



INDIAN DIETETIC ASSOCIATION (IDA)

# WORLD IODINE DEFICIENCY DAY

Global Iodine Deficiency Disorders Prevention Day is observed every year on 21st October.

“Iodine deficiency is so easy to prevent that it is a crime to let a single child be born mentally handicapped for the reason.” H. Labouisse  
Executive Director, UNICEF (1978)



## INTRODUCTION

Iodine is an essential micronutrient required for normal thyroid function, growth, and development.

Iodine Deficiency is a global and public challenge to eliminate brain damage and disorders due to Iodine Deficiency.

USI- “Universal Salt Iodisation” A measure to tackle Iodine Deficiency

Iodisation in India a 92% success story with 78% of household consuming Iodised salt (Chandrakanth,2013).

## FUNCTIONS OF IODINE

Oral consumption of iodine can enhance your body’s defence mechanism and help you fight against infections in a better way

Iodine provides us with a safe way to strengthen our own immune system and an effective antiviral/antifungal/antibiotic.<sup>10</sup>

### GLOBAL STATUS OF IODINE IN INDIA IS ADEQUATE AS PER THE GLOBAL SCORECARD OF IODINE NUTRITION 2020

Country or territory	Median UIC (µg/L)	Date of survey	Data type	Population surveyed	Iodine intake 2, 3	References
India	178	2019	N	WRA	Adequate	(65)

Abv :  
UIC - Urinary Iodine Concentration  
WRA - Women of Reproductive Age

# PREVALENCE-INCIDENCE OF IODINE DEFICIENCY IN INDIA



54 million  
Goiter



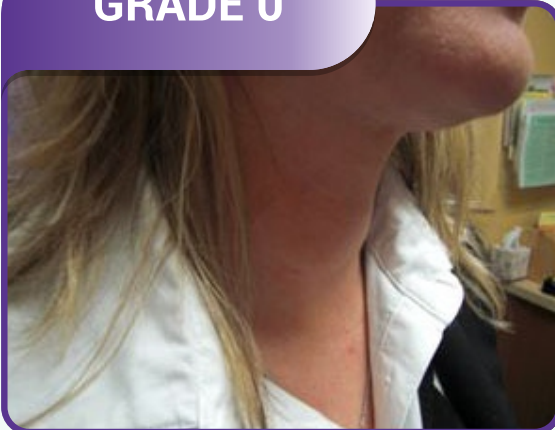
2.2 million  
Cretinism



90,000  
Still births &  
neonatal deaths

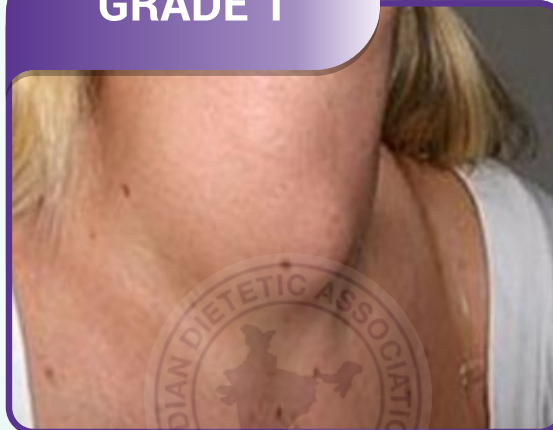
## GRADES OF GOITER AS PER WHO GUIDELINES

### GRADE 0



- Not palpable / visible
- Class One Goiter cannot be seen, but it can be felt.

### GRADE 1



- Mass in the neck that is palpable
- Class Two Goiter is both easily felt and seen.

### GRADE 2



- Swelling in the neck / Visible
- Class Three Goiter is very large and causes pain.
- Pressure in the neck can result in compression marks.

## RDA - IODINE REQUIREMENT / DAY



1-3 years  
90 µg



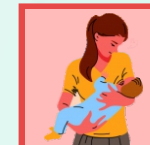
4-9 yrs  
120 µg



Adolescent  
/ Adult  
150 µg



Pregnancy  
250 µg



Lactation  
280 µg

## IODINE DEFICIENCY “A GLOBAL HEALTH CONCERN ACROSS ALL AGES FROM CONCEPTION TO ADULT”



- Iodine single largest cause of preventable brain damage
- Iodine deficiency can cause a spectrum of disorders
- Affects from intra-uterine to old age
- Crucial from 15th week of gestation to age 3 years.
- **High Risk : Pregnant women, Lactating women & women of reproductive age, children < 3years**
- **Most damaging consequences -First 1000 days**
- **Most vulnerable age - 6 - 12 years.**
- **Reduced School performance - 6 years onwards**
- **Reduced work productivity - In adults**

Gurmeet Kaur<sup>1</sup>

## RISK FACTORS FOR IODINE DEFICIENCY WHILE BREASTFEEDING



- Women who do not consume dairy products.
- Women who smoke cigarettes.
- Women who do not use iodized salt.
- Women who eat foods containing goitrogens, which are substances that can affect how well the thyroid gland makes thyroid hormones.
- These foods include raw forms of brussel sprouts, kale, cabbage, cauliflower, radishes, and broccoli

## MANIFESTATIONS OF IODINE DEFICIENCY

- Goitre
- Cretinism in children
- Pregnancy - abortion, still birth, brain damage
- Children - Learning disability, Mental retardation, Psychomotor defects, Hearing /speech impairments.
- Children can lose up to 13.5 IQ points
- Adolescence - dry skin
- Overdose of iodine linked with thyroid cancer, overactive thyroid & goitre.
- Indicators are marked in children and adults
- Increased Demand During Pregnancy / Lactation

## WARNING SIGNS OF IODINE DEFICIENCY

- Pregnancy complications
- Thinning of hair
- Learning difficulties / attention problems
- Difficulty losing weight (Kapil Yadav, 2018)

