

IODINE DEFICIENCY DISORDER

Ques 1- What is National Iodine Deficiency Disorders Control Programme (NIDDCP)?

Ans-Realizing the magnitude of the problem the government of India launched a 1000 per cent centrally assisted National Goitre Control programme (NGCP) in 1962. In August 1992, the National Goitre Control Programme (NIDDCP) with a view to cover a wide spectrum of Iodine Deficiency Disorders like mental and physical retardation, deaf-mutism, cretinism, still-births, abortion etc. Total BAN for selling non iodised salt for edible purposes is in force from 1.1.1995

Ques 2- What are the Objectives of NIDDCP?

Ans-

- Surveys to assess the magnitude of the Iodine Deficiency Disorders
- Supply of iodated salt in place of common salt.
- Resurvey after every 5 years to assess the extent of iodine deficiency disorders and the impact of iodated salt.
- Laboratory monitoring of iodated salt and urinary iodine excretion
- Health education and publicity

Ques-Which ministry is responsible for making policy decisions on NIDDCP?

Ans-The ministry of health and family welfare is the nodal ministry for policy decisions on national iodine deficiency disorders control programme (NIDDCP)

Ques- What standards have been laid down by the nodal ministry for iodated salt?

Ans- Standards of iodated salt under the provisions of the prevention of food adulteration act are:

- Moisture-not more than 6.0 per cent by weight of the sample salt
- Sodium chloride-not less than 96.0% by weight on dry basis
- Matter insoluble in water-not more than 1.0% by weight on dry basis
- Matter soluble in water other than sodium chloride-not more than 3.0% by the weight on dry basis

Iodine content at:

- a. Manufacturing level: not less than 30 parts per million (PPM) on dry weight basis
- b. Distribution level: not less than 15 parts per million on dry weight basis

Ques-What are techniques of examining Iodine Deficiency Symptoms?

Ans-From the clinical point of view, the diagnosis of goitre is entirely on inspection and palpation of the neck

Ques-What are the grades of Iodine Deficiency disorder?

Ans- Grade Description

Grade 0 no palpable or visible goitre /no goitre

Grade 1: Amass in the neck that is consistent with as enlarged thyroid, that is palpable (capable of being discerned by the sense of touch) but not visible. When the neck is in normal position. it moves upward in the neck as the subject swallows. Nodular alteration(S) can occur even when the thyroid is not enlarged/ goitre palpable but not visible.

Grade 2: a swelling in the neck that is visible when the neck is in a normal position and is consistent with an enlarged thyroid when the neck is palpated/ goitre visible and palpable.

Ques-Which is the richest source of Iodine?

Ans-Sea water is the richest source of iodine on earth Iodine deficiency is characterized by swelling of thyroid gland in the neck.

Ques- Give the spectrum of IDD across the life-span?

Ans-

Fetus
Abortions Stillbirths Congenital anomalies Increased perinatal mortality Endemic cretinism Deaf mutism
Neonate
Neonatal goitre Neonatal hypothyroidism Endemic mental retardation Increased susceptibility of the thyroid gland tonuclear radiation
Child and adolescent

Goitre (Subclinical) hypothyroidism (Subclinical) hyperthyroidism Impaired mental function Retarded physical development Increased susceptibility of the thyroid gland to nuclear radiation
Adult
Goitre, with its complications Hypothyroidism Impaired mental function Spontaneous hyperthyroidism in the elderly Iodine-induced hyperthyroidism Increased susceptibility of the thyroid gland to nuclear radiation

Ques- What are the health consequences of iodine deficiency?

Ans-Health consequences Iodine is present in the body in minute amounts, mainly in the thyroid gland. Its main role is in the synthesis of thyroid hormones. When iodine requirements are not met, thyroid hormone synthesis is impaired, resulting in hypothyroidism and a series of functional and developmental abnormalities grouped under the heading of "Iodine Deficiency Disorders (IDD)"

Ques-What is iodated (iodised) salt?

Ans- Iodated or iodised salt is used to prevent iodine deficiency. It is common salt containing minute quantities of an iodine compound. Iodated salt looks, tastes and smells exactly the ordinary salt and it should be used in the same way.

Ques-What is Iodine?

Ans-Iodine is a natural element which is essential to human life. It is an essential nutrient. Some of the most vital functions of the human bod depend upon a steady supply of iodine.

Ques-Why is iodine so important?

