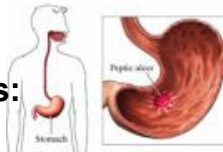


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Peptic Ulcer Disease
Importance: medium

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Ariboflavinosis:

Vit B2 deficiency

Beriberi:

Vitamin B1 deficiency

Goiter: e.a. Iodine deficiency

[Peptic Ulcer Disease](#)

Introduction: What is peptic ulcer disease?

Symptoms

Treatment and Prevention

Information Source Links

Introduction: What is peptic ulcer disease?

Peptic Ulcer Disease is a condition in which the



**Rickets/
Osteomalacia**

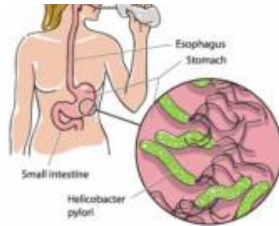
**Insect
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**Air Borne
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**Zoonotic
diseases**

**Hygiene and
Sanitation**



Peptic ulcer

stomach and small intestine lining are slowly eroded away. The peptic causes are an acid-resistant bacterial infection *Helicobacter pylori* bacteria (*H.Pylori*), the heavy use of aspirin and related medications, and disorders that causes excessive acid production in the stomach. And after being out of favour for some years, stress is now regarded as a predisposing factor, for ulcers. As the stomach lining deteriorates and loses its mucus layer protection, the acid erodes the stomach tissue. This specific chain of events results in gastric ulcer. Acid can also erode the tissue lining of the first part of the small intestine, the duodenum, and result in a duodenal ulcer. Peptic ulcer is the general term for both these two cases. Most ulcers in your people occur in the duodenum; in older people they occur primarily in the stomach.

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Symptoms

The typical symptom of ulcer is pain about 2 hours after eating. Digestive acids acting on a meal irritate the ulcer after most of the meal has moved to the jejunum area of the small intestine.

The primary risk associated with an ulcer is the possibility that it will erode entirely through (perforate) the stomach or intestinal wall. The Gastro-intestinal contents could then spill into the body cavities causing a massive infection, called peritonitis. In addition an ulcer may erode a blood vessel, leading to massive blood loss (haemorrhage). For these reasons, it is important not to ignore the early warning signs of ulcer development. Infected persons have an increased lifetime risk of gastric adenocarcinoma. Accurate, inexpensive, and non-evasive tests are available to diagnose H.pylori infection.

Dietary guidelines

In the past, milk, and creamy therapy- the "sippy" diet- was used to help cure ulcers. Clinicians know now that milk and cream are two of the worst foods for an ulcer. The calcium these foods stimulate stomach acid production and actually inhibit the healing of an ulcer.

Treatment and Prevention

Dietary guidelines that may help decrease reflux and/or stomach acid:

- **Eat three small meals and three snacks evenly spaced throughout the day. It is important to avoid periods of hunger or overeating.**
- **Eat slowly and chew foods well.**
- **Be relaxed at mealtime.**
- **Sit up while eating and for 1 hour afterward.**
- **Avoid eating within 3 hours before bedtime. Bedtime snacks can cause gastric acid secretion during the night.**
- **Choose foods from the low fat diet and low fat guidelines in addition to the following diet**
- **Cut down on caffeine-containing foods and beverages, citrus and tomato products, and chocolate if these foods cause discomfort.**
- **Include a good source of protein (milk, meat, egg, cheese, etc.) at each meal and snack.**
- **Antacids should be taken in the prescribed dose, One-hour and 3 hours after meals and prior to bedtime. This regimen is most likely to keep the acidity of the stomach at the most stable and lowest**

level.

- **Milk and cream feedings should not be used as antacid therapy. Although milk protein has an initial neutralizing effect on gastric acid, it is also a very potent stimulator. Hourly feedings of milk have been shown to produce a lower pH than three regular meals.**
- **Caffeine-containing beverages (coffee, tea, and cola drinks) and decaffeinated coffee cause increased gastric acid production but may be taken in moderation at or near mealtime, if tolerated**
- **There is little rationale for completely eliminating any foods from the diet unless a particular food causes you repeated discomfort.**
- **Identify foods that repeatedly cause discomfort or irritability of the stomach and eliminate them from your diet.**

Recommendations to prevent ulcers and Heartburn from occurring or recurring

Ulcers

- **Stop smoking, if you are a smoker**
- **Avoid large doses of aspirin ibuprofen/brufen, NSAID compounds unless prescribed by physician,**
- **Limit consumption of coffee, tea, alcohol (especially wine) if these**

helps

- **Avoid consumption of carbonated drinks, especially with a straw.**
- **Limit consumption of pepper, chilli powder and other strong spices if this helps**
- **Eat nutritious meals on regular schedule, (don?t skip meals), include enough dietary fibre.**
- **Chew your foods well**
- **Lose weight if currently overweight**

Heartburn

- **Wait about 2 hours after meal before lying down**
- **Don?t over eat at meal times, smaller meals that are low in fat are advised**
- **Observe the recommendations for ulcer prevention**
- **Do not lie flat especially after food, raise/lift the bed**
- **Stop smoking**
- **Lose excess weight**

FOODS RECOMMENDED	FOODS THAT MAY CAUSE DISTRESS

<ul style="list-style-type: none"> • BREADS & GRAINS 6-11 servings each day • Whole-grain or enriched, seedless breads, bagels, tortillas, English muffins, hamburger/hot dog buns, dinner rolls, pita bread, and bagels • Whole-grain or enriched cereals • Enriched rice, barley, noodles, spaghetti macaroni, and other pastas • French toast, muffins, pancakes, and waffles made with low-fat ingredients • Low fat crackers 	<ul style="list-style-type: none"> • Very high consumption of breads & grains • Breads and cereals prepared with high-fat ingredients such as croissants, biscuits, and granola-type cereals • Very acidic foods
<p>VEGETABLES 3-5 servings each day</p> <ul style="list-style-type: none"> • Fresh, frozen, or canned vegetables as tolerated 	<p>VEGETABLES</p> <ul style="list-style-type: none"> • Raw vegetables, corn • Gas forming vegetables such as: broccoli, Brussels sprouts, cabbage, onions, cauliflower,

	<p>cucumber, green pepper, rutabagas, turnips and sauerkraut</p> <ul style="list-style-type: none"> • Vegetables prepared with added fat • Tomatoes and tomato products
<p>FRUIT 2-4 servings each day</p> <ul style="list-style-type: none"> • Fresh, frozen, and canned fruits as tolerated • Fruit juice as tolerated <p>Grapefruit and orange sections without membrane</p>	<p>FRUIT</p> <ul style="list-style-type: none"> • Lemons, grapefruit, oranges, pineapples, and tangerines • Citrus juices such as orange, pineapple and grapefruit juice • Berries and figs
<p>MILK & DAIRY 2-3 servings each day</p> <ul style="list-style-type: none"> • Low fat and non-fat milk and milk products • Processed cheese with less than 5 grams of fat per ounce • Plain mild cheeses • Low-fat cottage cheese • Low-fat and nonfat yogurt 	<p>MILK & DAIRY</p> <ul style="list-style-type: none"> • Whole milk and chocolate milk • Buttermilk made with whole milk • Evaporated whole milk and cream • Strong flavored cheeses

