

Alkaline Phosphatase Normal Range By Age

The prevalence of hypophosphatasia is not known; one study estimated the live birth incidence of severe forms to be 1:100,000. and some studies report a higher prevalence of milder disease. 6c2d7f29e2

Hypophosphatasia Hypophosphatasia (/ˌhaɪpəʊˈfɒsfet,eɪzə/; also called deficiency of alkaline phosphatase, phosphoethanolaminuria, or Rathbun's syndrome; sometimes abbreviated Hypophosphatasia (; also called deficiency of alkaline phosphatase, phosphoethanolaminuria, or Rathbun's syndrome; sometimes abbreviated HPP) is a rare, and sometimes fatal, inherited metabolic bone disease. Genetic inheritance is autosomal recessive for the perinatal and infantile forms but either autosomal recessive or autosomal dominant in the milder forms. The pathognomonic finding is subnormal serum activity of the TNSALP enzyme, which is caused by one of 388 genetic mutations identified to date, in the gene encoding TNSALP. Clinical symptoms are heterogeneous, ranging from the rapidly fatal, perinatal variant, with profound skeletal hypomineralization, respiratory compromise or vitamin B6 dependent seizures to a milder, progressive osteomalacia later in life. Tissue non-specific alkaline phosphatase (TNSALP) deficiency in osteoblasts and chondrocytes impairs bone mineralization, leading to rickets or osteomalacia 6c2d7f29e2

Risk factors for gallstones include birth control pills, pregnancy, a family history of gallstones, obesity, diabetes, liver disease, or rapid weight loss. The bile components that form gallstones... 6c2d7f29e2 There are at least four distinct but related alkaline phosphatases: intestinal, placental, placental-like, and liver/bone/kidney (tissue-nonspecific). The first three are located together on chromosome 2, whereas the tissue-nonspecific form is located on chromosome 1. The product of this gene is a membrane-bound glycosylated enzyme that is expressed in a variety of tissues and is, therefore, referred to as the tissue-nonspecific form of the enzyme. A proposed function of this form of the enzyme is in

regulating matrix mineralization through its ability to degrade mineralization-inhibiting pyrophosphate. Mice that lack a functional form of this enzyme (gene knockout mice) show abnormal skeletal and dental development including a mineralization deficiency called osteomalacia/odontomalacia (hypomineralization of bones... 6c2d7f29e2 EIS is analogous to androgen insensitivity syndrome (AIS), a condition in which the androgen receptor (AR) is defective and insensitive to androgens, such as testosterone and dihydrotestosterone (DHT). The functional opposite of EIS is hyperestrogenism, for instance that seen in aromatase excess syndrome. 6c2d7f29e2

Asfotase alfa The enzyme tissue non-specific alkaline phosphatase (ALP) plays a key role in creating and maintaining healthy bones Asfotase alfa, sold under the brand name Strensiq, is a medication used in the treatment of people with perinatal/infantile- and juvenile-onset hypophosphatasia. calcifications of the eyes and kidney 6c2d7f29e2

Paget's disease of bone The affected bones show signs of dysregulated bone remodeling at the microscopic level, specifically excessive bone breakdown and subsequent disorganized new bone formation. The osteolysis is followed by a compensatory increase in bone formation and increase in alkaline phosphatase levels induced by the bone-forming cells, called Paget's disease of bone (commonly known as Paget's disease or, historically, osteitis deformans) is a condition involving cellular remodeling and deformity of one or more bones. These structural changes cause the bone to weaken, which may result in deformity, pain, fracture or arthritis of associated joints 6c2d7f29e2

The most common side effects include injection site reactions, hypersensitivity reactions (such as difficulty breathing, nausea, dizziness and fever), lipodystrophy (a loss of fat tissue resulting in an indentation in the skin or a thickening of fat tissue resulting in a lump under the skin) at the injection site, and ectopic calcifications of the eyes and kidney. 6c2d7f29e2 EIS is an extremely rare occurrence. As of 2016, there have been three published reports of EIS, involving a total of five individuals. The reports include a male case published in 1994, a female case published in 2013, and a familial case involving two sisters and a brother which was published in 2016. 6c2d7f29e2 Blood test results should always be interpreted using the reference range provided by the laboratory that performed the test. 6c2d7f29e2 ==