Ans- Iodine is essential for the normal growth , development and functioning of both the brain and body. A lack of iodine can give rise to goitre and make aperson dull, listless and easily tired. Such a person is less active than a normal individual.

But more importantly, without enough iodine, a newborn’s brain and body a=can become permanently retrarded and stunted. Iodine is needed vitally during early childhood, puberty and pregnancy .a women who is deficient in iodine is likely to produce an abnormal child. If left untreated, the child’s mental and physical condition worsens as he grows older.

Ques-How much iodine does a person normally need?

Ans-The average daily requirement of an adult is 150 micrograms a day, an amount so small that it could fit on to a pinhead (1,000,000 micrograms = 1 gms). An average lifetime requirement of an individual would add upto less than a teaspoonful. However, it is important that the body gets this iodine regularly everyday. This is why it must form part of every person's daily diet.

Ques- From where do we normally get iodine?

Ans-Iodine is present in its natural state in the soil and in water. So our normal requirement comes from crops grown on iodine rich soil. But when the soil of any area lacks iodine, the crops too are deficient in this essential nutrient. Consequently, people who live on iodine – deficient land and eats its crops regularly, do not get their daily requirement of this essential element.

Ques- What happens if a person does not get enough iodine?

Ans-Goitre is only one of the main consequences of iodine deficiency. A number physical and mental abnormalities, some serious, some mild, result from iodine deficiency.

Ques- What exactly is a goitre?

Ans- A goiter is a swelling of the neck caused by an enlarged thyroid gland. When the body does not get enough iodine, the thyroid increases in size. Not all goiters are visible . many of them particularly in the early stages, can be detected only by an experienced doctor. It is only when a goitre grows quite large that it can be seen and recognised by everyone. A person with a goitre may also have other hidden iodine deficiency disorders.

Ques-What are Iodine Deficiency Disorders (IDD)?

Ans- IDD form a spectrum of abnormalities which include goitre, mental retardation, deaf mutism, squint, difficulty in standing or walking normally and stunting of the limbs. Iodine deficient women frequently suffer abortions and still-births. Their children may be born deformed, mentally deficient or even cretins. All these problems are caused by a simple lack of iodine, and goitre is the least tragic of them.

Ques-Why does a child become a cretin?

Ans-A baby growing in the mother's womb needs a steady supply of iodine for the normal growth and development of its brain and body .only the mother's body can provide this essential iodine. But if the mother is iodine-deficient, the child too is deprived of this much needed nutrient. If the women's deficiency is severe, the child's brain and body are seriously and permanently stunted, and he becomes a cretin, unable to walk, talk or think normally. If the mother's deficiency is minor, the child will still be affected, even though he may look normal. The damage to his brain usually shows up years later in poor school performance

and an inability to perform normal, everyday tasks. Millions in our country suffer from this form of iodine deficiency and it affects the social and economic progress of whole regions.

Ques-Where does IDD occur in India?

Ans-The areas of severest iodine deficiency lie in the great sub-Himalayan belt that extends from Jammu and Kashmir, all along North India, to the north east, covering an area of 2500 square kms. But IDD has been reported from Maharashtra, Gujarat, Madhya Pradesh, Andhra Pradesh, Orissa, Karnataka, Kerala, Tamil Nadu, Goa, Rajasthan, West Bengal and Delhi in fact, no state/UT in India is free from IDD.

Ques- Can the daily consumption of iodated cure goitre, cretinism and other iodine deficiency disorders?

Ans-Cretinism is permanent and incurable. Like many other Iodine Deficiency Disorders, with the exception of certain types of goitre, it cannot be cured but it can be easily prevented before it occurs. The regular consumption of iodated salt provides protection to present and future generations against the tragic consequences of IDD.

Ques-Are there any special foods that I can eat which are rich in iodine?

Ans-Except for certain types of seaweed, there are no foods that are inherently rich in iodine. All foods derive its iodine from the soil from which it grows. If the soil is poor in iodine all the food grown on it will be low in iodine. Therefore in areas of iodine deficiency, the only way to ensure a steady intake of essential iodine is by adding it to the diet in the form of iodated salt.

Ques-Why is iodine added to salt? Can't it be taken separately, like medicines?

Ans-An important fact about iodine is that although it is needed in tiny amounts, it is needed regularly, everyday. While it could be taken every day like medicine or a vitamin tablet, this would involve taking a tablet every day for the rest of the life. Salt, however, is something that we all use everyday. All of us eat roughly the same amount of salt 10 grams a day, and if it is iodated, we automatically get the right amount of iodine.