MEAT & MEAT SUBSTITUTES

2-3 servings or total of 6 oz daily

- All lean, tender beef, pork, lamb, veal, and poultry (without the skin)
- All fresh, frozen, or canned fish packed in water
- Crisp bacon; lean ham
- Eggs (limit to 3-4 egg yolks weekly)
- Smooth peanut butter and nut butters
- Soybean curd (tofu) and other meat substitutes
- Dry beans and peas prepared without fat
- Soups
- Mildly seasoned meat stock or cream soups made

~~with allowed foods~~

FATS & SNACKS (use sparingly)

MEAT & MEAT SUBSTITUTES

- Highly seasoned, meats, poultry or fish such as corned beef, luncheon meats, frankfurter and other sausages, sardine anchovies
- All fried, fatty or heavily marbled meat, poultry, or fish
- Dry beans and peas prepared with fat or high-fat meat
- Chunky peanut butter and nuts and seeds

FATS & SNACKS

- Gravies, cream soups

<ul style="list-style-type: none"> • Non fat or low-fat dressings and mayonnaise • Mild low fat salad dressings • Mildly flavored gravies and sauces • Butter or margarine (preferably the light or low fat brands) • Sugar, syrup, honey, jelly, seedless jam, hard candies, molasses, marshmallows • Sherbet, fruit ice, gelatin, angel food cake, graham crackers, and nonfat desserts • Pretzels (soft or hard), rice cakes 	<ul style="list-style-type: none"> • Highly seasoned salad dressings • High-fat snacks such as chips, fried potatoes and buttered popcorn • Cakes, cookies, pies, pastries, and doughnuts • Coconut, chocolate, or creamed candy • All sweets and desserts containing nuts, coconut or fruit not allowed
<p>MISC.</p> <ul style="list-style-type: none"> • Salt, pepper, flavorings and most spices and herbs • Ketchup, mustard and vinegar in moderation 	<p>MISC.</p> <ul style="list-style-type: none"> • Carbonated beverages, coffee (regular or decaffeinated) • Strongly flavored seasonings and condiments such as garlic,

- | | |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none">• All beverages as tolerated | <p>barbecue sauce, chili sauce, chili pepper, horseradish, black pepper, chili powder and other highly spiced foods</p> <ul style="list-style-type: none">• Pickles• Caffeine-containing beverages (coffee, tea, colas, orange soda)• Alcoholic beverages• Nicotine, aspirin and aspirin-containing medicines |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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Osteomalacia

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Rickets/ Osteomalacia

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Ariboflavinosis:
Vit B2

deficiency

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deficiency

Goiter: e.a.

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deficiency

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Rickets is a disease characterized by softening of the bones caused

<u>Osteomalacia</u>	by poor calcium deposition. This disease arises in children with poor vitamin D status and prolonged calcium and/or phosphorous deficiency.
Insect Transmitted Diseases	Osteomalacia is the softening of bones that occurs in adults as a result of bone decalcification linked to inadequate vitamin D status.
Water Borne Diseases	Vitamin D is needed in absorption of calcium and phosphorus from the intestines. Calcium and phosphorous is needed for development of healthy bones and teeth. The principal function of Vitamin D is to maintain serum calcium and phosphorus concentration within the range that supports neuromuscular function, bone calcification and other cellular processes.
Air Borne Diseases	
Zoonotic diseases	
Hygiene and Sanitation	Vitamin D is also capable of influencing differentiation in some cancer cells, such as skin, bone, and breast cancer cells. Indeed, adequate Vitamin D status has been linked to reduced risk of developing breast, colon and prostate cancers.

Sources of vitamin D

- **Sunlight: Your skin produces vitamin D when it's exposed to sunlight. Some people may not receive enough sun exposure to generate sufficient active Vitamin D for the body's needs they need to pay attention to dietary sources. Few foods contain appreciable amounts of vitamin D,**

- **Foods rich in vitamin D include fatty fish (e.g salmon and sardines), fortified milk and some fortified breakfast cereals. Although eggs, butter, liver and few brands of margarine contain some vitaminD, large servings must be eaten to obtain an appreciable amount of vitamin; thus these foods are not considered significant sources.**

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Causes of Rickets and Osteomalacia

- **Lack of adequate sunlight exposure. In this category, include:**
 - **Breast-fed infants whose mothers are not exposed to sunlight**
 - **Breast-fed infants who are not exposed to sunlight**
 - **Those who work indoors during daylight hours or are bed-ridden for long periods**

Causes of osteomalacia

- **Gallbladder disease**
- **Following certain surgical procedures of the stomach and intestines**
- **Certain diseases of the intestines like celiac disease**
- **Some kidney problems like renal tubular acidosis**

○ **Hereditary cases of rickets**

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Symptoms

- **Bone pain or tenderness**
- **Dental problems such as delayed tooth eruption, dental caries, soft easily broken teeth**
- **Muscle weakness which can lead to baby being floppy**
- **Frequent fractures or breakage of bones**
- **Skeletal deformity**
- **Toddlers: Bowed legs**
- **Older children: Knock-knees**
- **Cranial, spinal, and pelvic deformities**
- **Growth disturbance - child has short stature**
- **Irritability**
- **Uncontrolled muscle spasms all over the body (tetany) and even seizures**
- **Soft skull**
- **Chest deformities**
- **Widening of wrist raises early suspicion**
- **Deformed pelvis and Bowlegs**

- **Harrison's groove(pigeon chest)**
- **Spinal deformity**
- **Beading of the ribcage (rachitic rosary)**

Problems such as spinal deformities, bow legs, knock-knees, a deformed chest, changes in the skull causing a distinctive "square headed" appearance may persist into adult life if not treated

Symptoms of osteomalacia

- **Fractures in the hip, spine and other bones**
- **diffuse bone pain, especially in the hips**
- **muscle weakness**
- **symptoms associated with low calcium**
- **numbness around the mouth**
- **numbness of extremities**
- **spasms of hands or feet**

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Treatment

- **Use of *supplements* :vitamin D and calcium can be given as dietary supplements**

- ***Sunshine exposure***: there is however, a genuine risk of skin cancer with excessive amount of unprotected sunshine exposure. Use of special sunscreens which filter the harmful rays whilst allowing for good rays to reach your skin is a good option. Ideally, sun exposure in the tropics is best done when the sun is not intense - the so-called 'morning and evening sun' as opposed to midday sun.
- ***Diet*** rich in vitamin D and calcium
- Treat any other underlying factor like kidney disease
- For bone deformities such as bowlegs and some spinal deformities, braces may be used but in severe cases, surgery may be required.