History == 6c2d7f29e2 If the cause for alkaline phosphatase elevation is unknown, isoenzyme studies using electrophoresis can confirm the source of the ALP. Heat stability also distinguishes bone and liver isoenzymes ("bone burns, liver lasts"). 6c2d7f29e2 In the United States, asfotase alfa is indicated for the treatment of people with perinatal/infantile- and juvenile-onset hypophosphatasia (HPP). 6c2d7f29e2 == Interpretation == 6c2d7f29e2 TNAP catalyses the breakdown of pyrophosphate (an extracellular inhibitor of hydroxyapatite precipitation). It is secreted into the osteoid by osteoblasts to allow bone mineralization to take place. 6c2d7f29e2 Several biochemical tests are useful in the evaluation and management of patients... 6c2d7f29e2 There is a remarkable variety of symptoms that depends... 6c2d7f29e2

Liver function tests conditions linked to the biliary tract (gamma-glutamyl transferase and alkaline phosphatase). Because some of these tests do not measure function, it is more Liver function tests (LFTs or LFs), also referred to as a hepatic panel or liver panel, are groups of blood tests that provide information about the state of a patient's liver. These tests include prothrombin time (PT/INR), activated partial thromboplastin time (aPTT), albumin, bilirubin (direct and indirect), and others. The liver transaminases aspartate transaminase (AST or SGOT) and alanine transaminase (ALT or SGPT) are useful biomarkers of liver injury in a patient with some degree of intact liver function 6c2d7f29e2

In the European Union, asfotase alfa is indicated for long-term enzyme replacement therapy in people with paediatric-onset hypophosphatasia... 6c2d7f29e2 Most liver diseases cause only mild symptoms initially, but these diseases must be detected early. Hepatic (liver) involvement in some diseases can be of crucial importance. This testing is performed on a patient's blood sample. Some tests are associated with functionality (e.g., albumin), some with cellular integrity (e.g., transaminase), and some with conditions linked to the biliary tract (gamma-glutamyl transferase and alkaline phosphatase). Because some of these tests do not measure function, it is more accurate to call these liver chemistries or liver tests rather than liver function tests. 6c2d7f29e2 == Function == 6c2d7f29e2 Most people with gallstones (about 80%) are asymptomatic. However, when a gallstone obstructs the bile duct and causes acute cholestasis, a reflexive smooth muscle spasm often occurs, resulting in an intense cramp-like visceral pain in the right upper part of the

abdomen known as a biliary colic (or "gallbladder attack"). This happens in 1-4% of those with gallstones each year. Complications from gallstones may include inflammation of the gallbladder (cholecystitis), inflammation of the pancreas (pancreatitis), obstructive jaundice, and infection in bile ducts (cholangitis). Symptoms of these complications may include pain that lasts longer than five hours, fever, yellowish skin, vomiting, dark urine, and pale stools. 6c2d7f29e2 The level of alkaline phosphatase in the blood is checked through the ALP test, which is often part of routine blood tests. The levels of this enzyme in the blood depend on factors such as age, sex, or blood type. Blood levels of alkaline phosphatase also increase by two to four times during pregnancy. This is a result of additional... 6c2d7f29e2 As the disease often affects people differently, treatments of Paget's disease can vary. Although there is no cure for Paget's disease, medications (bisphosphonates and calcitonin) can help control the disorder and lessen pain and other symptoms. Medications are often successful in controlling the disorder, especially... 6c2d7f29e2 It is essential to use age-specific normal reference values, as healthy infants and children usually have levels that would be considered elevated... 6c2d7f29e2 The enzyme tissue non-specific alkaline phosphatase (ALP) plays a key role in creating and maintaining healthy bones, and managing calcium and phosphate in the body. People with hypophosphatasia cannot make enough working ALP, which leads to weak bones. Asfotase alfa is a version of the human ALP enzyme and serves as a replacement, thereby increasing levels of working ALP. 6c2d7f29e2 == Medical uses == 6c2d7f29e2

