose, shoulders, top of the foot and knees.
- 1.34. Temperature** Training during temperatures above 35° Celsius must be avoided. Training raises the body temperature and vital body organs may start malfunctioning when the body temperature is too high.
- 1.35. Varicose veins** Training generally improves the veins but increased blood flow b=may be painful. Elastic supports should be worn.

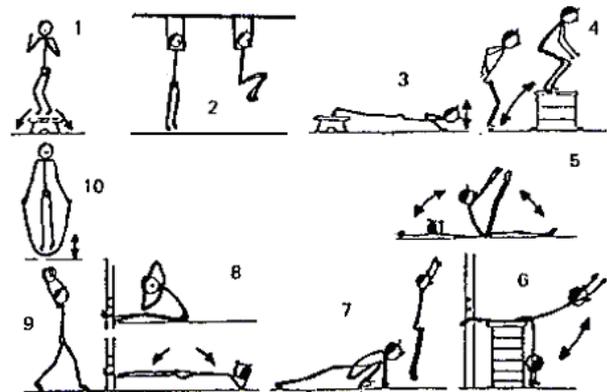
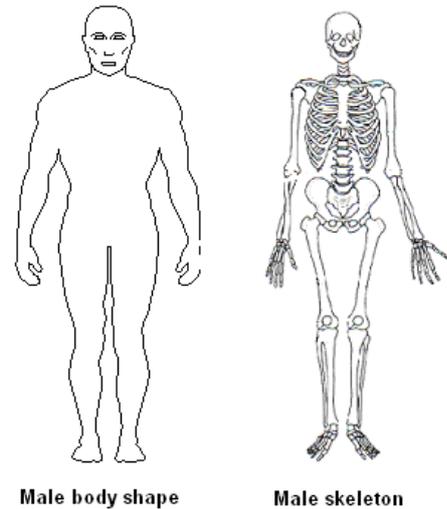
2. AGE

Age affects the strength and resilience of muscle tissue. There are two important stages where age creates an injury risk:

2.1. DURING GROWTH

- The greatest challenge with the growing child is that the skeletal growth and muscle growth is often not in harmony, which creates injuries.
- Growth takes place at different rates during a child's life and varies from individual to individual according to gender and heredity.
- Different parts of the body grow at varying rates. The most dramatic is the development of the skeleton.

- Infant bones are pliable and are composed mainly of soft bones called cartilage. As the bones absorb calcium, they harden and lengthen.
- Although growing bone is softer than mature bone, it has less pliability. It is 'plastic' but not 'elastic'.
- This means that the bone will tend to bend or distort under pressure but it will not readily return to its previous shape.
- On the other hand, the development of muscles is on average about 1,5 to 2 years behind that of the bones.
- With excessive strengthening of muscles, muscular strength can soon exceed that of the connecting tendons and their insertions.
- This can result in injuries, in which tendons are damaged or attempt to pull free from the bones, which is called avulsion injuries.
- The greatest problem with athletics and the growing child is that the skeletal growth and muscle growth is often not in harmony, which creates injuries.
- Training can stimulate cartilage growth and develop a strong junction between the muscle tendons and the bones.
- Young boys should start training with heavy weights only when they are 16 years of age, while girls can do so at 14 years of age.
- Young athletes need to gain strength by becoming competent in handling their own bodyweight before they ever contemplate entering the weight training room.
- Circuit training, which uses body weight or lighter weights, is recommended during the growing phase.



Some examples of strength training exercises using body weight are illustrated.

2.2. MUSCLE DEGENERATION (AGEING)

Muscular strength begins to decline at the relatively early age of 30 to 40 years. The elasticity in tendons and ligaments decreases from the age of 30 and the strength of bone after the age of 50.

Training will delay the natural degeneration of muscles, tendons, ligaments and bone structure. The athlete will reach his physical peak between 20 and 40.

After the physical peak, an imbalance will again occur due to the difference in degeneration of muscles and bone.