Getting enough calcium

Calcium and phosphorus consumption are also important for bone formation in childhood. Breast milk is a good source of calcium, as are most commercially available formulas.

Recommended daily intake of calcium is as follows (serving sizes vary with age):

Adequate Intake (AI) for Calcium

Life Stage	Age	Males (mg/day)	Females (mg/day)

Infants	0-6 months	210	210
Infants	7-12 months	270	270
Children	1-3 years	500	500
Children	4-8 years	800	800
Children	9-13 years	1,300	1,300
Adolescents	14-18 years	1,300	1,300
Adults	19-50 years	1,000	1,000
Adults	51 years and older	1,200	1,200
Pregnancy	18 years and younger	-	1,300
Pregnancy	19 years and older	-	1,000
Breast-feeding	18 years and younger	-	1,300
Breast-feeding	19 years and older	-	1,000

- 1 to 3 years of age. 500 milligrams (mg) (two servings of dairy products a day)
- 4 to 8 years of age. 800 mg (two to three servings of dairy

products a day)

- **9 to 18 years of age. 1,300 mg (four servings of dairy products a day)**
- **19 to 50 years of age. 1,000 mg a day (three servings of dairy products a day)**
- **Older than 50. 1,200 mg a day (nearly four servings of dairy products daily)**

Milk and dairy products are common sources of calcium. Other sources of calcium include leafy green vegetables (for example, spinach), fortified orange juices, fortified breakfast cereals and calcium supplements.

Food	Serving	Calcium (mg)	Servings needed to equal the absorbable calcium in 8 oz of milk
Milk	8 ounces	300	1.0
Yogurt	8 ounces	300	1.0
Cheddar cheese	1.5 ounces	303	1.0
Pinto beans	1/2 cup,	45	8.1

	cooked		
Red beans	1/2 cup, cooked	41	9.7
White beans	1/2 cup, cooked	113	3.9
Tofu, calcium set	1/2 cup	258	1.2
Bok choy	1/2 cup, cooked	79	2.3
Kale	1/2 cup, cooked	61	3.2
Chinese cabbage	1/2 cup, cooked	239	1.0
Broccoli	1/2 cup, cooked	35	4.5
Spinach	1/2 cup, cooked	115	16.3
Rhubarb	1/2 cup, cooked	174	9.5
Fruit punch with calcium citrate	8 ounces	300	0.62

malate

How much Vitamin D do you need?**Adequate Intake (AI) for Vitamin D Recommended
by the Institute of Medicine**

Life Stage	Age	Males mcg/day (IU/day)	Females mcg/day (IU/day)
Infants	0-6 months	5 mcg (200 IU)	5 mcg (200 IU)
Infants	7-12 months	5 mcg (200 IU)	5 mcg (200 IU)
Children	1-3 years	5 mcg (200 IU)	5 mcg (200 IU)
Children	4-8 years	5 mcg (200 IU)	5 mcg (200 IU)
Children	9-13 years	5 mcg (200 IU)	5 mcg (200 IU)
Adolescents	14-18 years	5 mcg (200 IU)	5 mcg (200 IU)
Adults	19-50 years	5 mcg (200 IU)	5 mcg (200 IU)
Adults	51-70 years	10 mcg (400 IU)	10 mcg (400 IU)
Adults	71 years and older	15 mcg (600 IU)	15 mcg (600 IU)

Pregnancy	all ages	-	5 mcg (200 IU)
Breast-feeding	all ages	-	5 mcg (200 IU)

Vitamin D rich foods

Food	Serving	Vitamin D (IU)	Vitamin D (mcg)
Pink salmon, canned	3 ounces	530	13.3
Sardines, canned	3 ounces	231	5.8
Mackerel, canned	3 ounces	213	5.3
Cow's milk, fortified with vitamin D	8 ounces	98	2.5
Soy milk, fortified with vitamin D	8 ounces	100	2.5
Orange juice, fortified with vitamin D	8 ounces	100	2.5
Cereal, fortified	1 serving (usually 1 cup)	40-50	1.0-1.3

Egg yolk	1 large	21	0.53
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Prognosis

The majority of non-severe cases of both rickets and osteomalacia respond well to treatment and improvement is seen within 3-6 months.

With adequate treatment and follow up, most individuals lead normal lives.

The main problem encountered is re-occurrence mainly due to poor diet issues.

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Peptic Ulcer



Woman with Goiter

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Sufferer of beriberi in Southeast Asia beginning of the 20th Century

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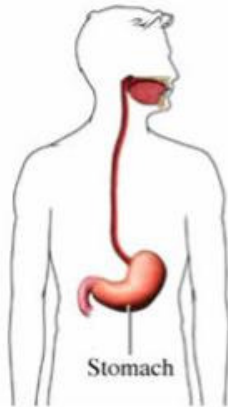
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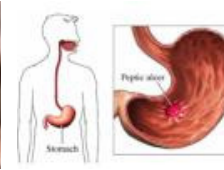
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Water Borne Diseases

Air Borne Diseases

What is goiter?

Zoonotic diseases

Hygiene and Sanitation

Enlargement of the thyroid gland that is not associated with inflammation. The thyroid is a gland found below your adam's apple. When you have a goitre, the thyroid gland is seen as a swelling in the front part of your neck. Simple goitre is a painless condition, but if uncorrected it can lead to pressure on the trachea (windpipe), whihc may cause difficulty in breathing. Treatment with iodide can result in a slow reduction in the size of the thyroid gland, although surgical removal of part of the gland maybe required.

A simple goiter may be classified as an endemic (present continuously in a community) or sporadic goiter. Endemic goiters are usually caused by inadequate dietary intake of iodine in certain geographical areas with iodine-depleted soil, usually areas away from the sea coast. Sporadic goiters are caused by swallowing of large amounts of certain foods or drugs and affect individuals. Goitrogenic foods are listed above. Drugs include immunosuppressants, antiretrovirals, the heart drug amiodarone and the psychiatric drug lithium, among others.

What does the thyroid do?

The thyroid gland produces two main hormones - thyroxine and triiodothyronine. These hormones circulate in your bloodstream and do the following:

- **Maintain the rate at which your body uses fats and carbohydrates**
- **Help control your body temperature**
- **Influence your heart rate and help regulate the production of proteins.**

Your thyroid gland also produces calcitonin - a hormone that regulates the amount of calcium in your blood.

Causes of thyroid enlargement

A number of factors can cause your thyroid gland to enlarge. Among the most common are:

Autoimmune diseases:

This is when your body's immune system attacks the thyroid gland causing it to become overstimulated and produce too much thyroid hormone (Graves' disease) or produce too little hormone (Hashimoto's disease).

