CONDITION

Ringworm

Ringworm is a contagious fungal infection that causes a scaly, often ring-shaped rash on the skin.

WHAT IT IS
Contagious fungal infection of skin, hair, or nails

BODY SYSTEM
Skin, hair, and nails

MAIN SYMPTOMS
Ring-shaped rash, itching, scaling, hair loss

WHAT CAUSES IT
Infection with dermatophyte fungi

HOW IT IS DIAGNOSED
Skin, hair, or nail microscopy and fungal culture

MAIN TREATMENT
Topical or oral antifungal medicines

CAN IT BE CURED?
Yes, antifungal treatment usually clears it

IS IT AN EMERGENCY?
No, though severe treatment reactions are emergencies

LONG-TERM OUTLOOK
Usually clears, but reinfection can occur

Overview

Ringworm is a common fungal infection of the skin, scalp, hair, or nails. Despite its name, it is not caused by a worm. The medical name is tinea or dermatophytosis .

The fungi that cause ringworm feed on keratin, a protein found in the outer layer of skin, hair, and nails. The infection is usually limited to these areas and does not spread through the internal organs.

Ringworm can appear on almost any part of the body. Its appearance and medical name change according to the area affected. For example, infection of the feet is often called athlete's foot, while infection of the groin is called jock itch.

Many skin infections produce a circular or ring-shaped rash, but ringworm does not always

form a clear ring. Scalp and nail infections can look very different from ringworm on the body. Getting the right diagnosis matters because eczema, psoriasis, and other rashes may require different treatment.

Ringworm is contagious, but it is usually treatable. Some infections respond to antifungal like fluconazole or terbinafine creams, while infections involving the scalp or nails usually need medicine taken by mouth.

Symptoms

Ringworm on the body often starts as a small, scaly patch. It may gradually spread outward, leaving a clearer area in the centre. This can produce the familiar ring-like appearance.

Common symptoms include:

The rash may be red or pink on lighter skin. On darker skin, it may appear red, purple, brown, grey, or darker than the surrounding skin. Changes in skin colour can remain after the infection has cleared.

Symptoms also depend on the affected area.

Scalp ringworm can cause flaky areas, broken hairs, or patches of hair loss. Some people develop a painful, swollen, pus-filled area called a kerion . This is a strong inflammatory reaction to the fungus rather than a collection of worms or parasites.

Athlete's foot commonly causes peeling, itching, or cracks between the toes. The soles may become dry and scaly. Blisters sometimes develop.

Groin ringworm usually causes an itchy, spreading rash on the inner thighs or skin folds. It does not usually involve the scrotum itself.

Nail ringworm can make a nail thick, discoloured, brittle, or crumbly. The nail may lift away from the skin underneath. Nail infections often develop slowly and are harder to clear than skin infections.

Beard-area ringworm may cause scaly patches, broken hairs, bumps, or deeper inflammation around hair follicles.

- An itchy, dry, or scaly rash
- A raised or slightly bumpy border
- Cracking, peeling, or irritated skin
- One patch or several overlapping patches

Causes and risk factors

Ringworm is caused by a group of fungi called dermatophytes . These fungi grow well in warm, damp environments.

The infection can spread through direct skin contact with someone who has ringworm. It can also spread from infected animals, particularly cats, dogs, guinea pigs, and farm animals. An animal may carry the fungus even when its skin changes are not obvious.

Fungal spores can remain on objects and surfaces. Sharing towels, clothing, bedding, combs, hair tools, sports equipment, or footwear can pass the infection to another person. Walking barefoot in shared changing rooms, showers, and pool areas may increase exposure.

Factors that can make infection more likely include:

Anyone can get ringworm. It is not a sign of poor personal hygiene.

- Sweating heavily or wearing damp, tight clothing
- Taking part in close-contact sports
- Living in a warm, humid environment
- Sharing personal items or sports equipment
- Having small cuts or ongoing moisture between the toes
- Living with someone or a pet that has an untreated infection
- Having diabetes or a weakened immune system

Diagnosis

A healthcare professional may suspect ringworm from the appearance and location of the rash. However, several other conditions can look similar, including eczema, psoriasis, contact reactions, and some bacterial or yeast infections.

To confirm the diagnosis, a small sample may be taken from the edge of the rash, an affected hair, or a nail. The sample can be examined under a microscope after treatment with potassium hydroxide, which helps make fungal structures easier to see.

A fungal culture may also be used. In this test, the sample is placed in conditions that allow fungus to grow. Culture can help identify the type of fungus, but results may take several weeks.

Testing is especially useful when the diagnosis is uncertain, the scalp or nails are affected, or treatment has not worked as expected. A skin biopsy is rarely needed.

Ultraviolet light tests are not reliable for all types of ringworm. A normal light examination does not rule it out.

Treatment and management

Treatment depends on the body area involved, how widespread the infection is, and whether the hair or nails are affected.

Small areas of ringworm on the body, groin, or feet can often be treated with an antifungal cream, gel, spray, or powder. Common antifungal ingredients include terbinafine, clotrimazole, and miconazole. Follow the product instructions or advice from a healthcare professional, including how long to continue after the rash begins to improve.

Scalp ringworm needs an oral antifungal medicine because creams do not reach deeply enough into infected hair follicles. Nail infections and extensive, persistent, or deeply inflamed infections may also need oral treatment.

Oral antifungal medicines can interact with other medicines and may not be suitable for everyone. The choice of medicine can be affected by pregnancy, liver health, age, and the type of fungus. Some people need blood tests during longer treatment courses.

