Abstract: cause toxicity in human body. mercury

Nutrition

Abstract: Mercury is a non-essential mineral for human body.

Its small amounts can cause toxicity inhuman body. Mercury intake more than 1g is injurious to health. Studies show that oral LD10 isapprox.

100g for a 70kg man. More than recommended amounts can cause several problems inhuman body like cardiovascular diseases, Central nervous system impairment, lungs diseases andvarious metabolic issues. Mercury toxins occur in three forms; Organic mercury, Inorganic mercury and metallic orelemental mercury.

Organic mercury is the form of mercury which is soluble in organic solventsand it can be absorbed up to 95% in human body, whereas, Inorganic mercury is a water solubleform and it is accumulated in and released from kidney through urination. Metallic mercury islipid soluble form of mercury and it can reach brain crossing the blood brain barrier. It alsooccurs in the form of vapors and can be inhaled. Major sources of mercury are dental amalgam for elemental mercury, fish for organic mercuryand many preservatives for inorganic mercury. Mercuric toxicity can be treated with seleniumand other antioxidants rich foods and intake of sulfur containing amino acids (cysteine andmethionine). Besides these nutrition therapies some drugs are also created to treat toxicity ofmercury. Introduction: Toxicity is defined as the quality of being toxic or poisonous. In terms of nutrition it is excess ofany nutrient or mineral.

Where, Toxicology is defined as a branch of science concerned withnature, effects and detection of poisons. In toxicology the physical and chemical properties oftoxins are studied along with the state it results in and

treatment. Mercury is a non-essential and toxic mineral for human body. It is ranked 3rd in the list of mosttoxic substances by United States Government Agency for Toxic Substances and DiseaseRegistry (Clifton, 2007; Kevin et al., 2014). Mercury is considered to be major environmentalpollutant and is widely used in agriculture, medicines and industries. Mercury is not destroyedand it circulates in ecosystems (Jung & Zheng, 2012).

Mercury is present in different sources inthree forms i. e. Organic, Inorganic and metallic mercury. Toxicology Of MercuryOrganic mercury is present in the forms of Ethyl Mercury and Methyl Mercury. Inorganic formof mercury occurs as mercuric (Hg++) and mercurous (Hg+) salts and other compounds withsulfur chlorine or oxygen in solid state.

Metallic mercury also known as elemental mercury isliquid at room temperature and vaporizes easily (Jung & Zheng, 2012; Kevin Et Al., 2012). Mercury can enter human body via ingestion, inhalation or absorbed through skin. Its intake cancause toxicity and results depend on the form of mercury taken in.

Organic forms of mercury(Me-Hg and Eth-Hg) interferes with replication, translation and transcription, haeme synthesisand cause CNS disorders. Inorganic forms due to their water soluble nature cause renal problemsand also chest pain. Elemental mercury is mainly responsible for major CNS disorders likeAlzheimer’s disease, skin infections and lung diseases (Kevin Et Al.

, 2012; Jung & Zheng, 2012; Syverson & kaul 2014). The toxicity is treated by both MNT and drugs. States of Mercury: Mercury is present in the

environment in three forms1. Organic Mercury: Organic mercury includes compounds of mercury with organicfunctional groups like methyl (CH3), ethyl (C2H5) or phenyl (C6H5). Phenyl Mercury ispresent in different medicines as preservative (Syverson & Kaur, 2014). Ethyl Mercuryis in the form of thimerosal present in vaccines, and is the recent most concerned form ofmercury (Clarkson & Magos, 2008; Guzzi & La Porta, 2008; Kevin Et. Al.

2014). Methyl Mercury is, due to its lipid soluble nature, easily taken up by lower organisms. Itis therefore, present in edible tissues of such animals (Clarkson & Magos, 2008; KevisEt. Al., 2014). Half-life of methyl mercury is approx. 39-70 days. (Kevin et.

Al., 2014). 2. Inorganic Mercury: Inorganic form of mercury occurs as Mercuric (Hg++) Salts, Mercurous (Hg+) Salts and Mercuric chloride (calomel). Calomel is quite insoluble inwater and is considered less harmful (Syverson & Kaur, 2014). Mercuric and MercurousSalts are more water soluble and more toxic. These are easily absorbed in GastrointestinalTract System (Byrns & Penning, 2010; Kevin Et.

Al., 2014). Half-life of InorganicMercury is around 40 days (Kevin Et.

Al., 2014)3. Metallic Mercury: Metallic mercury is commonly known as Elemental Mercury. Elemental Mercury has a low vapor pressure (2µm Hg) but also low latent heat of Toxicology Of Mercuryevaporation (295kJ/kg). Due to this property it is vaporized easily (Byrns & Penning, 2010; Kevin Et. Al.

, 2014; Jung & Zheng, 2012). Mercury vapor is a monoatomic gas(Clarkson, 1998). It is transported to brain either by dissolving in serum or adhering tocell membranes (Bernhoft, 2011). Exposures to elemental or metallic mercury occur atworkplaces or at homes (Syverson & Kaur, 2014).