Nodular goiter:

This can either be a solitary nodule or Multinodular goiter. Nodules are solid or fluid-filled lumps. Most do not lead to cancer.

Thyroid cancer:

Cancer of the thyroid often appears as an enlargement on one side of the thyroid.

Pregnancy:

A certain hormone produced during pregnancy (human chorionic gonadotropin-HCG) may cause your thyroid gland to enlarge slightly. This is particularly more noticeable during the early months of pregnancy.

Inflammation (Thyroiditis):

This is usually seen as pain, warmth and swelling of the thyroid

Iodine deficiency:

Iodine, which is essential for the production of thyroid hormones, is found primarily in seawater and in the soil in coastal areas. People who live inland often do not get sufficient iodine in their diet and can develop goiter when the thyroid enlarges in an effort to obtain more iodine. This deficiency can be made worse by taking goitrogenic foods and certain drugs. Goitrogenic foods contain substances that decrease thyroid

hormone production. Examples of these foods are:

- **Cabbage**
- **Soybeans**
- **Peanuts**
- **Peaches**
- **Strawberries**
- **Spinach**
- **Cauliflower**
- **Broccoli**

An iodide-deficient diet poses a major threat to pregnant women and the fetus especially during the latter two thirds of the pregnancy. Some of the harmful documented iodide deficiencies include stillbirth, low birthweight, increased infant mortality, goitre, impaired mental function, and retarded development. Increasing the mother's intake of iodide prior to the 4th month of pregnancy, but preferably sooner can prevent these abnormalities.

Risk factors

- **Female**
- **Over 40 years old**

- **Inadequate dietary intake of iodine**
- **Residence in an endemic area**
- **Ingestion of large amounts of goiter-causing foods or drugs**
- **Family history of goiters**
- **Radiation exposure to the neck and chest area (only large doses such as those used in radiotherapy or those found in nuclear facilities and not those single exposures done when diagnosing a disease are considered significant)**

Symptoms

Following symptoms:

- **Thyroid enlargement**
- **Breathing difficulties or wheezing from compression of the windpipe (trachea)**
- **Swallowing difficulties from compression of the foodpipe (esophagus)**
- **neck vein distention and dizziness when the arms are raised above the head**
- **Cretnism is a condition of severely stunted physical and mental growth in**

children due to untreated congenital deficiency of thyroid hormones or from prolonged nutritional iodine deficiency (usually in babies born to mothers with iodine deficiency). These children have:

- **Protruding abdomen**
- **Delayed bone maturation and delayed tooth eruption**
- **Delayed puberty**
- **Flattened nose**
- **Neurological impairment : seen early as delayed speech, slowness of movement and even mental retardation**
- **Ovulation interference and infertility**
- **Poor growth (height)**
- **Thick, waxy, flabby skin**

Treatment

Following treatment is possible:

- **Medication**
- **Surgery to remove part of the thyroid**
- **Avoid goiter producing foods**
- **Increase iodine intake**

Most goiters do not need any treatment. Visit your doctor to determine the best treatment for you.

Diet changes:

If your goiter is caused by your diet, these suggestions can help: Get enough iodine.

Recommended Dietary Allowance (RDA) for Iodine

Life Stage	Age	Males (mcg/day)	Females (mcg/day)
Infants	0-6 months	110 (AI)	110 (AI)
Infants	7-12 months	130 (AI)	130 (AI)
Children	1-3 years	90	90
Children	4-8 years	90	90
Children	9-13 years	120	120
Adolescents	14-18 years	150	150
Adults	19 years and older	150	150
Pregnancy	all ages	-	220
Breast-feeding	all ages	-	290

Sources of Iodine

Food	Serving	Iodine (mcg)
Salt (iodized)	1 gram	77
Buttermilk	1 cup	125
Cod	3 ounces*	99
Shrimp	3 ounces	35
Fish sticks	2 fish sticks	35
Tuna, canned in oil	3 ounces (1/2 can)	17
Milk (cow's)	1 cup (8 fluid ounces)	56
Egg, boiled	1 large	22
Navy beans, cooked	1/2 cup	32
Potato with peel, baked	1 medium	60
Turkey breast, baked	3 ounces	34
Seaweed	1/4 ounce, dried	Variable; may be greater than 4,500 mcg

(4.5 mg)

***A three-ounce serving of meat is about the size of a deck of cards.**

Eat shellfish at least twice a week and reduce iodine consumption: Although it's uncommon, getting too much iodine sometimes leads to goiter. If excess iodine is a problem, avoid salt fortified with iodine, shellfish, seaweed and iodine supplements.

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Beriberi: Vitamin B1 deficiency

Beriberi: Vitamin B1 deficiency



Introduction - What is beriberi?

Beriberi is a disease caused by a lack of vitamin B1 (thiamin). The thiamin-deficiency disorder is characterized by muscle weakness, loss of appetite, nerve degeneration and sometimes edema. It can affect:

- **Breast-fed infants, when the mother has an inadequate intake of thiamin or if the infant is fed with formulas not fortified with thiamin.**
- **People whose diet includes certain types of fish that produce an enzyme that inactivates thiamin**
- **People who inherit beriberi (genetically predisposed). These people lose the ability to absorb thiamine from foods. This can happen slowly over time and symptoms occur when the person is an adult. However, because doctors may not consider beriberi in non-alcoholics, this diagnosis is often missed**
- **People who drink (Alcoholics): Alcohol-related thiamin deficiency is caused by inadequate intakes of thiamin as well as impaired absorption and storage. Alcoholics have a triple problem related to thiamin. Alcohol diminishes thiamin absorption, alcohol increases thiamin excretion and alcoholics consume such a**

poor quality diet that there may be few if any, vitamins in the foods and beverages consumed.

- **People with kidney diseases: getting dialysis and taking high doses of diuretics raise the risk of beriberi.**

There are two distinct types of beriberi:

- **Wet: In addition to peripheral neuropathy, edema occurs along with an enlarged heart and congestive heart failure.**
- **Dry : There is also peripheral neuropathy plus extreme muscle wasting.**

In infants, the disease presents as cardiac failure, which may occur very suddenly.

Symptoms of Beriberi

Early symptoms are:

- **Irritability**
- **Fatigue**
- **Restlessness**

- **Decreased appetite**
- **Vague abdominal discomfort**



Sufferer of beriberi in Southeast Asia beginning of the 20th Century

©

http://commons.wikimedia.org/wiki/File:Beriberi_USNLM.jpg

- **Confusion**
- **Speech difficulty**
- **Unusual behavior**
- **Abnormal eye movement and droopy eyelids**
- **Seizures**

Later symptoms are:

- **Change in walking style**
- **Numbness/loss of feeling or tingling or burning and even pain in the limbs**
- **Shortness of breath**
- **Blush coloration to the skin (seen on hands, feet, lips)**
- **Swelling of feet**
- **Memory loss**

- **Loss of consciousness**
- **Coma**
- **Death (due to heart failure)**

Good news!