2.3. EXPERIENCE

The novice athlete often suffers more from injuries than experienced athletes due to a lack of skills. Developing the skills of the novice athlete is very important. It should not be seen as a means of improving performance only. It should also be seen as a means of preventing injury.

Good skills give you better control over the body. Through regular technique training for instance, the mental ability to read a situation improves, and the body can be controlled better. Skills training also give the mind the ability to 'read' a situation and to know if there is risk involved in the movement.

Skill exercises also include relaxation exercises. If the body relaxes, movement will be automatic, fast and smooth, but tension will break the reflex nature of skilled performance down and increase the risk of injury.

The experienced athlete will also know when the point of exhaustion is reached. Fatigue also causes a breakdown of skills. When the body is over trained, the tendency is to take a short cut, resulting in injury.

2.4. LEVEL OF TRAINING

Injuries occur more often at the beginning and towards the end of a competition season. Training load must be increased gradually at the beginning of a season and even more slowly for a novice. Overuse and over- training problems are common during the period when training load increases.

Towards the end of the season or competition, the fatigue level is very high. This causes a lack of concentration or shortage of energy in the muscles, which creates a high injury risk.

The muscular and cardio-respiratory system that transports oxygen to the muscles must be improved. Injury risks are much smaller when an abundance of oxygen is present in the muscles.

When developing strength, it is important to improve the muscle strength relevant to that particular event. A correctly strengthened muscle is more resistant to injury.

Stretching the muscle frequently is also very important. Muscles that are not flexible are at risk of tearing. More flexibility leads to higher performance levels due to muscles that are more relaxed. Relaxed muscles use less energy, which delay exhaustion and reduce the injury risk.

2.5. WARMING UP

An insufficient warming-up period may contribute to muscle and tendon injuries. Muscles should be warmed up to:

- Increase the blood circulation to enable the oxygen to reach the muscles.
- Increase the temperature of the muscles to improve metabolism in the muscles.

Prepare the athlete mentally and physically to adjust to the sudden increase in movement. Be able to relax. Relaxed muscles contract and relax faster when warmed up.

Warm up systematically. Start at the head and work your way down to the feet.

2.6. NUTRITION

A balanced and nutritious diet that includes adequate fluids is a prerequisite to avoid injury. It will help the athlete to recover faster between training sessions or after a competition.

The athlete's diet must meet his / her energy requirements. Athletes should eat something easily digestible and high in energy 2 - 4 hours before training or competition.

2.7. HEALTH

Health problems, e.g. infections and flu like illnesses, increase the risk of complications such as inflammation or muscle spasms.

No athlete should participate in training or competition until his body temperature has returned to normal after illness.

2.8. ENVIRONMENT AND RULES

Any equipment or attire not in use must be removed from the competition area to avoid tripping over it. Many injuries happen this way. The equipment in use must be placed where there is no potential for it to become an injury risk.

Equipment used during training or competition must be adequate, well designed and effective. Take time to check your equipment every time for sharp edges, cracks, etc. before you use it.

Surfaces of tracks have different characteristics. Grass surfaces tend to be more slippery than synthetic tracks when wet and harder when dry. Choose the correct foot wear for the surface on which you are about to compete. Reduce the risk factor by varying the surface for training.

The lighting of the area of competition may affect your judgement of distance, the perception of colour and the athlete's visual acuity.

Unsuitable weather conditions increase the risk of injury.

- In cold weather a longer warming-up period is needed.
- On hot days the body temperature is high and must be kept cool. This does not mean that the athlete should not warm up.
- On windy days athletes can easily misjudge their approach run in the field events, etc.

Personal clothing can be faulty or insufficient. Nylon clothing is often cheaper than natural fibre, but is bad in hot weather, because it does not "breathe" properly.

Each event has certain rules to obey. These rules are there to protect the athlete from injuries or somebody else. Obey the rules to prevent injury risk.

2.9. TREATMENT

An athlete recovering from a previous injury must increase a training load gradually. Injuries normally occur due to specific weaknesses in the muscles. Those weaknesses still exist when the athlete starts training again.

