

# Avoiding and Treating Blisters

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**W**hether you hike, row, run, or shoot hoops, blisters are almost as much a part of the action as sweat is—but they don't have to be. You can take measures to avoid them. And if you develop a blister, you have several options for lessening the pain and lowering your risk of infection.

## **Cause and Effect**

Blisters form when the skin rubs against another surface, causing friction. First, a tear occurs within the upper layers of the skin (the epidermis), forming a space between the layers while leaving the surface intact. Then fluid seeps into the space.

Soles and palms are most commonly affected for several reasons. The hands and feet often rub against shoes, skates, rackets, or other equipment. Blister formation usually requires thick and rather immobile epidermis, as is found in these areas. In addition, blisters form more easily on moist skin than on dry or soaked skin, and warm conditions assist blister formation.

## **Keeping Blisters at Bay**

To prevent blisters, you need to minimize friction. For the feet, this begins with shoe selection. Shoes should fit comfortably, with about a thumb's width between your longest toe and the end of the shoe. Narrow shoes can cause blisters on the big toe and little toe. A shallow toe box can lead to blisters on the tops of the toes, while loose shoes can create blisters on the tips of the toes.

Buy shoes specific for a sport. When trying on shoes, be sure to wear the same socks, insoles, or orthotic inserts that you wear when playing or working out. Try on shoes in the afternoon or evening, because feet tend to swell during the day. Walk or jog around the store before buying them and then wear the shoes around the house for 1 to 2 hours to identify any areas of discomfort. It often helps to break in shoes by wearing them for 1 to 2 hours on the first day and gradually increasing use each day.

Socks can decrease friction between the feet and shoes. Layering of socks or special double-layered socks can minimize shearing forces. Socks made from polypropylene or other new synthetic can wick moisture away from the skin more effectively than wool or cotton can, further decreasing the likelihood of blisters. You can also carry extra pairs of socks to change into if your socks become too damp.

Another preventive measure is to use padded insoles to decrease friction in a specific area. Drying agents can also help. Foot powders and spray antiperspirants that contain aluminum chlorhydrate or aluminum chloride are inexpensive ways to decrease moisture. Nightly application of pre- scription-strength 20% aluminum chloride hexahydrate (Drysol) provides more effective drying.

A thin layer of petroleum jelly can also be applied to the feet to decrease friction. Conditioning the skin by gradually increasing activity tends to lead to formation of protective calluses rather than blisters. Finally, you can apply cloth tape or duct tape over areas prone to blistering before you exercise or play a sport.

The same principles of reducing friction apply to hands. Wear gloves if practical, tape areas that are prone to blisters, apply powder or antiperspirants to help keep hands dry, and increase physical activity gradually to help keep blisters away.

## **Blister Care**

If you get a blister, you'll want to relieve your pain, keep the blister from enlarging, and stave off infection. Specific steps depend on the size of the blister and whether or not it is intact. You can treat the vast majority of blisters yourself and need to call a doctor only if blisters become infected, recur frequently, form in unusual locations, or are very severe. Signs of infection include pus draining from the blister, very red or warm skin around the blister, and red streaks leading away from the blister.

Small, intact blisters that don't cause discomfort usually need no treatment. Nature's best protection against infection is a blister's own skin, or roof. To protect the roof, this type of blister can be covered with a small adhesive bandage if practical.

Larger or painful blisters that are intact should be drained without removing the roof. First clean the blister with rubbing alcohol or antibiotic soap and water. Then heat a straight pin or safety pin over a flame until the pin glows red, and allow it to cool before puncturing a small hole at the edge of the blister.

Drain the fluid with gentle pressure, then apply an antibiotic ointment such as bacitracin with polymyxin B (double antibiotic ointment) or bacitracin alone. Avoid ointments that contain neomycin because they are more likely to cause an allergic reaction.

Finally, cover the blister with a bandage. Change the dressing daily—more frequently if it becomes wet, soiled, or loose.

Blisters with small tears are treated the same as those that you have punctured. Blisters with larger tears should be "unroofed" carefully with fine scissors, and the base should be cleansed thoroughly with soap and water or an antibacterial cleanser. Apply antibiotic ointment and bandages as described above.

Additional padding may be necessary for exercise or sports. Ring-shaped pads made of felt will protect small blisters. Larger blisters may require dressings. Some of the many available dressing materials are DuoDerm (ConvaTec, Princeton, New Jersey), Spenco 2nd Skin (Spenco Medical Corporation, Waco, Texas), Vigilon (CR Bard Inc, Murray Hill, New Jersey), and Opsite (Smith & Nephew United, Largo, Florida). Additional, doughnutshaped padding made of felt or lamb's wool may be applied over the area surrounding the blister. Then the entire dressing can be applied to help keep the dressing in place on sweaty skin.

## **Steps for Comfort**

The best way to avoid discomfort and time off from physical activities is to avoid blisters with some of the steps mentioned earlier. But if blisters do surface, prompt treatment will get you back to form quickly and help prevent infection.

**Remember: This information is not intended as a substitute for medical treatment. If you have serious health concerns, consult a physician.**

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