With treatment, both early heart damage and early nervous system damage is reversible and is not permanent. However, advanced heart disease is often fatal. A few symptoms such as memory loss may persist despite treatment. Without treatment, beriberi kills.

Treatment and prevention

Treatment involves thiamin supplementation and eating a thiamin-rich diet. This is especially important in breastfeeding and pregnant women.

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-

How much thiamin do you need?

Recommended Dietary Allowance (RDA) for Thiamin

Life Stage	Age	Males (mg/day)	Females (mg/day)
Infants	0-6 months	0.2	0.2
Infants	7-12 months	0.3	0.3
Children	1-3 years	0.5	0.5
Children	4-8 years	0.6	0.6
Children	9-13 years	0.9	0.9
Adolescents	14-18 years	1.2	1.0
Adults	19 years and older	1.2	1.1
Pregnancy	all ages	-	1.4
Breastfeeding	all ages	-	1.4

Thiamin-rich foods

Thiamin is found in a wide variety of foods, although generally in small amount. Major individual contributors of thiamin to our diets are bread and rolls, pork, ready to use cereals and orange juice. Foods with very high nutrient density of thiamin are pork products, sunflower seeds, legumes, wheat germ and water melon. Whole grains, and enriched grains, green beans, asparagus, organ meats (such as liver, kidney) peanuts and other seeds and mushrooms also are good sources. Overall, enriched,

fortified, and whole-grain products make the greatest contribution of thiamin to the diet.

Thiamin occurs widely in food but may be lost in the course of processing, particularly in the milling of grains. Whole grain is therefore essential in disease prevention.

Food	Serving	Riboflavin (mg)
Lentils (cooked)	1/2 cup	0.17
Peas (cooked)	1/2 cup	0.21
Long grain brown rice (cooked)	1 cup	0.19
Long grain white rice, enriched (cooked)	1 cup	0.26
Long grain white rice, unenriched (cooked)	1 cup	0.04
Whole wheat bread	1 slice	0.10
White bread, enriched	1 slice	0.11
Fortified breakfast cereal	1 cup	0.5 - 2.0
Wheat germ breakfast cereal	1 cup	4.47
Pork, lean (cooked)	3 ounces*	0.72
Brazil nuts	1 ounce	0.18

Pecans	1 ounce	0.19
Spinach (cooked)	1/2 cup	0.09
Orange	1 fruit	0.10
Cantaloupe	1/2 fruit	0.11
Milk	1 cup	0.10
Egg (cooked)	1 large	0.03

***3 ounces of meat is a serving about the size of a deck of cards**

Many foods especially meat (except pork), milk and milk products, most fruits- contain very little thiamin. Some fish, and shellfish contain an enzyme called thiaminase, which destroys thiamin. Fortunately cooking destroys the thiaminase. Eating a variety of foods is the most reliable way to obtain sufficient thiamin from a diet.

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Ariboflavinosis: Vit B2 deficiency



Ariboflavinosis: Vit B2 deficiency

Introduction

Ariboflavinosis is caused by deficiency of vitamin B2 (riboflavin).

Certain groups of people are at a greater risk of being deficient in riboflavin. They are individuals with kidney disease who are being treated with dialysis; individuals with

absorption problems, women who are pregnant with more than one fetus, women breast feeding more than one infant, people with other vitamin deficiencies and protein energy malnutrition. In addition, chronic diseases such as cancer, heart disease and diabetes are known to trigger Vitamin B12-deficiency, However, the following people are usually deficient in riboflavin and may need extra vitamin B2 from supplements:

- **Women who are pregnant or breast feeding**
- **Anyone with inadequate caloric or nutritional dietary intake or increased nutritional requirements (i.e. when you work out regularly, are sick and not meeting the basic need)**
- **Athletes**
- **Those who drink alcohol in excess**
- **People who have just undergone surgery**
- **Those under long term excess stress**
- **Impaired liver function, which prevents proper utilization of the vitamin.**

Symptoms

True riboflavin deficiency is quite rare. When riboflavin deficiency symptoms do occur, they are usually related to a shortage of all the vitamin B's. Usually, though, riboflavin

deficiency shows u[as a problems with mucous mebranes, skin, eyes, and blood. An early clear sign is sores and carcks on the corner of the mouth. Scaly skin, reddened eyes, and aneamia are other defficiency signs.[br]

When you have the following synptoms, please consider to take some extra vitmain B2 supplement pills to enrich your ribiflavin level.

Symptoms of riboflavinosis are:

- **Sore lips/throat**
- **Redness and swelling of the mouth and throat,**
- **Cracking of the lips (cheilosis)**
- **Inflamation and cracks on the corners of the mouth (angular stomatitis)**
- **Tongue redness and inflammation (glossitis)**
- **Itching and scaling of skin particularly affecting the scrotum or vulva and skin around nose, mouth, forehead, ears,scalp and lips**
- **Formation of blood vessels on the cornea (clear part) of the eye**
- **Blood disorders such as anemia**
- **Eyes overly sensitive to light and easily tired**
- **Trembling**
- **Insomnia**

Treatment

Treatment involves diet, high in Sources of Vitamin B2.

- Normally, people may get required riboflavin from the following, source: Beef liver, dairy products, eggs, meat, wheat germ and Tuna,
- The most nutrient dense sources of riboflavin are liver, mushrooms, spinach and other green leafy vegetables, broccoli, asparagus, milk products and cottage cheese.
- Supplements can be used to increase the amount of B2 consumed, however should be only on prescription. Supplement should be prescribed or recommended by a qualified health professional.

Exposure to light (ultraviolet radiation) causes riboflavin to breakdown rapidly. To prevent this light-induced breakdown, paper and plastic cartons-not glass- are used in packaging riboflavin-rich foods, such as milk, milk products and cereals.