Special care must be taken. Identify those weaknesses and strengthen them before a 100% training load can be tackled. Use protective strapping on injured joints during the phase-in period to avoid overuse.

3. STAGES OF INJURY CARE

The disruption or tearing of soft tissue is found in most injuries. The vessels that supply the tissues with blood are also ruptured. This leads to a blood flow into and around the site of the injury. This causes pain, swelling and discoloration.

Sometimes the muscle fibre will tear only in the centre of the muscle, causing internal bleeding. Pain and swelling will also be experienced but no discoloration. This type of injury takes much longer to heal, because blood-flow through this area is restricted. There are 3 stages of injury care:

3.1. THE ACUTE STAGE (0 - 24 HOURS)

The first 6 hours are most vital. The bleeding must be stopped as soon as possible.

Proper management in this stage will reduce the recovery time of the injured area dramatically, sometimes with a few weeks.

3.2. MIDDLE STAGE (24 - 48 HOURS)

This is usually the time where the most discomfort is experienced. The injured area must be kept as still as possible to avoid its returning to the first stage. Further cooling must be done if necessary.

Replace the compression bandage with a support bandage. In serious cases medication or even an operation will be needed.

Ensure the regular use of the medication prescribed by the doctor. No therapeutic treatment must be done during this stage to avoid the injury bleeding again.

3.3. FINAL STAGE (48 HOURS +)

By this time bleeding has stopped and no danger of injury bleeding again exists. Therapeutic treatment must be applied during this period to speed up the recovery time.

4. STEPS THAT MUST BE TAKEN DURING THE ACUTE STAGE

4.1. (0 - 24 HOURS) IN ORDER OF PRIORITY:

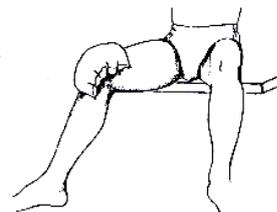
The four steps of treatment are commonly referred to as the R. I. C. E. principle. (rest, ice, compression, elevation) and is described below:

4.2. REST

Immobilise the injured limb immediately to avoid movement

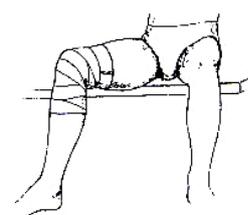
4.3. ICE

Apply ice, anything cold or water on the injured area as soon as possible. When ice is applied directly to the skin, it should be kept in a light circular motion to avoid it from burning the skin. Remove the ice after 4 minutes for about two minutes and apply again. This must be done to avoid frostbite. Continue until the bleeding stops.



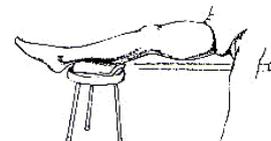
4.4. COMPRESSION

Compress the injured area by wrapping a sterile bandage or tape directly around the injured area. Take note that the limb does not turn blue. This is an indication that the bandage restricts the blood supply. If no bandage is immediately available, apply direct manual pressure until a bandage is found.



4.5. ELEVATE

Lift the injured part above the level of the heart to reduce the blood pressure. Let the athlete lie down before this is done.

