CONDITION

Athlete's foot

Learn how athlete's foot causes an itchy, scaly foot rash, how it spreads, and how antifungal treatment and foot care can help.

WHAT IT IS
Common fungal skin infection of the feet

BODY SYSTEM
Skin

MAIN SYMPTOMS
Itching, scaling, cracked skin, blisters

WHAT CAUSES IT
Fungal infection

HOW IT IS DIAGNOSED
KOH test or fungal culture

MAIN TREATMENT
Antifungal treatment and foot care

CAN IT BE CURED?
Yes, antifungal treatment can clear it

IS IT AN EMERGENCY?
Sometimes, difficulty breathing after medicine

LONG-TERM OUTLOOK
Usually clears but may persist or recur

Overview

Athlete's foot is a common fungal infection of the skin on the feet. Its medical name is tinea pedis . It is a type of ringworm, but no worms are involved. The infection is caused by fungi that feed on keratin, a protein found in the outer layer of skin, hair, and nails.

The fungi grow best in warm, damp places. They can spread through direct skin contact or from contaminated floors, towels, socks, and shoes. Locker rooms, shared showers, and pool areas may provide conditions that allow the fungi to spread, although the infection can occur in anyone.

Athlete's foot often begins between the toes. It may also affect the sole, heel, or sides of the foot. Without effective treatment, the infection can persist, return, or spread to the toenails, hands, or groin. Cracked skin can also allow bacteria to enter, which may lead to a more serious

skin infection.

Many cases can be managed with nonprescription antifungal medicine and steps to keep the feet dry. A clinician can help if the diagnosis is uncertain, symptoms are severe, or the rash does not improve.

Symptoms

Symptoms vary depending on the part of the foot involved and the type of inflammation. One or both feet may be affected.

Common symptoms include:

The most familiar form affects the spaces between the toes, often between the fourth and fifth toes. The skin may become soft, pale, split, or painful.

A pattern sometimes called moccasin-type athlete's foot causes fine scaling and thickened skin across the sole, heel, and sides of the foot. It can resemble ordinary dry skin or eczema. This form may be long-lasting and may occur with fungal toenail infection.

Another form causes itchy clusters of small blisters, usually on the arch or side of the foot. Scratching or breaking the blisters may increase irritation and create openings where bacteria can enter.

Athlete's foot does not always cause intense itching. A persistent patch of scaling or cracking may be the main sign. Other conditions, including eczema, psoriasis, contact dermatitis, and some bacterial infections, can look similar. Appearance alone may not confirm the cause.

- Itching, burning, or stinging, especially between the toes
- Peeling, scaling, or cracked skin
- White, soggy-looking skin between the toes
- Red, pink, gray, purple, or darker patches, depending on skin tone
- Dry, thickened skin on the soles or sides of the feet
- Small fluid-filled blisters
- An unpleasant foot odor

Causes and risk factors

Athlete's foot is usually caused by fungi called dermatophytes . These fungi can survive on shed skin cells and contaminated surfaces. Infection develops when they reach the skin and

find enough warmth and moisture to grow.

The condition can spread by:

Athlete's foot is not simply a result of poor hygiene. People who wash regularly can still develop it, particularly when their feet remain damp or their shoes do not dry fully.

Risk may be higher in people whose feet sweat heavily, who regularly use communal changing areas, or who wear enclosed footwear for work or sports. A history of athlete's foot or fungal nail infection also makes recurrence more likely.

People with diabetes, reduced circulation, loss of feeling in the feet, or a weakened immune system need to take foot problems seriously. Cracks, ulcers, and infections may be harder to notice or heal in these situations. A clinician can advise whether self-treatment is appropriate.

Fungal infection may move between body areas. For example, scratching an infected foot and then touching the groin can contribute to jock itch. Toenail fungus can also act as a source for repeated infection of the nearby skin.

- Walking barefoot on contaminated damp floors
- Sharing towels, shoes, socks, or foot-care tools
- Touching infected skin and then touching another body area
- Wearing damp socks or tight, poorly ventilated footwear for long periods

Diagnosis

A clinician can often recognize athlete's foot by examining the location and pattern of the rash. They may ask when symptoms began, whether the rash itches, which treatments have been tried, and whether similar patches are present on the nails, hands, or groin.

If the appearance is unusual or treatment has not worked, the clinician may gently scrape a small amount of skin from the affected area. The sample can be examined under a microscope after adding potassium hydroxide, which makes fungal structures easier to see. This is often called a KOH test .