How much riboflavin do you need

Life Stage	Age	Males (mg/day)	Females (mg/day)
Infants	0-6 months	0.2	0.2

Infants	7-12 months	0.3	0.3
Children	1-3 years	0.5	0.5
Children	4-8 years	0.6	0.6
Children	9-13 years	0.9	0.9
Adolescents	14-18 years	1.2	1.0
Adults	19 years and older	1.2	1.1
Pregnancy	all ages	-	1.4
Breastfeeding	all ages	-	1.4

Riboflavin rich foods

Food	Serving	Riboflavin (mg)
Fortified cereal	1 cup	0.59 to 2.27
Milk (nonfat)	1 cup (8 ounces)	0.34
Cheddar cheese	1 ounce	0.11
Egg (cooked)	1 large	0.27
Almonds	1 ounce	0.23

Salmon (cooked)	3 ounces*	0.12
Halibut (broiled)	3 ounces	0.08
Chicken, light meat (roasted)	3 ounces	0.08
Chicken, dark meat (roasted)	3 ounces	0.16
Beef (cooked)	3 ounces	0.16
Broccoli (boiled)	1/2 cup chopped	0.10
Asparagus (boiled)	6 spears	0.13
Spinach (boiled)	1/2 cup	0.21
Bread, whole wheat	1 slice	0.06
Bread, white (enriched)	1 slice	0.08

***3 ounces of meat is a serving about the size of a deck of cards**

Information Source Links

- **Brust, J.C.M. (2007). Nutrition- and Alcohol-Related Neurologic Disorders. In: Goldman, L. and Ausiello, D. (eds.) *Cecil Medicine*. 23rd ed. Philadelphia, Pa: Saunders Elsevier:chap 443.**
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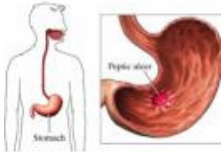
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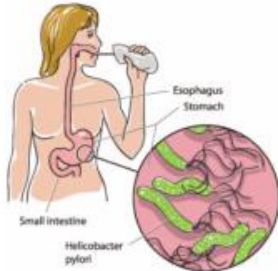
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Peptic Ulcer Disease

	<p>Peptic Ulcer Disease Importance: medium</p>
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Introduction: What is peptic ulcer disease?

Peptic Ulcer Disease is a condition in which the stomach and small intestine lining are slowly eroded away. The peptic causes are an acid-resistant bacterial infection *Helicobacter pylori* bacteria (*H.Pylori*), the heavy use of aspirin and related medications, and disorders that causes excessive acid



production in the stomach. And after being out of favour for some years, stress is now regarded as a predisposing factor, for ulcers. As the stomach lining deteriorates and loses its mucus layer protection, the acid erodes the stomach tissue. This specific chain of events results in gastric ulcer. Acid can also erode the tissue lining of the first part of the small intestine, the duodenum, and result in a duodenal ulcer. Peptic ulcer is the general term for both these two cases. Most ulcers in your people occur in the duodenum; in older people they occur primarily in the stomach.

Peptic ulcer

Symptoms

The typical symptom of ulcer is pain about 2 hours after eating. Digestive acids acting on a meal irritate the ulcer after most of the meal has moved to the jejunum area of the small intestine.

The primary risk associated with an ulcer is the possibility that it will erode entirely through (perforate) the stomach or intestinal wall. The Gastro-intestinal contents could then spill into the body cavities causing a massive infection, called peritonitis. In addition an ulcer may erode a blood vessel, leading to massive blood loss

(haemorrhage). For these reasons, it is important not to ignore the early warning signs of ulcer development. Infected persons have an increased lifetime risk of gastric adenocarcinoma. Accurate, inexpensive, and non-evasive tests are available to diagnose H.pylori infection.

Dietary guidelines

In the past, milk, and creamy therapy- the "sippy" diet- was used to help cure ulcers. Clinicians know now that milk and cream are two of the worst foods for an ulcer. The calcium these foods stimulate stomach acid production and actually inhibit the healing of an ulcer.

Treatment and Prevention

Dietary guidelines that may help decrease reflux and/or stomach acid:

- **Eat three small meals and three snacks evenly spaced throughout the day. It is important to avoid periods of hunger or overeating.**
- **Eat slowly and chew foods well.**
- **Be relaxed at mealtime.**

- **Sit up while eating and for 1 hour afterward.**
- **Avoid eating within 3 hours before bedtime. Bedtime snacks can cause gastric acid secretion during the night.**
- **Choose foods from the low fat diet and low fat guidelines in addition to the following diet**
- **Cut down on caffeine-containing foods and beverages, citrus and tomato products, and chocolate if these foods cause discomfort.**
- **Include a good source of protein (milk, meat, egg, cheese, etc.) at each meal and snack.**
- **Antacids should be taken in the prescribed dose, One-hour and 3 hours after meals and prior to bedtime. This regimen is most likely to keep the acidity of the stomach at the most stable and lowest level.**
- **Milk and cream feedings should not be used as antacid therapy. Although milk protein has an initial neutralizing effect on gastric acid, it is also a very potent stimulator. Hourly feedings of milk have been shown to produce a lower pH than three regular meals.**
- **Caffeine-containing beverages (coffee, tea, and cola drinks) and decaffeinated coffee cause increased gastric acid production but may be taken in moderation at or near mealtime, if tolerated**
- **There is little rationale for completely eliminating any foods from the diet unless a particular food causes you repeated discomfort.**
- **Identify foods that repeatedly cause discomfort or irritability of the stomach and eliminate them from your diet.**

Recommendations to prevent ulcers and Heartburn form occurring or recurring

Ulcers

- **Stop smoking, if you are a smoker**
- **Avoid large doses of aspirin ibuprofen/brufen, NSAID compounds unless prescribed by physician,**
- **Limit consumption of coffee, tea, alcohol (especially wine) if these helps**
- **Avoid consumption of carbonated drinks, especially with a straw.**
- **Limit consumption of pepper, chilli powder and other strong spices if this helps**
- **Eat nutritious meals on regular schedule, (don?t skip meals), include enough dietary fibre.**
- **Chew your foods well**
- **Lose weight if currently overweight**

Heartburn

- **Wait about 2 hours after meal before lying down**
- **Don?t over eat at meal times, smaller meals that are low in fat are advised**
- **Observe the recommendations for ulcer prevention**
- **Do not lie flat especially after food, raise/lift the bed**

- **Stop smoking**
- **Lose excess weight**

FOODS RECOMMENDED	FOODS THAT MAY CAUSE DISTRESS
<ul style="list-style-type: none"> • BREADS & GRAINS 6-11 servings each day • Whole-grain or enriched, seedless breads, bagels, tortillas, English muffins, hamburger/hot dog buns, dinner rolls, pita bread, and bagels • Whole-grain or enriched cereals • Enriched rice, barley, noodles, spaghetti macaroni, and other pastas • French toast, muffins, pancakes, and waffles made with low-fat ingredients • Low fat crackers 	<ul style="list-style-type: none"> • Very high consumption of breads & grains • Breads and cereals prepared with high-fat ingredients such as croissants, biscuits, and granola-type cereals • Very acidic foods
VEGETABLES 3-5 servings each day	VEGETABLES