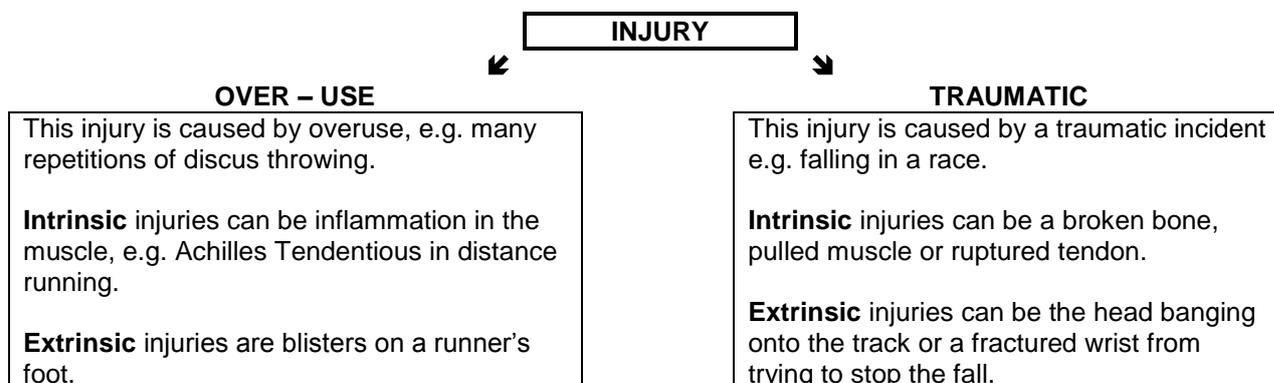


5. TYPES OF INJURIES

There are 5 different categories of injuries. They are skeletal injuries, joint ligament injuries, dislocations, muscle injuries and tendon injuries. All injuries except skeletal injuries can be classified as soft tissue injuries.

Soft tissue injuries in skeletal injuries are secondary. The more common types of soft tissue injuries are bruises, cuts, scrapes or abrasions, strains and sprains.

In each case the degree of injury to muscles, tendons and ligaments can be classified as mild, moderate, severe or avulsion. Two types of injuries normally occur.



6. HARD TISSUE INJURIES (SKELETAL INJURIES)

Skeletal injuries such as fractures are more common in contact sports than in athletics.

When you do have to deal with bone that is cracked or fractured, the aim is to stabilise the bone to avoid any further movement, without trying to return the fractured ends.

Apply the **R. I. C. E.** principle and get the athlete to a doctor or hospital as soon as possible. The biggest problem with fractured bone is that when it moves, the sharp fragments of bone cut the surrounding soft tissues. This causes more bleeding and swelling. More bleeding causes a longer healing process.

Once the broken bone is stabilised by the doctor, and all bleeding is stopped, the injured area must be kept warm for at least 4 weeks.

This can be done by cutting the bottom end of a nylon stocking and pull it over the injured area. Calcium intake must also be increased for 4 weeks. This precaution is necessary to avoid problems such as arthritis occurring in later years.

7. INTERNAL SOFT TISSUE INJURIES

7.1. MUSCLE STRAIN OR AVULSION

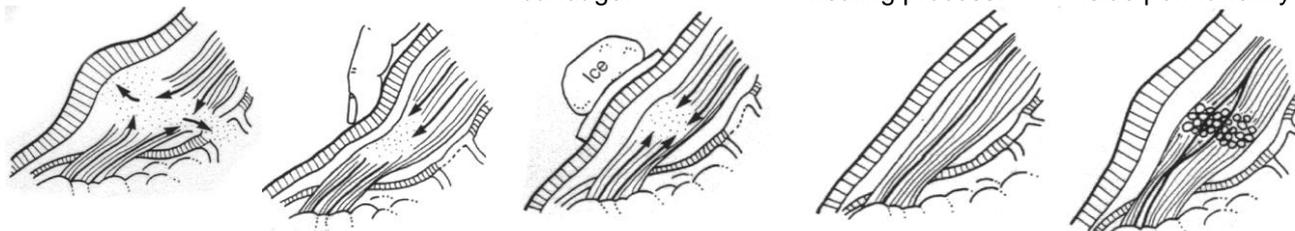
When a muscle strain or avulsion takes place, the muscle fibres are broken, causing blood to flow into the immediate surroundings. This causes swelling, discolouring and localised pain.

As soon as this happens, pressure must be applied to the area. The pressure will reduce the area where leakage takes place, and will guide the blood through the injured area back to the heart.

Put ice onto the area as soon as possible to reduce the swelling and to encourage coagulation (clotting) of the blood. This will form a natural wall, and will keep the blood inside. Continue putting pressure onto the muscle by means of a compression bandage.

After three to six weeks stretching and light exercise must be done. This is necessary to increase blood circulation in the injured area. The increased blood circulation will wash away the waste in the area and increase the healing process.