A fungal culture or another laboratory test may be used when the diagnosis remains uncertain, the infection is widespread, or oral treatment is being considered. Results from a culture can take longer because the fungus must grow in the laboratory.

Testing can help distinguish athlete's foot from conditions such as eczema, psoriasis, allergic reactions to footwear, excessive moisture damage, or bacterial infection. These problems may require different treatment. Steroid cream like hydrocortisone or betamethasone used by itself can temporarily reduce redness while allowing an unrecognized fungal infection to

spread or change appearance.

Treatment and management

Treatment aims to clear the fungus, heal damaged skin, control moisture, and reduce the chance of recurrence.

Nonprescription topical antifungal medicines are available as creams, gels, sprays, solutions, and powders. Common active ingredients include terbinafine, butenafine, clotrimazole, miconazole, and tolnaftate. These medicines work in different ways, and treatment length varies by product and by the type of infection. Follow the package directions and ask a pharmacist or clinician if the instructions are unclear.

Before applying medicine, gently wash the feet and dry them thoroughly, especially between the toes. Apply the product to the affected skin and the nearby area as directed. Treatment often needs to continue for the full labeled course even if itching and redness improve earlier. Stopping too soon may allow remaining fungi to grow again.

A nonmedicated drying powder may reduce moisture but does not treat the fungus by itself. A powder that contains an antifungal medicine should still be used according to its label.

Avoid applying household bleach or other harsh chemicals to the skin. These can cause burns and may make cracking worse. Evidence for home remedies such as essential oils is limited, and some products can cause allergic or irritant reactions.

Helpful foot-care measures include:

A clinician may prescribe a stronger topical treatment or an oral antifungal medicine when infection is extensive, keeps returning, involves thick skin, or does not respond to appropriate topical care. Oral antifungals can interact with other medicines and may not be suitable for everyone. A clinician may review medical history, current medicines, and possible liver-related risks before prescribing them.

Toenail fungus may require separate treatment. Thick, discolored, brittle, or lifting nails should be discussed with a clinician because untreated nail infection can contribute to repeated athlete's foot.

- Keep feet clean and dry, including the spaces between the toes.
- Change damp or sweaty socks promptly.
- Allow shoes to dry before wearing them again.
- Rotate footwear when possible and choose breathable shoes.

- Wear sandals or shower shoes in shared wet areas.
- Do not share shoes, socks, towels, or nail tools.
- Wash hands after touching affected skin or applying medicine.
- Avoid scratching and do not deliberately open blisters.

Complications

Athlete's foot is usually limited to the outer skin, but scratching and deep cracks can break the skin barrier. Bacteria may then enter and cause cellulitis , an infection of deeper skin tissue. Possible signs include increasing warmth, swelling, tenderness, rapidly spreading redness or discoloration, drainage, and fever.

The fungus may spread to other areas. Infection of the toenails can cause thickening, discoloration, crumbling, or separation from the nail bed. Fungal infection of the groin or hand may also occur.

People with diabetes, poor circulation, reduced foot sensation, leg swelling, or weakened immunity have a greater risk of problems from broken skin and secondary infection. They should consider contacting a healthcare professional early rather than waiting for a foot wound or rash to worsen.

Seek prompt medical care for rapidly spreading redness or discoloration, marked swelling, pus, red streaks, fever, severe pain, or difficulty walking. These are not routine features of uncomplicated athlete's foot.

Call emergency services for severe symptoms such as difficulty breathing, fainting, or confusion, including symptoms that begin after using a medicine. Serious reactions are uncommon, but they require emergency assessment.

Follow up

Mild athlete's foot should begin to improve with correctly used antifungal treatment, although scaling and damaged skin may take time to heal. Check the product label for the expected treatment period.

Arrange routine follow-up with a clinician if the rash does not improve after a full course of nonprescription treatment, repeatedly returns, spreads to the nails or other body areas, or becomes painful. An examination or skin test may show that another condition is causing the symptoms.

Contact a clinician sooner if there are open sores, significant blisters, drainage, or signs of bacterial infection. People with diabetes, poor circulation, reduced foot sensation, or a weakened immune system should seek individualized advice about new foot rashes or skin breaks.

After the infection clears, continue practical moisture-control measures. Keep shared footwear and towels separate, change sweaty socks, and allow shoes to dry. Treating a confirmed fungal nail infection may also reduce recurrence.

Sources

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