Ques-But if I live in an area that is not iodine-deficient, won't the extra iodine in the salt harm me?

Ans-No, it will not. All of us need a certain amount of iodine to function normally. If this iodine is already available to the body, it will simply reject any additional quantities and excrete it unused through the urine. On the other hand, if you are deficient in iodine, your thyroid gland will use as much iodine as it needs and reject the rest. This makes iodated salt safe for everyone. Remember iodine is an essential nutrient –not a medicine.

Ques-Can iodated salt be used by pregnant women, very young children or someone who is ill? Is it like ordinary salt?

Ans-Every person- young, old, sick or healthy – needs iodine every day. Pregnant women and young children need it even more than others, so it is not only safe but also necessary for them to use iodated salt every day.

Ques-How can I tell if salt contains iodine?

Ans- To ensure the use of iodated salt the central government has issued the notification banning the use of non-iodated salt for direct human consumption in the country with effect from 17th may, 2006 under the Prevention of Food Adulterating Act 1954. A low cost testing is available which allows you to test for the iodine content of the salt on the spot.

Ques-Is it possible to use iodated salt for livestock?

Ans- Iodated salt improves the health and productivity of animals and reduces the number of still births and miscarriages,. Also, cattles who are fed iodated salt produce milk that is rich in iodine.

Ques-Can iodated salt be stored like normal salt?

Ans- Storing iodated salt involves a few precautions .the iodine in the salt can be destroyed by prolonged exposure to direct sunlight and moisture. Therefore, store the salt in an air-tight container made of plastic, wood, glass or clay with a well-fitting lid. Make sure you consume iodated salt as early as possible.

Ques-How long will I have to keep using iodated salt?

Ans-If you live in an iodine-deficient environment, there is no likelihood of the deficiency being corrected at the source, namely in the soil. On the contrary, the increased degradation of our environment is making the problem worse, large scale deforestation among other things, has led to increased flooding and erosion of the top soil, which is carries away the precious iodine. With the environmental deficiency growing worse day =by day, iodine supplementation will have to become part of our everyday lives. Most countries in Europe and America have been iodating salt continuously since 1920s for this is the only safe, long term answer to a problem that threatens the physical and mental well-being of millions of unsuspecting people. Using iodated salt everyday is the only way to protect yourself and your children from the tragic and completely preventable effects of iodine deficiency. It is a small investment towards helping your children and their children to get the best chance to grow up with sound minds in healthy bodies.

Ques-What does adequately iodised salt at household level?

Ans-Adequately iodized salt refers to at least 15 ppm at household level

Ques-What is the Percentage of household using adequately iodised salt?

Ans-According to NFHS-3, among the household that had their salt tested just over half (51%) were using salt that was adequately iodized and another half were using salt that was either inadequately iodized or was not iodized at all.

Ques-How many people in India are exposed to the risks of iodine deficiency disorder?

Ans-It has been estimated that 200 million people in India are exposed to the risk of iodine deficiency and more that 71 million suffer from goitre and other iodine deficiency disorders (MoWCD, 2005).

As per districts survey conducted by Directorate General of Health services., ICMR, AIIMS, NIN, Hyderabad, state Health Directorate and other Health Institutions, out of 365 districts surveyed covering all states/UTs, 303 districts are endemic where the prevalence of IDD is more than 10 %. Thus, no state/UT is free from IDD. Findings from NFHS-3 also showed that the use of non-iodized salt was high in rural areas as compared to urban areas due to better transport facility in urban areas. However, CES (Coverage Evaluation Survey) shows that the household consumption for iodised salt has increased to 71%.

About 90% of the iodine requirement is met through food, while the rest is obtained through drinking water. Daily intake of 10 gm. iodated salt having iodine at a minimum level of 15 ppm provides about 150 ug per day, in addition to iodine present in foods consumed.

Ques- Give the RDA for Iodine.

Ans- RDA (2010) of iodine for various physiological groups

Category/Age	RDA of Iodine		Upper limit (ug/kg/d)
	(ug/kg/d)	(ug/d)	
Infants (0-6m)	6-30	Breast milk	Breast Milk
7-12m		90	140
Young children (1+ to 5 y)		90	50
School-age children (6to12y)	4	120	50
Adolescents and adults(≥ 13 y)	2	150	30
Pregnant women	4.5	250	40
Lactating Women	4.5	250	40

Ques-What is the procedure for use of Spot Testing Kit (STK)?

