

# Water- soluble vitamin

[Health & Medicine](#)



**ASSIGN  
BUSTER**

Topic: Answer Scurvy is the deficiency disorder of vitamin c. The disorder results in altered development of the bone, pain in the joints and the patient complains of bleeding from the gums. The capacity of the blood to clot is hampered and this results in hemorrhages under the skin. Psychiatric problems may also occur due to alterations in the levels of neurotransmitters.

Increased consumption of vitamin c can result in undesirable health effects including anemia of the hemolytic variety and damage to vital organs in the human body. These include the intestine, beta cells of the pancreas and the adrenal glands. Development of the bones is also affected and renal stones can also result due to vitamin c toxicity.

Answer 2. Thiamin forms an essential component of the metabolic pathways of carbohydrates and it functions actively in the form of thiamin pyrophosphate in the metabolic processes including glycolysis, krebs cycle and the hexose monophosphate shunt. Riboflavin exists in the form of FAD and FMN and assists in energy generation from the carbohydrates, proteins as well as fats via the Krebs cycle as well as the electron transport chain.

Niacin functions in the form of NAD and NADP and it is essential for up to two hundred reactions in the human body out of which the major reactions are the dehydrogenase ones. For proteins, it works for their modification following translation and for carbohydrates it assists in the reactions of glycolysis. Vitamin b6 exists mainly as pyridoxal phosphate and its main function is in the biochemical conversion of one type of amino acid to another one.

Answer 3. Beri beri which results due to thiamin deficiency is a serious condition because it affects the major systems of the body including the

<https://assignbuster.com/water-soluble-vitamin/>

central nervous system, the cardiovascular system and the musculoskeletal system. Its results in an increase in heart size and in nervous system issues like convulsions. It also results in reduced tone in the muscles. Pellagra which is a deficiency disorder of niacin is also serious because it is characterized by loss of memory which may be irreversible as well as severe disturbances in the gastrointestinal tract. Skin lesions are also present and in extreme cases the patients may die.

Answer 4. Vegetarians are most likely to be at risk for the b vitamin deficiency diseases. This is because animal sources contain the b vitamins and only selected plant sources contain all of these vitamins. An example is vitamin b12 which is only present in the animal food sources.

Answer 5. Dementia is associated with b vitamins because their normal levels are important for the normal functioning of the central nervous system. For instance vitamin b 6 is essential for the synthesis of neurotransmitters including GABA, serotonin and dopamine. Also, thiamin is known to play a crucial role in the generation of impulses in the neurons.

Answer 6. Pregnant women need more folate because the rapidly proliferating cells have a higher demand of folate. To meet this demand in the developing baby, proper levels of folate need to be maintained. It is important because deficiency of folate can result in neural tube defects in the baby.

Answer 7. The elderly people become deficient in vitamin b 12 because vitamin b 12 deficiencies do not normally occur in healthy well fed individuals. This is because its turnover in the body is only about 0. 1 percent. Furthermore, it is also stored in the human body. Its deficiency takes as long as years for presentation and thus it is mainly the elderly who

<https://assignbuster.com/water-soluble-vitamin/>

may present with its deficiency.

Answer 8. Vitamin b deficiency disorders are serious because they affect the major organ systems in the human body including the central nervous system. For example the deficiency of vitamin b 12 can result in damage to the nerves in the nervous system and result in pathologies including Alzheimers disease and dementia. Vitamin b6 deficiency also affects the cns and affects the normal growth. The deficiency of niacin leads to pellegra and thus affects not only the central nervous system but also the gastrointestinal tract and the skin. Thus, vitamin b deficiency alters the normal functioning capacity of the human body and affects all the bodily systems.

Answer 9. Vitamin b12 is related to folate because it is essentially required by an enzyme known as methionine synthase that is involved in the metabolism of folate. this enzyme assists in the conversion of 5 methyl tetrahydrofolate to tetrahydrofolate. Lack of vitamin b 12 results in the inability of 5 methyl tetrahydrofolate to undergo conversion and hence it results in a deficiency of folate. Thus, both folate and vitamin b 12 present with similar clinical signs and symptoms.

Answer 10. The main function of biotin is for the working of the carboxylase enzymes in the human body that are required for the metabolism of lipids, carbohydrates as well as leucine which is an amino acid. Major enzymes like acetyl co a carboxylase and pyruvate carboxylase require biotin. Pantothenic acid is required in the production of coenzyme A which is important for the generation of energy. Therefore, Panthothenic acid, has a major role in the metabolic pathways of carbohydrates, lipids as well as proteins and alcohols through the production of coenzyme A.