

# blister prevention and treatment

## DEFINITION

The word "blister" is a common term, used to describe a fluid-filled sack that forms within the layers of the skin, in response to trauma. Small blisters are known as vesicles (<0.5cm) and larger blisters are known as bullae (>0.5cm).

Blistering of the skin is a common finding in sports people. The soles of the feet are especially prone to developing traumatic blisters of varying size. The most frequent reason for blister formation on the feet is friction, the result of shearing stresses within the layers of the skin.

## LOCAL CAUSES

- Blisters due to friction are produced by irritation from several sources:
  - a) Stones/debris in the shoes
  - b) Shoes that are too loose or ill-fitting
  - c) Improper shoes for an activity
  - d) Mechanical problems causing excessive, abnormal movement of the foot in the shoe
- Fungal infections (tinea pedis) may lead to intensely itchy crops of vesicles under the arches and on top of the feet
- Local allergic reactions, particularly to shoe dyes or chemicals used in the tanning process for preparing leather. This usually occurs in the form of a rash with vesicles in a symmetrical, moccasin shaped distribution on the feet
- Burns and scolds, including sunburn, resulting in bullae
- Insect bites

## SYSTEMIC CAUSES

These result in blisters that usually cover other parts of the body also:

- Acute forms of eczema will show vesicles that erupt and weep
- Pustular psoriasis – non-itchy, sterile yellow/white blisters filled with inflammatory exudate (fluid)
- Adverse drug reactions can cause blisters of various sizes

Occasionally blisters may be filled with inflammatory fluid or blood, indicating deeper levels of skin damage, for example a blood filled blister under the nail plate (black toe). This form of blister is common in tennis players, runners and footballers due to the repetitive impact of the toes against the upper surface of the shoes. The most frequent causes are shoes that are too short or inappropriate for the sport. Blood from ruptured capillaries collects beneath the nail plate causing a characteristic red/purple



discolouration and a blister which can throb and be acutely painful.

## BLISTER PREVENTION OF THE FEET

1. Always dry your feet well, especially between your toes
2. If you have moist skin, use surgical spirit daily to reduce sweat production and to toughen the skin for added protection prior to a sporting event
3. Wear socks made of natural fibres to absorb excess moisture eg. cotton, wool
4. Turn socks inside out to avoid irritation from thick seams or invest in double layered anti-blister socks from specialist sports shops
5. Check shoes regularly for debris such as grit and stones
6. Make sure the inner soles are not cracked or worn out; rough surfaces will increase shearing stresses on the skin
7. Try shock-absorbing, anti-shear insoles
8. Make sure your shoes are designed for the activity you are using them for
9. Make sure the shoes fit properly. They should be the correct width, length and depth and there should be approximately a 1.5cm gap between the longest toe and the end of the shoe
10. Shoes should always have a fastening, preferably in the form of a lace, to hold the foot firmly in place and prevent unnecessary shearing stresses
11. If your shoes fit properly there should be no painful wear-in period
12. Avoid man-made materials like nylons or plastic coated leathers, which do not allow the feet to breathe
13. Protect areas that are prone to friction with plasters or over-the-counter blister protectors
14. If blisters are a persistent problem, seek advice from a state registered chiropodist/podiatrist who can assess your feet for any mechanical dysfunction and correct this by issuing orthotics (shoe inserts) where necessary
15. Apply sunscreen to your feet in hot countries to protect them from excessive exposure to ultra-violet light and avoid walking barefoot on hot sand

## TREATMENT OF BLISTERS

- Remove causative factors where possible ie. avoid shoes which are rubbing

- Cover the blister with a plaster or an over-the-counter blister protector
- Do not burst the blister, this can lead to infection. The fluid inside blisters aids the healing process and protects any exposed nerve endings by anaesthetising the area
- Additional protection can be given to the blister by applying an apertured pad (a pad with a hole or gap in which the blister sits) or wearing cushioning insoles
- If the blister bursts, clean the area with warm salty water and apply a sterile, antiseptic dressing. Try to keep the area dry until the blister heals
- If the blister is very large, tense or painful, or you suspect an infection, seek professional medical advice
- Black toenails usually resolve without treatment although the nail may fall off and discolouration of the nail can last between 12-18 months as toenails grow very slowly. Treatment from a state-registered chiropodist/podiatrist may be required if this condition is acutely painful; this will usually involve releasing the pressure under the nail
- If you suspect a fungal infection (ie. if the pain is not getting better, the area continues to be red coloured or hot and there is continued presence of pus)
  - a) use an astringent anti-fungal spray for moist infections (soggy, white skin often between the toes) - ask your pharmacist for further advice on these sprays
  - b) use an anti-fungal cream for dry infections (dry flaky skin often found under the arch or on the sides or top of the foot) - again ask your pharmacist for advice. If there is no improvement within a week, or if symptoms deteriorate, seek professional advice from a state-registered podiatrist/chiropodist
- If you suspect a systemic cause (eg. eczema or psoriasis which often affects more areas than just the feet) seek medical advice from your GP.