Helpful self-care includes:

Do not use a steroid cream by itself on a suspected fungal rash unless a healthcare professional has advised it. Steroids like prednisone or hydrocortisone can reduce redness while allowing the fungus to spread. This can change the rash's appearance and make it harder to diagnose.

If a household pet may be the source, arrange a veterinary assessment. Treating only the people in the household may not prevent the infection from returning.

- Keeping the affected skin clean and dry
- Washing your hands after touching the rash
- Using a separate clean towel for the affected area
- Changing socks, underwear, or damp clothing regularly
- Avoiding scratching, which can damage the skin
- Completing the full treatment course as directed

Complications

Most cases clear without lasting problems. Scratching can break the skin, however, allowing bacteria to enter. Signs of a bacterial infection include increasing pain, warmth, swelling, pus, or spreading redness.

A severe inflammatory scalp infection can lead to temporary hair loss. If a kerion is not treated promptly, scarring and permanent patches of hair loss are possible.

Ringworm can sometimes spread to other body areas. For example, an untreated foot infection may contribute to fungal infection of the toenails or groin.

In people with weakened immune systems, the fungus may extend deeper around hair follicles. This can cause painful bumps or nodules and usually needs medical treatment. Spread to internal organs is extremely unusual and is not the expected course of ordinary ringworm.

Skin colour changes may remain after the fungus has gone. These marks often fade gradually, but the timing differs from person to person.

Prevention

It is not always possible to prevent ringworm because fungi are common and an infected person or animal may have few visible symptoms. You can reduce the chance of catching or spreading it.

Avoid sharing towels, clothing, shoes, hats, combs, brushes, or sports equipment. Wash clothing, towels, and bedding regularly during treatment, following the fabric's washing instructions.

Wear sandals or other footwear in shared showers and changing rooms. Dry carefully between your toes after bathing or swimming, and change out of sweaty clothes promptly.

Cover affected skin when practical during close-contact activities. Clean shared mats and sports equipment according to the manufacturer's instructions. Do not share equipment until it has been cleaned.

Check pets for patches of hair loss, scaling, or crusting, and seek veterinary advice if ringworm is possible. Avoid touching the affected area with bare skin until the animal has been assessed.

Having ringworm once does not provide lasting immunity. Reinfection is possible.

Living with it and what to expect

Skin ringworm often begins to improve after antifungal treatment starts, but full clearing can take several weeks. Itching and scaling may improve before the skin's colour returns to normal.

Scalp and nail infections usually take longer. Hair needs time to grow back, and a healthy nail must gradually replace the damaged nail. This can take months even after the fungus has been controlled.

If the rash is not improving, it may not be ringworm, the fungus may be less sensitive to the chosen treatment, or there may be an untreated source such as infected feet, nails, household contacts, or pets. Stopping treatment too early can also allow symptoms to return.

During treatment, keep the affected area dry and avoid sharing personal items. Ringworm usually does not require someone to withdraw from everyday life for a long period, but schools, childcare settings, workplaces, and sports organisations may have their own rules.

Most people recover fully. Repeated infections may require a review of possible sources and confirmation that the rash is fungal.

When to get medical help

Arrange routine medical advice if:

Seek prompt medical care for a painful, swollen scalp area, pus, rapid hair loss, worsening warmth or redness, fever, or significant pain. These signs may indicate a kerion or an additional bacterial infection.

Ringworm itself is not usually an emergency. Get emergency help for trouble breathing, swelling of the lips, tongue, or throat, faintness, or a widespread blistering rash after using a medicine. These can be signs of a serious medicine reaction.

- You are unsure whether the rash is ringworm
- The scalp, beard area, or nails are affected
- The rash is widespread, keeps returning, or is not improving
- You have diabetes, poor circulation, or a weakened immune system
- You are pregnant, breastfeeding, or considering oral antifungal medicine
- Other household members or pets may also be infected

Common questions

Is ringworm actually a worm?

No. Ringworm is caused by fungi. Its name comes from the circular shape that the rash sometimes makes.

How contagious is ringworm?

It can spread through skin contact, infected animals, or contaminated objects. The risk usually falls after effective treatment begins, but the exact timing differs by infection site and treatment. Continue hygiene measures and follow local rules for school, work, childcare, or sport.

How long does ringworm take to go away?

Skin infections often start improving within several days of effective treatment and may take weeks to clear. Scalp and nail infections usually take longer. Skin discolouration can remain after the active infection has ended.

Can ringworm go away without treatment?

Some mild infections may eventually improve, but untreated ringworm can persist, spread, or pass to other people. Scalp ringworm should be medically treated because it can cause inflammation and hair loss.

Can I use bleach, vinegar, or essential oils on ringworm?

Do not apply household bleach or disinfectants to your skin. They can cause chemical burns. Evidence for vinegar and essential oils is limited, and they may irritate the rash. Use an antifungal treatment intended for the affected body area.

Why does my ringworm keep coming back?

Possible reasons include stopping treatment early, using a steroid cream, an incorrect diagnosis, or repeated exposure from infected feet, nails, clothing, household contacts, pets, or shared equipment. Repeated or persistent rashes should be assessed and may need fungal testing.

Sources

- Centers for Disease Control and Prevention: About Ringworm
- Centers for Disease Control and Prevention: Clinical Overview of Ringworm
- NHS: Ringworm
- American Academy of Dermatology: Ringworm-Diagnosis and Treatment
- DermNet: Tinea corporis
- Ely JW, Rosenfeld S, Seabury Stone M. Diagnosis and Management of Tinea Infections. American Family Physician. 2014;90(10):702-710