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Rickets

Overview

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Rickets is a disorder caused by a lack of vitamin D, calcium, or phosphate. It leads to softening and weakening of the bones.

NEWS & FEATURES

- [FIRST MENTION; Vitamin D, 1922](#)
- [In Reality, Oliver's Diet Wasn't Truly Dickensian](#)
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REFERENCE FROM A.D.A.M.

Alternative Names

Osteomalacia in children; Vitamin D deficiency; Renal rickets

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Causes

Vitamin D helps the body control calcium and phosphate levels. If the blood levels of these minerals become too low, the body may produce hormones that cause calcium and phosphate to be released from the bones. This leads to weak and soft bones.

Vitamin D is absorbed from food or produced by the skin when exposed to sunlight. Lack of vitamin D production by the skin may occur in people who:

- Live in climates with little exposure to sunlight
- Must stay indoors
- Work indoors during the daylight hours

You may not get enough Vitamin D from your diet if you:

- Are lactose intolerant (have trouble digesting milk products)
- Do not drink milk products
- Follow a vegetarian diet

Infants who are breastfed only may develop vitamin D deficiency. Human breast milk does not supply the proper amount of vitamin D. This can be a particular problem for darker-skinned children in winter months (when there are lower levels of sunlight).

Not getting enough calcium and phosphorous in your diet can also lead to rickets. Rickets caused by a lack of these minerals in diet is rare in developed countries, because calcium and phosphorous are found in milk and green vegetables.

Your genes may increase your risk of rickets. Hereditary rickets is a form of the disease that is passed down through families. It occurs when the kidneys are unable to hold onto the mineral phosphate. Rickets may also be caused by kidney disorders that involve renal tubular acidosis.

Disorders that reduce the digestion or absorption of fats will make it more difficult for vitamin D to be absorbed into the body.

Occasionally, rickets may occur in children who have disorders of the liver, or who cannot convert vitamin D to its active form.

Rickets is rare in the United States. It is most likely to occur in children during periods of rapid growth, when the body needs high levels of

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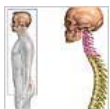
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calcium and phosphate. Rickets may be seen in children ages 6 - 24 months. It is uncommon in newborns.

Symptoms

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Bone pain or tenderness

Arms

Legs

Pelvis

Spine

Dental deformities

Delayed formation of teeth

Decreased muscle tone (loss of muscle strength)

Defects in the structure of teeth; holes in the enamel

Increased cavities in the teeth ([dental caries](#))

Progressive weakness

Impaired growth

Increased bone fractures

Muscle cramps

Short stature (adults less than 5 feet tall)

Skeletal deformities

Asymmetrical or odd-shaped skull

Bowlegs

Bumps in the ribcage (rachitic rosary)

Breastbone pushed forward (pigeon chest)

Pelvic deformities

Spine deformities (spine curves abnormally, including [scoliosis](#) or [kyphosis](#))

Exams and Tests

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A physical exam reveals tenderness or pain in the bones, rather than in the joints or muscles.

The following tests may help diagnose rickets:

[Arterial blood gases](#)

[Blood tests \(serum calcium\)](#)

[Bone biopsy](#) (rarely done)

[Bone x-rays](#)

[Serum alkaline phosphatase](#)

[Serum phosphorus](#)

Other tests and procedures include the following:

[ALP \(alkaline phosphatase\) isoenzyme](#)

[Calcium \(ionized\)](#)

[PTH](#)

[Urine calcium](#)

Treatment

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The goals of treatment are to relieve symptoms and correct the cause of the condition. The cause must be treated to prevent the disease from returning.

Replacing calcium, phosphorus, or vitamin D that is lacking will eliminate most symptoms of rickets. Dietary sources of vitamin D include fish, liver, and processed milk. Exposure to moderate amounts of sunlight is encouraged. If rickets is caused by a metabolic problem, a prescription for vitamin D supplements may be needed.

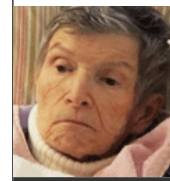
Positioning or bracing may be used to reduce or prevent deformities. Some skeletal deformities may require corrective surgery.

Outlook (Prognosis)

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The disorder may be corrected by replacing vitamin D and minerals. Laboratory values and x-rays usually improve after about 1 week, although some cases may require large doses of minerals and vitamin D.

If rickets is not corrected while the child is still growing, skeletal deformities and short stature may be permanent. If it is corrected while the child is young, skeletal deformities often improve or disappear with time.



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July 26, 2010 7:24pm

Archaeological research in East Timor has unearthed the bones of the biggest rat that ever lived, with a body weight

Possible Complications

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Chronic skeletal pain
Skeletal deformities
Skeletal fractures, may occur without cause

around six kilograms.

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July 26, 2010 7:12pm

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When to Contact a Medical Professional

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Call your child's health care provider if you notice symptoms of rickets.

Prevention

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You can prevent rickets by making sure that your child gets enough calcium, phosphorus, and vitamin D in the diet. People who have gastrointestinal or other disorders may need to take supplements. Ask your child's health care provider.

Kidney (renal) causes of poor vitamin D absorption should be treated right away. People who have renal disorders should have their calcium and phosphorus levels monitored regularly.

Genetic counseling may help people who have a family history of inherited disorders that can cause rickets.

References

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News & Features

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