If the **R. I. C. E.** principle was not applied, stretching and exercise not done, waste will remain in the area. The muscle will form a knob and restrict future movement of the muscle permanently. The fibres grow around the waste, keeping it inside permanently.



7.2. TENDON INJURIES

A muscle is usually attached to a bone by a tendon through which the effects of muscle contraction are conveyed.

The muscle produces force only when contracting and this has a stretching effect on the tendon. In a normal resting state, a tendon has a wavy configuration, but if it is strained, the wave pattern disappears and the fibres are subjected to stress and will tear when too much stress is applied.

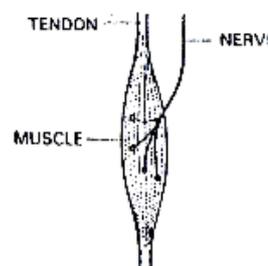
Tendon injuries (tendentious) are normally a result of over-use. However, sprains and strains can also occur due to unforeseen circumstances such as:

- Accidentally stepping on the kerb, or on the foot of an opponent.
- When tension is applied quickly and sustained without adequate warm-up.

When the avulsion is of a tendon, such as the Achilles Tendon at the back of the heel, the belly of the muscle to which the tendon is connected will probably go into spasm.

Tendon injuries take very long to heal. Much less blood circulation takes place than in the thicker part of the muscle.

Blood circulation in the injured area is necessary to carry nutrients to the muscle to speed up the healing process.



7.3. JOINT LIGAMENT INJURIES

There are three types of joints:

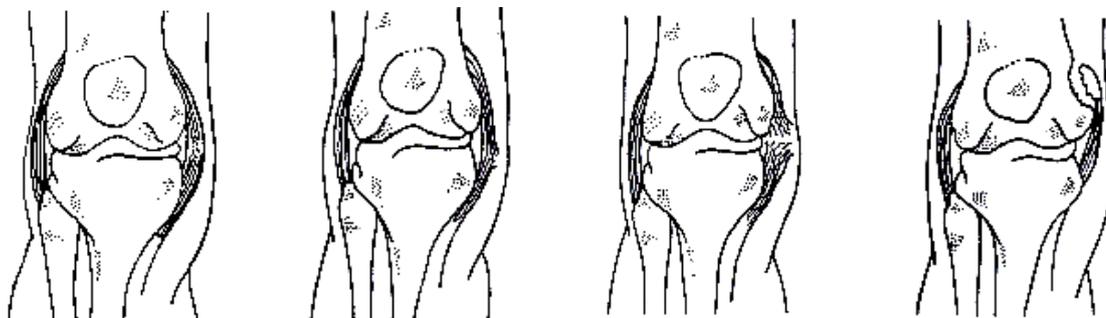
- Immovable joints such as the joint between the first rib and the sternum.
- Slightly moveable joints such as the joints between the bodies of the vertebrae.
- Freely moveable joints such as foot, knee, hip, shoulder and wrist joints.

It is the freely moveable joints, which give most problems among athletes.

- With mild and moderate injuries the muscle is not completely torn and the joint will be stable.
- Often the athlete does not feel them till he cools down. Within 24 hours there will be a local tenderness and a restricting pain when he is moving. The athlete will be able to complete the event.
- With severe and avulsion injuries the athlete will be forced to stop. The joint will be unstable and have to be supported.

This is usually the result of a violent contraction against resistance such as squats in weight training or a sudden change in direction when an athlete fall on the track in front of you during a race.

KNEE LIGAMENT INJURY



An avulsion can take place in three ways.

- It can tear in the centre of the ligament or muscle.
- It can tear off the bone cleanly.
- It can tear off, pulling a piece of the bone along as shown in the sketch above.

The latter is very common among young growing athletes whose muscular strength has outgrown the strength of the attachment to the bone. Ankle injuries take place mostly in a violent outward (supinating) or inward (pronating) motion.