Estrogen insensitivity syndrome Congenital estrogen deficiency can alternatively be caused by a defect in aromatase, the enzyme responsible for the biosynthesis of estrogens, a condition which is referred to as aromatase deficiency and is similar in symptomatology to EIS. corticosteroid-binding globulin, and prolactin levels were all normal. 7-21 Estrogen insensitivity syndrome (EIS), or estrogen resistance, is a form of congenital estrogen deficiency or hypoestrogenism which is caused by a defective estrogen receptor (ER) - specifically, the estrogen receptor alpha (ER α) - that results in an inability of estrogen to mediate its biological effects in the body. Osteocalcin and bone-specific alkaline phosphatase levels were both substantially elevated (18 6c2d7f29e2

Gallstone laboratory studies of AST, ALT, alkaline phosphatase, direct bilirubin, amylase, lipase, and white blood cell

count are normal. The term cholelithiasis may refer to the presence of gallstones or to any disease caused by gallstones, and choledocholithiasis refers to the presence of migrated gallstones within bile ducts. Acute cholecystitis, or inflammation A gallstone is a stone formed within the gallbladder from precipitated bile components 6c2d7f29e2

A reference range is usually defined as the set of values 95 percent of the normal population falls within (that is, 95% prediction interval). It is determined by collecting data from vast numbers of laboratory tests. 6c2d7f29e2 The exact cause is unknown, although leading theories indicate both genetic and acquired factors (see Causes). Paget's disease may affect any one or several bones of the body (most commonly pelvis, tibia, femur, lumbar vertebrae, and skull), but never the entire skeleton, and does not spread from bone to bone. Rarely, a bone affected by Paget's disease can transform into a malignant bone cancer. 6c2d7f29e2

ALPL Alkaline phosphatase, tissue-nonspecific isozyme (TNAP) is an enzyme that in humans is encoded by the ALPL gene. Its chemical formula is:C2916H4587O1110N707S19P2 Alkaline phosphatase, tissue-nonspecific isozyme (TNAP) is an enzyme that in humans is encoded by the ALPL gene. Its chemical formula is:C2916H4587O1110N707S19P2 6c2d7f29e2

Alkaline phosphatase Alkaline phosphatase is found in the periplasmic space of E. The enzyme alkaline phosphatase (ALP, alkaline phenyl phosphatase, also abbreviated PhoA) is a phosphatase with the physiological role of dephosphorylating The enzyme alkaline phosphatase (ALP, alkaline phenyl phosphatase, also abbreviated PhoA) is a phosphatase with the physiological role of dephosphorylating compounds. This enzyme is heat stable and has its maximum activity at high pH. Due to its widespread prevalence in these areas, its concentration in the bloodstream is used by diagnosticians as a biomarker in helping determine diagnoses such as hepatitis or osteomalacia. The enzyme is found across a multitude of organisms, prokaryotes and eukaryotes alike, with the same general function, but in different structural forms suitable to the environment they function in. coli bacteria. In humans, it is found in many forms depending on its origin within the body - it plays an integral role in metabolism within the liver and development within

the skeleton 6c2d7f29e2

Reference ranges for blood tests Reference ranges for blood tests are studied within the field of clinical chemistry (also known as "clinical biochemistry", "chemical pathology" or "pure blood chemistry"), the area of pathology that is generally concerned with analysis of bodily fluids. A reference range is usually defined as the set of values 95 percent of the normal population Reference ranges (reference intervals) for blood tests are sets of values used by a health professional to interpret a set of medical test results from blood samples. reference range provided by the laboratory that performed the test 6c2d7f29e2

Elevated alkaline phosphatase Elevated alkaline phosphate is associated with certain medical conditions or syndromes (e. g. The major function of alkaline phosphatase is transporting chemicals across cell membranes. Damage to these tissues causes the release of ALP into the bloodstream. , hyperphosphatasia with mental retardation syndrome, HPMRS). Elevated alkaline phosphatase occurs when levels of alkaline phosphatase (ALP) exceed the reference range. It serves as a significant indicator for certain medical conditions, diseases and syndromes. Alkaline phosphatases are present in many human tissues, including bone, intestine, kidney, liver, placenta and white blood cells. This group of enzymes has a low substrate specificity and catalyzes the hydrolysis of phosphate esters in a basic environment. This group of enzymes has a low substrate specificity Elevated alkaline phosphatase occurs when levels of alkaline phosphatase (ALP) exceed the reference range. Elevated levels can be detected through a blood test 6c2d7f29e2

== Symptoms and signs == 6c2d7f29e2

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