## INTAKE OF IODISED SALT COULD PREVENT A SPECTRUM OF IODINE DEFICIENCY DISORDERS

- Pregnancy complications – Abortions, Still births, congenital anomalies, increased perinatal mortality, infant mortality, Neurological cretinism, Myxedematous cretinism.
- Neonate – Neonatal Goitre ,Neonatal Hypothyroidism
- Adolescents – Goitre, Juvenile Hypothyroidism, impaired mental function
- Adult - Hypothyroidism, Impaired mental function(Umesh Kapil, 2007)

## NATURAL BEST SOURCES OF IODINE

- Sea weeds, spongy shells, sea fish are rich sources of iodine.
- Green vegetables and leaves like spinach grown on iodine rich soil are good sources.
- Other common sources are milk, meat, and cereals
- Eating too much of Goitrogenic foods inhibits the availability of iodine to the body from the food and thus leads to the development of goiter
- Cruciferous vegetables, cabbage, Broccoli, cauliflower, Brussel sprouts, soy & soy products are Goitrogenic. (Umesh, 2007)

# SUSTAINABLE VEHICLE FOR IODINE FORTIFICATION IN INDIA

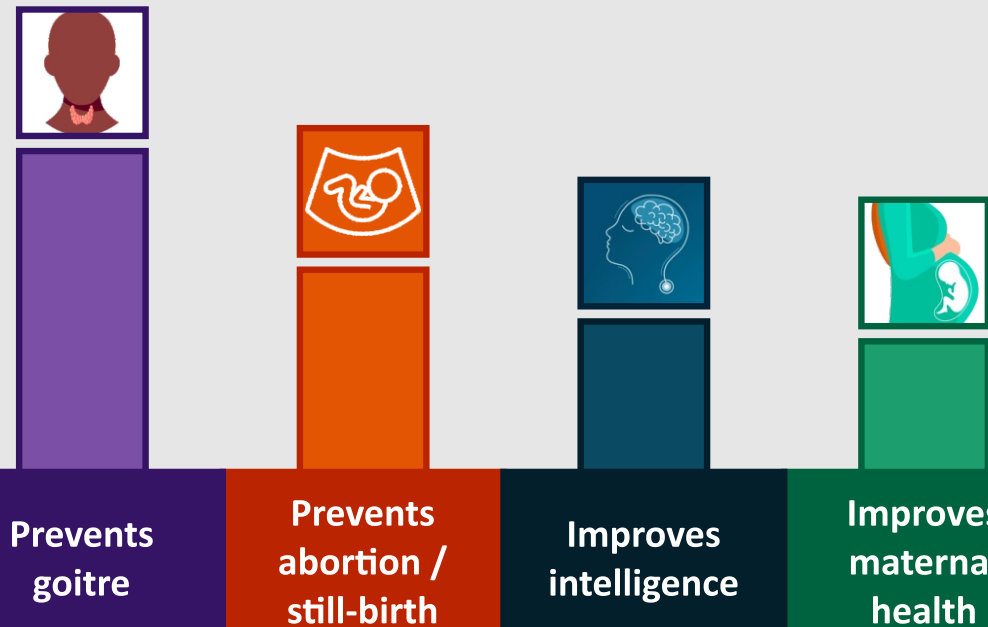
## • IODIZED SALT

### HOW CONSUMERS IDENTIFY IODISED SALT



ign.org/cm\_data/2019-INDIA-National-Nutrition-v14.pdf

### BENEFITS OF IODIZED SALT



### MEASURES TAKEN TOWARDS CREATING AWARENESS OF IODINE FORTIFICATION

#### LOOK OUT FOR DOUBLE FORTIFIED SALT WITH IRON AND IODINE



**FORTIFIED**  
SAMPOORNA POSHAN  
SWASTH JEEVAN

Food Safety and Standards Act 2006; prevents the sale of non-iodized salt for human consumption (Kapil Yadav, 2018)

#### TO PREVENT IODINE LOSS IN COOKING

- Advisable to add salt towards the end of cooking
- Store iodized salt in closed container
- Store in a cool dry condition
- Minimum loss of iodine during shallow frying
- Maximum loss of iodine when pressure cooked

# MYTHS AND FACTS

## MYTH

Sea salt has lower sodium content than iodized salt



## FACT

By weight, sea salt and iodized salt contain the same amount of sodium.

## MYTH

Sea salt is healthier because it's unprocessed.



## FACT

Iodized salt is also harvested from sea but is subjected to processing to improve edible quality and also supplemented with a defined amount of iodine for a blanket coverage of iodine requirement of population at large.

## MYTH

Raw sea salt is a natural source of iodine that will fulfill my dietary need for iodine.



## FACT

Raw sea salt does contain some iodine but it is lost due to excessive exposure to sunlight in salt pans

## MYTH

Reducing salt intake will lead to iodine deficiency



## FACT

Reducing visible salt intake is good measure to improve blood pressure .

# CONCLUSION

- IDD are invisible and irreversible but at the same time preventable
- A teaspoon of iodized salt can cover your iodine needs and ensure to prevent the triple D burden of disorders, diseases and disabilities
- There is a need to reach the unreached population and cover the 'last mile' of USI success story of India.
- This calls for developing and implementing the 'end game strategy' to accelerate, achieve and sustain the elimination of IDD in India.

**NOTE : RDA for salt is 5g per day as per WHO, which requires further individualization based on presence of hypertension and associated co morbidities**

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**Compiled & Contributed by Indian Dietetic Association (IDA), Chennai Chapter**

**Reviewed by Scientific Committee, IDA**

Issued in Public Interest by:

**INDIAN DIETETIC ASSOCIATION (IDA)**