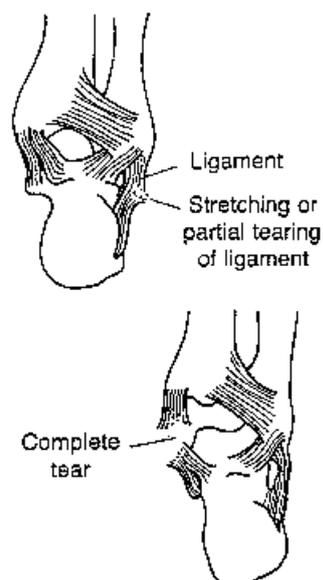
The sketch shows a mild ankle injury during supination.

This normally happens when the athlete steps on the kerb or on the foot of an opponent.

Due to the easier outward movement, this injury happens very easy, and is very common among all athletes.

The sketch shows a severe ankle injury during pronation. When it happens, the athlete may be aware of a sudden snap followed by intense pain.

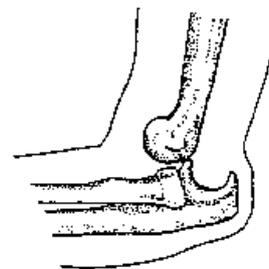
The inward movement is more restricted than the outward movement and injury in this direction is not that frequent. It is common in cross-country races.



7.4. DISLOCATIONS

The sketch shows a dislocated elbow. Dislocations do not happen frequently in athletics, but can happen in serious cases where athletes fall, or when implements in field events are delivered wrongly. Dislocations are normally associated with tearing of ligaments, serious pain, swelling and in serious cases the pulse cannot be felt.

Apply the R. I. C. E. principle, demobilise the limb and take him to hospital. Do not under any circumstances try to relocate the joint.



7.5. OVERUSE INJURIES

The many repetitions done in athletics to bring certain skills to perfection, cause overuse injuries.

7.6. KNEE

7.6.1. PATELLA

Symptom

Pain is experienced on the patella during walking, running or climbing steps. The knee can be swollen. A grinding feeling is felt inside the knee.

Cause

The injury happens when the wrong shoes are worn. The feet pronate (feet turn inward). When you have fallen on the knee.

Treatment

Strengthen the inside upper leg muscle (vastus medialis). Ensure the correct running technique. Use the correct shoes.

7.6.2. RUNNER'S KNEE

Symptom

Pain is experienced around the patella during walking, running, or climbing steps or even when sitting down.

Cause

The ankle pronates (flat feet). Wrong shoes. Wrong training methods. Uneven training surfaces.

Treatment

Develop foot muscles. Reduce training or resting. Put ice on after every training session for 10 minutes.

7.7. LOWER LEG

7.7.1. STRESS FRACTURE OF THE LOWER LEG (FIBULA)

Symptom

Pain is experienced on the shins about the width of your hand above the foot when you walk or run. It is tender when you touch it.

Cause

Running on the inside of the feet. Sudden change of training. Too much training too fast.

Treatment

R. I. C. E. Wrap a bandage around the leg.

7.7.2. SHIN SPLINTS

Symptom

The muscle next to the shin is tender, and knobby. Discomfort is experienced in three stages: Discomfort not localised after training. Increases during training. Cannot walk - stress fracture.

Cause

Excessive ankle pronation (flat feet) Not sufficient shock absorption, e.g. running with too long strides.

Treatment

R. I. C. E. Correct running shoes Heel inserts in shoes (short term solution only) Feet exercises Correct running technique Strengthen shin muscle by picking up toes against resistance

7.7.3. CHRONIC COMPARTMENTAL SYNDROME (Sometimes Confused With Shin Splints)

Symptom

Pain starts with training, but disappears after training. Pain becomes progressively worse and is clearly localised. The muscle loses its softness and becomes hard. Pain is experienced in the muscle, not in the bone. Weakness, lameness, change and skin-sensation in the muscle are experienced. The feet may even become numb.

Cause

Not enough space in the muscle compartment. The muscle is too big for the compartment. The pressure prevents blood flow.

Treatment

Only surgical intervention.

