

ANEMIA



DEFINITION:

Anemia is a condition of reduced oxygen-carrying capacity of the blood due to a deficiency in either red blood cells or hemoglobin.

TYPES OF ANEMIA:

Clorosis or iron deficiency anemia: The result of reduced hemoglobin and usually occurs in young women at the time of puberty.

Pernicious anemia: The result of decreased red blood cells and can cause changes in the nervous system, resulting in loss of sensation in the hands and feet.

Aplastic anemia: This form of anemia results from the replacement of red bone marrow with fatty marrow. This form of anemia can be caused by radiation, radioactive isotopes, atomic fallout, and certain antibiotics.

Sickle cell anemia: This form of anemia is an inherited disorder.

Sports anemia: This form will affect athletes with low levels of red blood cells or hemoglobin. It is a consequence of physical activity and the effects are marginal.

CAUSES:

There are many causes of anemia, both congenital (present at birth) and acquired.

- Iron deficiencies in the diet
- Inadequate utilization of iron in the blood
- Menstrual loss (primary source of iron loss for females)
- Vitamin B-12 deficiency
- Folic acid deficiency
- Mechanical injury or trauma that impacts circulation
- Acute posthemorrhaging caused by a massive hemorrhage, such as a ruptured artery
- Chronic posthemorrhaging with prolonged moderate blood loss
- Disorders of red blood cell metabolism
- Defective hemoglobin synthesis
- Decreased production of bone marrow
- Gastrointestinal loss (common in runners)
- Sweat loss during prolonged exercise

POSSIBLE SIGNS, SYMPTOMS, AND CHARACTERISTICS:

- Loss of color in cheeks, lips, and gums or a bluish tint to the lips and nails
- Increased heart and breathing rates
- Weakness, drowsiness, and fatigue
- Decreased physical work capacity
- Headache
- Nausea
- Faintness
- Vertigo (dizziness)
- Tinnitus (ringing in the ears)
- Spots before the eyes
- Irritability
- Difficulty concentrating
- Lowered activity level
- Diminished VO max
- Lowered endurance
- Increased lactic acidosis
- Menstrual irregularities
- Heart murmurs
- Heart failure
- Delayed skeletal maturation
- Shortness of stature

TEACHING TIPS:

- Design program activities based on the student's abilities, considering the social implications if the student cannot succeed.
- Evaluate the student to determine current physical fitness and motor skill development levels for designing an appropriate intervention program.
- Curtail activities so that the student does not overexert himself/herself.
- Closely monitor the student for signs of overexertion.
- Teach the student to monitor himself/herself for warning signs of overexertion.
- Avoid activities that minimize access to a ready supply of oxygen, such as underwater swimming.
- Avoid highly aerobic activities unless the student is appropriately conditioned.

**** Refer to the fact sheets on CARDIAC CONDITIONS for more information.**

Information on this sheet contains only suggested guidelines. Each student must be considered individually, and in many cases, a physician's written consent should be obtained.