<ul style="list-style-type: none"> • Fresh, frozen, or canned vegetables as tolerated 	<ul style="list-style-type: none"> • Raw vegetables, corn • Gas forming vegetables such as: broccoli, Brussels sprouts, cabbage, onions, cauliflower, cucumber, green pepper, rutabagas, turnips and sauerkraut • Vegetables prepared with added fat • Tomatoes and tomato products
<p>FRUIT 2-4 servings each day</p> <ul style="list-style-type: none"> • Fresh, frozen, and canned fruits as tolerated • Fruit juice as tolerated <p>Grapefruit and orange sections without membrane</p>	<p>FRUIT</p> <ul style="list-style-type: none"> • Lemons, grapefruit, oranges, pineapples, and tangerines • Citrus juices such as orange, pineapple and grapefruit juice • Berries and figs
<p>MILK & DAIRY 2-3 servings each day</p> <ul style="list-style-type: none"> • Low fat and non-fat milk and milk products • Processed cheese with less than 5 grams of fat per ounce • Plain mild cheeses • Low-fat cottage cheese • Low-fat and nonfat yogurt 	<p>MILK & DAIRY</p> <ul style="list-style-type: none"> • Whole milk and chocolate milk • Buttermilk made with whole milk • Evaporated whole milk and cream • Strong flavored cheeses
<p>MEAT & MEAT SUBSTITUTES 2-3</p>	<p>MEAT & MEAT SUBSTITUTES</p>

servings or total of 6 oz daily

- All lean, tender beef, pork, lamb, veal, and poultry (without the skin)
- All fresh, frozen, or canned fish packed in water
- Crisp bacon; lean ham
- Eggs (limit to 3-4 egg yolks weekly)
- Smooth peanut butter and nut butters
- Soybean curd (tofu) and other meat substitutes
- Dry beans and peas prepared without fat
- Soups
- Mildly seasoned meat stock or cream soups made with allowed foods

- Highly seasoned, meats, poultry or fish such as corned beef, luncheon meats, frankfurter and other sausages, sardine anchovies
- All fried, fatty or heavily marbled meat, poultry, or fish
- Dry beans and peas prepared with fat or high-fat meat
- Chunky peanut butter and nuts and seeds

FATS & SNACKS (use sparingly)

- Non fat or low-fat dressings and mayonnaise

FATS & SNACKS

- Gravies, cream soups
- Highly seasoned salad dressings

- **Mild low fat salad dressings**
- **Mildly flavored gravies and sauces**
- **Butter or margarine (preferably the light or low fat brands)**
- **Sugar, syrup, honey, jelly, seedless jam, hard candies, molasses, marshmallows**
- **Sherbet, fruit ice, gelatin, angel food cake, graham crackers, and nonfat desserts**
- **Pretzels (soft or hard), rice cakes**

- **High-fat snacks such as chips, fried potatoes and buttered popcorn**
- **Cakes, cookies, pies, pastries, and doughnuts**
- **Coconut, chocolate, or creamed candy**
- **All sweets and desserts containing nuts, coconut or fruit not allowed**

MISC.

- **Salt, pepper, flavorings and most spices and herbs**
- **Ketchup, mustard and vinegar in moderation**
- **All beverages as tolerated**

MISC.

- **Carbonated beverages, coffee (regular or decaffeinated)**
- **Strongly flavored seasonings and condiments such as garlic, barbecue sauce, chili sauce, chili pepper, horseradish, black pepper, chili powder and other highly spiced foods**
- **Pickles**

- **Caffeine-containing beverages (coffee, tea, colas, orange soda)**
- **Alcoholic beverages**
- **Nicotine, aspirin and aspirin-containing medicines**

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Rickets/ Osteomalacia



Rickets/ Osteomalacia

Introduction

Rickets is a disease characterized by softening of the bones caused by poor calcium deposition. This disease arises in children with poor vitamin D status and prolonged calcium and/or phosphorous deficiency.

Osteomalacia is the softening of bones that occurs in adults as a result of bone decalcification linked to inadequate vitamin D status.

Vitamin D is needed in absorption of calcium and phosphorus from the intestines. Calcium and phosphorous is needed for development of healthy bones and teeth. The principal function of Vitamin D is to maintain serum calcium and phosphorus concentration within the range that supports neuromuscular function, bone calcification and other cellular processes.

Vitamin D is also capable of influencing differentiation in some cancer cells, such as skin, bone, and breast cancer cells. Indeed, adequate Vitamin D status has been linked to reduced risk of developing breast, colon and prostate cancers.

Sources of vitamin D

- **Sunlight: Your skin produces vitamin D when it's exposed to sunlight. Some**

people may not receive enough sun exposure to generate sufficient active Vitamin D for the body's needs they need to pay attention to dietary sources. Few foods contain appreciable amounts of vitamin D,

- **Foods rich in vitamin D include fatty fish (e.g salmon and sardines), fortified milk and some fortified breakfast cereals. Although eggs, butter, liver and few brands of margarine contain some vitamin D, large servings must be eaten to obtain an appreciable amount of vitamin; thus these foods are not considered significant sources.**

Causes of Rickets and Osteomalacia

- **Lack of adequate sunlight exposure. In this category, include:**
 - **Breast-fed infants whose mothers are not exposed to sunlight**
 - **Breast-fed infants who are not exposed to sunlight**
 - **Those who work indoors during daylight hours or are bed-ridden for long periods**

Causes of osteomalacia

- **Gallbladder disease**
- **Following certain surgical procedures of the stomach and intestines**
- **Certain diseases of the intestines like celiac disease**
- **Some kidney problems like renal tubular acidosis**
- **Hereditary cases of rickets**

Symptoms

- **Bone pain or tenderness**
- **Dental problems such as delayed tooth eruption, dental caries, soft easily broken teeth**
- **Muscle weakness which can lead to baby being floppy**
- **Frequent fractures or breakage of bones**
- **Skeletal deformity**
- **Toddlers: Bowed legs**
- **Older children: Knock-knees**
- **Cranial, spinal, and pelvic deformities**
- **Growth disturbance - child has short stature**
- **Irritability**
- **Uncontrolled muscle spasms all over the body (tetany) and even seizures**
- **Soft skull**
- **Chest deformities**
- **Widening of wrist raises early suspicion**
- **Deformed pelvis and Bowlegs**
- **Harrison's groove(pigeon chest)**
- **Spinal deformity**
- **Beading of the ribcage (rachitic rosary)**

Problems such as spinal deformities, bow legs, knock-knees, a deformed chest, changes in the skull causing a distinctive "square headed" appearance may persist into adult life if not treated

Symptoms of osteomalacia

- **Fractures in the hip, spine and other bones**
- **diffuse bone pain, especially in the hips**
- **muscle weakness**
- **symptoms associated with low calcium**
- **numbness around the mouth**
- **numbness of extremities**
- **spasms of hands or feet**

Treatment

- **Use of *supplements* :vitamin D and calcium can be given as dietary supplements**
- ***Sunshine exposure*: there is however, a genuine risk of skin cancer with excessive amount of unprotected sunshine exposure. Use of special sunscreens which filter the harmful rays whilst allowing for good rays to reach your skin is a good option. Ideally, sun exposure in the tropics is best done when the sun is not intense - the so-called 'morning and evening sun' as opposed to midday sun.**

- **Diet rich in vitamin D and calcium**
- **Treat any other underlying factor like kidney disease**
- **For bone deformities such as bowlegs and some spinal deformities, braces may be used but in severe cases, surgery may be required.**

Getting enough calcium

Calcium and phosphorus consumption are also important for bone formation in childhood. Breast milk is a good source of calcium, as are most commercially available formulas.