7.8. BOTTOM END OF CALF

7.8.1. ACHILLES TENDONITIS (INFECTION)

Symptom

Pain at the bottom end of the muscle. Achilles forms a knob. Achilles is stiff in the morning. Pain when running and when standing on toes, on starting, but not on landing.

Cause

Excessive foot pronation. Insufficient shock absorption. Too much too fast.

Treatment

R. I. C. E. Anti - inflammatory treatment. Correct running technique. Put 15 mm thick rubber strip under the heel.

7.9. FEET

Most of the foot and lower leg injuries could be prevented or rectified by correcting the placing of the feet. Pronation is when foot placing moves inwards, it is referred to as a flat foot. Supination is when the foot moves outwards and can be recognised by the abnormally high foot arc. Both deflections can be rectified by spelling the alphabet in capital letters with the feet on the ground. Do it once a day for at least 6 weeks. Pick up pebbles with the feet and put them in your hand. Buy shoes specifically designed for pronation or supination



NORMAL



PRONATE



SUPERNATE

7.9.1. TENDER HEEL

Symptom

Feel like needles being stuck into the heel when it touches the ground. Tender when pressed on with the thumb.

Cause

Occurs mostly among young growing athletes in the age group 12 - 14.. Bone grows faster than muscles.. Overuse of growing points of the heel.

Treatment

Place 15 mm thick rubber strip under the heel in the shoes. If this does not help, stop running. Ride a bicycle or swim.

7.9.2. ARCH OF THE FOOT

Symptom

Pain and sometimes swelling on top of the arch. It is tender when the affected area is pressed on, but the rest of the foot is not tender.

Cause

Not sufficient support underneath the arch.
Supporting sponge underneath the arch is too low.
Shoe is too narrow for the athlete.

Treatment

Put ice on.
Loosen shoelaces.
Get new shoes or stretch old shoes.
Check if supporting sponge in the shoe is sufficient.
Check if supporting sponge in the shoe is not taking up too much space.

7.9.3. UNDERNEATH FOOT ARCH

Symptom

Burning feeling underneath foot.
Shoes feel too small.
Shoelaces feel too tight.
Flat feet.

Cause

Feet muscles relax and arch drops.
Too much long distance training.
Not enough foot muscle exercises.

Treatment

Write the alphabet on the ground with the foot.
Place supporting sponge underneath arch of foot.

8. EXTERNAL SOFT TISSUE INJURIES

8.1. BLISTERS OR HAEMATOMA

Blisters develop as a result of persistent rubbing against unprotected skin.

TREATMENT

Dip a sterilised needle with cotton into an antiseptic. Prick the 'bubble' and allow the fluid to drain. Push the needle through both sides of blister and drag cotton through blister. The antiseptic will remain inside the blister. Do not remove the skin.
Cover it with gauze and slippery adhesive tape. Grease the outside of the adhesive tape with Vaseline or soap. Wear two pairs of socks.

9. OTHER COMMON PROBLEMS AND ILLNESSES

9.1. CRAMPS

Cramps are a result of an involuntary shortening of the muscle. It is normally caused by an imbalance between mineral salts and water normally as a result of too excessive sweating. Drink water regularly to avoid the problem.

Cramps are sometimes caused by a lack of suppleness of the muscles. More suppleness exercises should be done. The most common place where cramps occur is in the calves. Let the athlete lie on the back, straighten the leg and push the toes slowly towards the knee. This will straighten the cramped calf muscle again.

9.2. STITCH IN THE SIDE

Various causes can lead to a stitch in the side. A meal prior to a race consisting of too many proteins will cause gases in the stomach.

Abnormal breathing habits e.g. shallow breathing will cause a stitch in the side. Shallow breathing will cause the lungs not to be fully filled. As a result more frequent breathing takes place and the diaphragm is overused. Breathe deeper when running.

When the muscles in the torso were not stretched properly, it will not be ready to cope with the accelerated lung activities.