Ans-

- ✓ Take a spoonful of iodated salt to be checked and spread it flat.
- ✓ Open the seal of the ampule (white cap) by making a pin hole.
- ✓ Discharge a drop of the test solution on the surface of the salt by gently pressing the ampule.
- ✓ The salt will turn light blue to dark violet depending on the iodine content of the salt.
- ✓ Use the colour chart given on plastic box to compare and determine the iodine range in the iodated salt.

IF THE SALT IS ALKALINE OR MIXED WITH ALKALINE FREE FLOW AGENTS, A DROP OF TEST SOLUTION WILL NOT DEVELOP ANY COLOUR EVEN IF IODINE IS PRESENT, WHENEVER ONE GETS NO COLOUR INDICATION PLEASE ADOPT PROCEDURE GIVEN BELOW:

- ✓ Take a spoon of salt on plate and level it
- ✓ Add one drop of Recheck solution (Red cap)
- ✓ Over the same spot, put one drop of test solution (white cap)
- ✓ If iodine is present colour will develop. If Iodine is not present no colour indication will be there.

Note: Shelf life of spot testing kit is 18 months.

Ques- What are the components of STK?

Ans-In the spot testing method, estimation of iodine content in salt is done with the help of a standard starch solution provided in the Spot Testing Kit (STK). The STK consists of a test solution (A), and a recheck solution (B).

One drop of test solution (A) will be added to a pinch of salt sample.

Ques- How is the change in colour related with amount of iodine present in the salt simple?

Ans -Change in colour of salt sample will range from white to dark violet depending on the iodine content of salt, *i.e.* Nil, less than 15ppm, and 15 ppm and above, which will be compared to the standard colour chart provided with the kit. If on addition of test solution (A), no change in colour of salt is observed, the recheck solution (B) will be added. This will be done to make the salt medium acidic, in case the salt has alkaline constituents, then the test solution (A) will be added again. The intensity of the blue colour will be directly proportionate to the iodine content of salt

http://saltcomindia.gov.in/NIDCCP_Estimation&Content.html

Ques-Has it been mandated to use Double Fortified Salt in ICDS?

Ans-The government has now decided, to begin with, ministries dealing with food and nutrition programmes like ICDS and mid-day meal programme will make use of fortified iodised salt (double fortified salt) mandatory in those programmes, in an appropriate manner.

http://planningcommission.nic.in/aboutus/committee/wrkgrp12/health/WG_3_2non_com_municable.pdf

Ques-What are the new initiatives in the 12th five year plan under National Iodine Deficiency Disorders Control Program?

Ans-Under the 12th Five Year Plan new initiatives stated in 2011-12 have been included to ensure that 100% population consumes adequately iodated salt at the household level which is very low at present in comparison to neighbouring countries as per WHO/UNICEF report.

Ques-What are the Program Goals of NIDDCP?

Ans-The following goals of National Iodine Deficiency Disorders Control Programme (NIDDCP)

taking into account the MDG for the 12th Plan are proposed:

- To bring down prevalence of IDD below 5% in the entire country by 2017 AD.
- To ensure 100% consumption of adequately iodated salt (15 PPM) at the household level.

Ques Mention the Health Education and Publicity activities for NIDDCP under 12th five year plan.

Ans-Health Education activities under NIDDCP have been intensified in association with the Song and Drama Division, Directorate of Field Publicity, DAVP, Railways reservation ticket and the All India Radio to promote the consumption of iodated salt in the remote and backward areas, besides, telecast of IDD spots through Doordarshan, Prasar Bharati. It is proposed that during the 12th Five year Plan period besides the above organizations IEC activities will also be carried out through the Private TV Channels

Ques-What is a salt testing kit (STK)?

Ans- A simple kit has been developed for on the spot estimation of iodine content.

Qualitative iodated salt testing at the community level for creating awareness. A Salt testing kit (STK) to show the presence of iodine in iodated salt has been developed as an effective tool for creating awareness and monitoring of iodine content of salt among the community. In order to insure 100% consumption of iodated salt at the community, it is proposed to distribute about 12 salt testing kits to each ASHA/ AWW/Health worker at the community level. The number of ASHA in the country is about 8.4 lakh. The cost of one Salt Testing Kit is about Rs.12