Dr. David A. Lieb, D.P.M.
Board Certified Foot Surgeon: A.C.C.P.P.S.
Fellow: American Society of Podiatric Dermatology
Fellow: American Wound Care Association
Family Foot Care
1 0 Hillcrest Drive, Suite #25
Frederick, MD. 21703
(301) 695-1010
E Mail: Afamilyfootcare@aol.com

How to Prevent and Treat Blisters

Blisters are fluid filled sacs that result from frictional forces that separate skin cells in the upper layer or epidermis of the skin. This area does not have blood vessels. Hydrostatic pressure causes the area of the separation to fill with lymph-like fluid. The higher the frictional forces and the greater the number of times the force is applied across the skin, the increased likelihood of blister development. Moist skin increases friction leading to blisters, while very dry or very wet skin decreases frictional forces, preventing blisters. Foot deformities such as flat feet, bunions, hammertoes, and pump bump (a bump on the back of the heel) increase the chance of blisters.

How to Minimize Blisters

1. Minimize Friction. This begins with shoe selection. Shoes should fit comfortably with a thumb's width (3/8 inch to 1/2 inch) between the longest toe and the end of the shoe. Shoes should be sport specific, and athlete's should wear the same sock, insoles, or orthotics they wear when working out. The shoes should fit in the afternoon or evening since feet tend to swell during the day. New shoes should be broken in by wearing them one hour the first day, two hours the second day, and increasing wear time by one hour per day. You should examine the inside of footwear for seams or rogh areas that often correspond to sites of blisters.

Proper socks can decrease friction and prevent blister formation. Socks made of polyprolylene or other new synthetic materials can wick moisture away from skin more effectively than wool or cotton. Layering socks or double-layered socks can further minimize shearing forces.

Another way to reduce friction is to apply lubricants to areas of the feet that are prone to blistering. Useful lubricants include petroleum jelly, bag balm, dry soap flakes, and non-petroleum anti-chaffing lubricants such as Body Glide (W. Sternoff, LLC) or Runner's Lube (Mueller Sports Medicine, Inc.). These products are waterproof, perspiration-proof, non-greasy, and wash off with soap and water. Another recommendation is to massage both feet with lanolin a month before a big walking and running event. It is better than petroleum jelly since it does not create heat when friction occurs. It is also a good barrier for water in case it rains during the event.

2. Minimize Moisture. Using drying agents such as the antiperspirant Drysol, drying foot powders such as

Zeasorb, and antiperspirant sprays that contain aluminum chlorhydrate or aluminum chloride are inexpensive ways to decrease moisture.

3. Toughening of the Skin. Conditioning of the skin by gradually increasing activity tends to lead to the formation of protective calluses rather than blisters. Applying multiple coats of tincture of Benzoin or soaking feet in strongly brewed tea (tannic acid) are commonly used skin toughening procedures.

4. Shielding of the Skin. Band-Aid Blister Block (Johnson & Johnson, Skillman, N.J.), Dr. Scholl's Cushion Blister Treatment (Schering-Plough Healthcare Products), and moleskin help to shield the skin. Alternatives to moleskin are the "liquid" bandages such as New Skin (Medtech Laboratories), which dries to form a protective covering on the skin.

Treatment. Treatment goals are to relieve pain, to prevent enlargement or infection, and to promote a speedy recovery. Small, intact blisters that do not cause discomfort do not require treatment. Large or painful blisters that do not cause discomfort do not require treatment. Large or painful blisters should be drained without removing the roof. Torn blisters should be unroofed and cleaned with an anti-bacterial cleanser, and then dressed. Do not drain a blister that is filled with blood, since this will significantly increase the risk of infection.