When stomach muscles are underdeveloped the athlete will experience discomfort in the form of a stitch in the side. To determine if the stomach muscles is underdeveloped, let the athlete lie on the back with the legs pointing upwards in a 90° angle with the torso. The coach stands at the head of the athlete and hold the feet. Push the feet forward fast towards the ground. If the athlete cannot stop the feet before it touches the ground, the athlete's stomach muscles are too weak.

9.3. COUGH

A cough is an explosive protective action of the respiratory system (lungs) preventing mucus and foreign bodies entering the air passages.

It is a common symptom of numerous illnesses but can be symptomatically relieved by cough suppressants and decongestants. Steam or menthol inhalations are quick relievers of the symptoms.

9.4. SORE THROAT

It could be due to a sinus drip in the back of the throat. The majority of sore throats are due to viral infections. An imbalance of nutrients that protect you against infections can lead to sore throats.

Excessive inhaling over long periods of time such as running a marathon can cause a sore throat. It is due to a lack of fluids that protect it.

Drink plenty of warm fluids. Dissolve two Paracetamol tablets in water, gargle well and then swallow. Repeat every 6 hours.

9.5. FLU OR COLD

The first symptom will be a running nose, followed by a cold and finally by flu. A chronic imbalance of mineral salts and water in the body leads to a cold or flu. The diet of the athlete must be controlled and more water must be drunk. Start training again only after your temperature has stabilised.

A running nose is normally an early sign of flu. Drink flu medicine and increase vitamin C intake to stop the flu before it has developed properly.

9.6. SINUS

The first symptom is normally a sore throat and a sensation of something in the throat that needs to be swallowed. A continuous sinus drip at the back of the throat will disturb the balance of the fluids in the stomach and will give the same symptoms as flu.

No flu remedy will help unless the sinus is dried up, then the flu symptoms will disappear automatically.

9.7. TIRED OR LAME FEELING

It is very common during the competition season or during high intensity training sessions. It is normally due to a lack of iron and vitamin B and C in the body. Drink a nutrient supplement and reduce the training load slightly until you feel stronger.

9.8. EXCESSIVE SWEATING

It appears when athletes are very tense or if they are ill. It will also appear when too much protein was taken in.

9.9. VOMITING

Vomiting is a symptom of a variety of illnesses and viral infections, or dietary indigestion caused as a result of intensive training too soon after a large meal was eaten.

Once the vomiting stopped, drink small amounts of non-gaseous fluids often throughout the day. After excessive vomiting, dioralyte or rehydrat should be taken in with the fluids at regular intervals.

9.10. DIARRHOEA

Diarrhoea is a common symptom of viral infections, dietary indiscretion, or a change in the chemical composition of the food, especially in foreign countries. It may be experienced if the athlete experiences high levels of tension over time.

Diarrhoea may be accompanied by abdominal pain. If the symptoms continue for more than 1 day seek medical attention.

Reduce food intake and drink small amounts of non-gaseous fluids regularly, especially prepared formulations such as Dioralyte, Imodium, etc.

10. TRAINING WHEN INJURED

An injury does not mean the end of the world. By planning your training session properly, all other muscles not affected by the injury can be exercised. The following exercises can be used.

10.1. WATER TRAINING

- When the body is in water, gravity is neutralised and the water supports the body. The body must be shoulder deep in the water.
- Follow the same principles as in training on the track. Warm-up, exercise, cool down.
- Training distances for the track can be adjusted to the swimming pool as follows: 600 m running is equal to 100 m swimming. (swimming distance is 6 times shorter than running distance) e.g. a 4 x 400 m running session will become a 4 x 100 m swimming session, etc.

10.2. CYCLING

The same principles as for swimming are applied. However, the distances are calculated as follows:

600 m running will be 3 600 m cycling (6 times longer than running)

10.3. WEIGHT TRAINING

Weight training on weight machines is especially helpful for injured athletes because the injured area can be isolated and protected while the rest of the body is conditioned.

Remember that weight machines offer some degree of support and protection, but free weights develop better joint and muscle control. Incorporate free weights as soon as the injury permits.

10.4. STRETCHING

Suppleness of the muscles must be maintained. Remember to do stretching exercises regularly.

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