CONDITION

Kwashiorkor

Kwashiorkor is severe malnutrition that causes swelling, muscle loss, and changes in the skin and hair.

WHAT IT IS
Severe malnutrition with swelling and loss of body tissue

BODY SYSTEM
Whole body, especially muscles, skin, liver, and immunity

MAIN SYMPTOMS
Both feet swelling, muscle loss, skin changes, poor growth

WHAT CAUSES IT
Inadequate nutrition combined with infection, inflammation, or illness

HOW IT IS DIAGNOSED
Clinical examination, growth measurements, and bilateral pitting oedema

MAIN TREATMENT
Careful nutritional rehabilitation and treatment of medical complications

CAN IT BE CURED?
Yes - nutritional treatment can reverse it

IS IT AN EMERGENCY?
Yes - severe malnutrition with swelling needs prompt assessment

LONG-TERM OUTLOOK
Often recoverable, but delayed care can cause lasting harm

Overview

Kwashiorkor is a form of severe malnutrition. Its defining feature is nutritional oedema , which is swelling caused by abnormal fluid collecting in the body's tissues. The swelling usually affects both feet and may spread to the legs, hands, face, or whole body.

The condition is most often seen in infants and young children, particularly where reliable access to nutritious food and health care is limited. It can also occur in older children or adults because of extreme food shortage, serious illness, problems absorbing nutrients, or severe dietary restriction.

Kwashiorkor is sometimes described as a protein-deficiency condition. This is an oversimplification. Diet is important, but infection, inflammation, changes in metabolism, and shortages of several nutrients may all contribute. Researchers are still studying why some

severely undernourished people develop swelling while others do not.

A person with kwashiorkor may look less underweight than expected because retained fluid adds to body weight and hides muscle loss. This makes the condition easy to underestimate. Prompt medical and nutritional care matters because severe malnutrition affects immunity, blood sugar, body temperature, the heart, and the ability to handle fluids.

Symptoms

Swelling in both feet is the main identifying sign. Pressing the swollen skin may leave a dent, called pitting oedema . Health professionals assess this carefully because swelling from heart, kidney, or liver conditions can look similar.

Other possible features include:

Not everyone has every feature. Skin and hair changes also differ between skin tones and hair types.

Severe malnutrition can weaken the usual response to infection. A child may have a serious infection without a high fever or other obvious signs. Low body temperature, unusual sleepiness, or a sudden loss of appetite may be more noticeable.

- Loss of muscle and body fat, sometimes hidden by swelling
- Poor growth or recent weight loss
- Tiredness, irritability, reduced interest, or unusual quietness
- Poor appetite
- A rounded or swollen-looking face
- A swollen abdomen or enlarged liver
- Dry, peeling, cracked, or darkened patches of skin
- Thin, brittle, sparse, or unusually light-coloured hair
- Slow healing of skin damage
- Frequent or severe infections
- Diarrhoea or vomiting

Causes and risk factors

Kwashiorkor develops when the body does not receive or use enough energy, protein, and

other nutrients. There is rarely one cause.

Food insecurity is an important risk factor. This means not having reliable access to enough safe and nutritious food. Risk may rise after breastfeeding stops if replacement foods provide too little energy, protein, or variety.

Illness can contribute by reducing appetite, increasing nutritional needs, causing nutrient loss, or preventing absorption. Examples include persistent diarrhoea, repeated infections, HIV, tuberculosis, and conditions affecting the intestines. Infection and malnutrition can reinforce each other: malnutrition weakens immune defences, while infection makes nutritional recovery harder.

Other situations associated with severe malnutrition include:

Kwashiorkor is not caused by one missed meal or a brief period of selective eating. It reflects serious nutritional imbalance, often combined with illness or difficult living conditions.

- Feeding difficulties or limited access to suitable food
- Premature birth or an existing growth problem
- Disability that makes eating or swallowing difficult
- Neglect or social disruption
- Displacement, conflict, drought, or other emergencies
- Cancer, advanced organ disease, or prolonged critical illness
- Conditions that interfere with digestion or nutrient absorption
- Severe dietary restriction or an eating disorder

Diagnosis

There is no single blood test that confirms kwashiorkor. Diagnosis is based on the pattern of swelling, nutritional measurements, medical history, and examination.

A health professional checks whether pitting oedema is present in both feet and how far it extends. Weight, height or length, and mid-upper arm circumference may be measured. These measurements help assess wasting, meaning loss of fat and muscle. Because retained fluid increases weight, weight-based measurements can underestimate the severity of malnutrition.

The assessment also looks at appetite, recent food intake, breastfeeding or feeding history, infections, diarrhoea, vomiting, medicines, and existing health conditions.

Tests may be used to find complications or another cause of swelling. Depending on the

situation, these may include blood glucose, electrolytes such as sodium and potassium, a blood count, and tests of kidney or liver function. Testing for particular infections may also be needed.

Low albumin, a protein in the blood, is common in oedematous malnutrition. However, albumin alone does not diagnose kwashiorkor. Kidney disease, liver disease, inflammation, and other conditions can also lower it.

Treatment and management

Kwashiorkor needs prompt care from a health service experienced in severe malnutrition. Treatment must be introduced carefully because the body adapts to prolonged undernutrition and may not initially tolerate ordinary meals, large fluid volumes, or rapid changes in nutrients.

Hospital care is generally needed when there are medical complications, severe swelling, poor appetite, or danger signs. Some people without complications may be treated through a structured outpatient nutrition programme with close follow-up. The appropriate setting is decided after a medical assessment.