Recommended daily intake of calcium is as follows (serving sizes vary with age):

Adequate Intake (AI) for Calcium

Life Stage	Age	Males (mg/day)	Females (mg/day)
Infants	0-6 months	210	210
Infants	7-12 months	270	270
Children	1-3 years	500	500
Children	4-8 years	800	800
Children	9-13 years	1,300	1,300
Adolescents	14-18 years	1,300	1,300
Adults	19-50 years	1,000	1,000
Adults	51 years and older	1,200	1,200

Pregnancy	18 years and younger	-	1,300
Pregnancy	19 years and older	-	1,000
Breast-feeding	18 years and younger	-	1,300
Breast-feeding	19 years and older	-	1,000

- 1 to 3 years of age. 500 milligrams (mg) (two servings of dairy products a day)
- 4 to 8 years of age. 800 mg (two to three servings of dairy products a day)
- 9 to 18 years of age. 1,300 mg (four servings of dairy products a day)
- 19 to 50 years of age. 1,000 mg a day (three servings of dairy products a day)
- Older than 50. 1,200 mg a day (nearly four servings of dairy products daily)

Milk and dairy products are common sources of calcium. Other sources of calcium include leafy green vegetables (for example, spinach), fortified orange juices, fortified breakfast cereals and calcium supplements.

Food	Serving	Calcium (mg)	Servings needed to equal the absorbable calcium in 8 oz of milk
Milk	8 ounces	300	1.0
Yogurt	8 ounces	300	1.0

Cheddar cheese	1.5 ounces	303	1.0
Pinto beans	1/2 cup, cooked	45	8.1
Red beans	1/2 cup, cooked	41	9.7
White beans	1/2 cup, cooked	113	3.9
Tofu, calcium set	1/2 cup	258	1.2
Bok choy	1/2 cup, cooked	79	2.3
Kale	1/2 cup, cooked	61	3.2
Chinese cabbage	1/2 cup, cooked	239	1.0
Broccoli	1/2 cup, cooked	35	4.5
Spinach	1/2 cup, cooked	115	16.3
Rhubarb	1/2 cup, cooked	174	9.5
Fruit punch with calcium citrate malate	8 ounces	300	0.62

How much Vitamin D do you need?

**Adequate Intake (AI) for Vitamin D Recommended
by the Institute of Medicine**

Life Stage	Age	Males mcg/day (IU/day)	Females mcg/day (IU/day)
Infants	0-6 months	5 mcg (200 IU)	5 mcg (200 IU)
Infants	7-12 months	5 mcg (200 IU)	5 mcg (200 IU)
Children	1-3 years	5 mcg (200 IU)	5 mcg (200 IU)
Children	4-8 years	5 mcg (200 IU)	5 mcg (200 IU)
Children	9-13 years	5 mcg (200 IU)	5 mcg (200 IU)
Adolescents	14-18 years	5 mcg (200 IU)	5 mcg (200 IU)
Adults	19-50 years	5 mcg (200 IU)	5 mcg (200 IU)
Adults	51-70 years	10 mcg (400 IU)	10 mcg (400 IU)
Adults	71 years and older	15 mcg (600 IU)	15 mcg (600 IU)
Pregnancy	all ages	-	5 mcg (200 IU)
Breast-feeding	all ages	-	5 mcg (200 IU)

Vitamin D rich foods

Food	Serving	Vitamin D (IU)	Vitamin D (mcg)

Pink salmon, canned	3 ounces	530	13.3
Sardines, canned	3 ounces	231	5.8
Mackerel, canned	3 ounces	213	5.3
Cow's milk, fortified with vitamin D	8 ounces	98	2.5
Soy milk, fortified with vitamin D	8 ounces	100	2.5
Orange juice, fortified with vitamin D	8 ounces	100	2.5
Cereal, fortified	1 serving (usually 1 cup)	40-50	1.0-1.3
Egg yolk	1 large	21	0.53

Prognosis

The majority of non-severe cases of both rickets and osteomalacia respond well to treatment and improvement is seen within 3-6 months.

With adequate treatment and follow up, most individuals lead normal lives.

The main problem encountered is re-occurrence mainly due to poor diet issues.

Information Source Links

- **ADA reports (2001). Position of the American Dietetic Association: Food fortification ad dietary supplements. Journal fo teh Amecican Dietetic Association 101: 115;2001.**
- **Holick MF (1999). Vitamin D. In shils Me and Others (eds): Modern nutrition in Health and disease. 9th ed. Baltimore,Md Williams & Wilkins,1999.**

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Goiter: e.a. Iodine deficiency

Images

Woman with Goiter



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Beriberi: Vitamin B1 deficiency

Images

**Sufferer of beriberi in
Southeast Asia beginning
of the 20th Century**



http://commons.wikimedia.org/wiki/File:Beriberi_USNLM.jpg

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Ariboflavinosis: Vit B2 deficiency

Images

Ariboflavinosis



Ariboflavinosis

Institute of child health

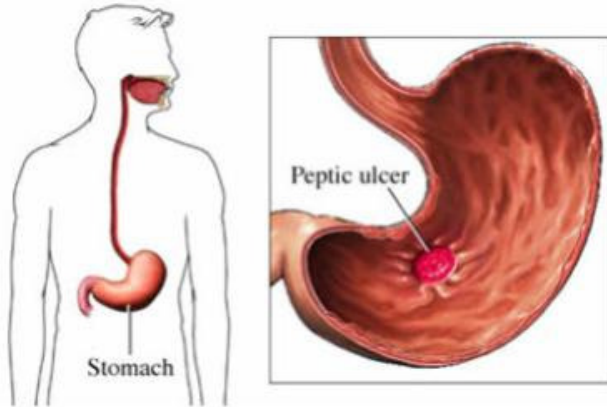
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Peptic Ulcer Disease

Images

Peptic ulcer disease



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Rickets/ Osteomalacia

Images

Rickets



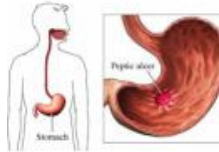
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Nutrition and nutritional diseases



Ariboflavinosis: Vit B2 deficiency Beriberi: Vitamin B1 deficiency



Goiter: e.a. Iodine deficiency Peptic Ulcer Disease Rickets/ Osteomalacia

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