Early treatment focuses on stabilising the body. This may include:

Nutrition is restarted with specially designed therapeutic feeds or foods. The initial goal is safe stabilisation rather than rapid weight gain. As appetite and medical stability improve, feeding is increased to support repair and catch-up growth.

Breastfeeding is usually supported where relevant. Infants younger than 6 months need specialised feeding assessment because their nutritional needs and treatment options differ from those of older children.

Rapidly restarting nutrition after severe deprivation can sometimes cause refeeding syndrome . This is a dangerous shift in fluids and minerals as cells begin using nutrients again. Supervised treatment and monitoring reduce this risk.

Treatment also addresses the reason malnutrition developed. This may involve care for an infection or digestive condition, help with swallowing, family feeding support, food assistance, or safeguarding services.

- Preventing or treating low blood sugar and low body temperature
- Assessing dehydration and fluids cautiously
- Correcting electrolyte and micronutrient imbalances
- Looking for and treating infection

- Protecting damaged skin
- Providing warmth, comfort, and appropriate feeding support

Complications

Untreated kwashiorkor can affect nearly every organ. Possible complications include low blood sugar, low body temperature, serious infection, dehydration, and disturbances in potassium, phosphate, magnesium, or other minerals.

The heart and circulation may be less able to cope with rapid fluid changes. This is why severe dehydration and swelling cannot be managed safely by simply giving large amounts of fluid.

The liver may enlarge because fat collects within it. Skin damage can become painful or infected. Diarrhoea and poor absorption may further reduce nutrition.

During recovery, refeeding syndrome is a possible complication if nutrition changes too quickly. This may affect the heart, breathing, muscles, or nervous system and needs urgent treatment.

Long-lasting malnutrition during early childhood may affect height, learning, movement, and development. The degree of recovery is different for each child and is influenced by how long malnutrition lasted, its severity, repeated illness, and the support available afterward.

Prevention

Many cases can be prevented, but prevention is not always within an individual family's control. Poverty, conflict, displacement, food shortages, and limited access to health care can make adequate nutrition difficult even when caregivers are doing everything they can.

Prevention includes reliable access to enough nutritious food, safe water, sanitation, vaccination, and timely treatment of infections. Support for breastfeeding and age-appropriate complementary foods is also important.

Children with ongoing diarrhoea, feeding difficulty, chronic illness, or poor growth need early assessment. Regular growth checks can identify nutritional problems before severe swelling develops.

For people with conditions that affect swallowing, digestion, or absorption, prevention may require specialist dietary support and treatment of the underlying condition. Community nutrition services and food-support programmes can help when food access is uncertain.

Living with it and what to expect

Early recovery focuses on stabilising blood sugar, temperature, fluids, infection, and feeding. Appetite and alertness may improve as treatment begins, but the timing is not the same for everyone.

Swelling usually decreases during successful treatment. Body weight may initially fall as excess fluid leaves, even though nutrition is improving. For this reason, weight alone does not show whether treatment is working.

Rebuilding muscle, restoring growth, and correcting nutrient shortages take longer. Follow-up over the following weeks and months checks feeding, growth, swelling, infections, development, and the original cause of malnutrition.

Many people recover when treatment begins in time and adequate nutrition remains available. Skin and hair changes are often reversible. Some children experience catch-up growth, but prolonged or repeated malnutrition can leave lasting effects on height or development.

Kwashiorkor can return if food insecurity, feeding problems, infection, or an untreated medical condition continues. Recovery therefore includes practical support at home and in the community, not only therapeutic food.

When to get medical help

Swelling in both feet or legs together with poor growth, weight loss, reduced eating, or signs of malnutrition needs prompt medical assessment. Do not wait for a routine growth appointment.

Seek emergency help now if the person has:

After treatment starts, keep all planned follow-up appointments. Routine follow-up is used to check that swelling stays away, growth and appetite improve, therapeutic feeding is completed safely, and any infection or underlying condition is controlled.

- Difficulty breathing
- A seizure, collapse, or loss of consciousness
- Extreme sleepiness or difficulty waking
- Inability to drink or breastfeed
- Repeated vomiting
- Cold skin or an unusually low body temperature

- Severe weakness or no response to food
- Signs of shock, such as cold hands, a weak pulse, or reduced responsiveness

Common questions

Is kwashiorkor just a lack of protein?

No. Inadequate protein may contribute, but kwashiorkor is more complex. Overall food intake, infections, inflammation, metabolism, and shortages of several nutrients are involved. Giving protein alone is not a safe or complete treatment.

Is kwashiorkor contagious?

No. Kwashiorkor itself cannot spread between people. However, infections that contribute to malnutrition, such as some diarrhoeal illnesses, may be contagious.

Can adults get kwashiorkor?

Yes, although it is most often associated with young children. Adults may develop oedematous severe malnutrition during famine, severe illness, malabsorption, extreme dietary restriction, or prolonged inability to eat.

What is the difference between kwashiorkor and marasmus?

Both are forms of severe malnutrition. Kwashiorkor includes nutritional swelling. Marasmus causes severe wasting without oedema. Some people have features of both, and swelling can hide how much muscle and fat have been lost.

Will the swelling go away?

It often improves with correctly managed nutritional and medical treatment. The timing depends on the severity of malnutrition and any complications. Swelling should not be treated with home remedies or assumed to be harmless.

Can someone fully recover from kwashiorkor?

Full recovery is possible, particularly with early treatment and reliable nutrition afterward. Recovery may be less complete after prolonged malnutrition, repeated episodes, serious infection, or developmental effects during early childhood.

Sources

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