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.

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

<table>
<thead>
<tr>
<th>Country or territory</th>
<th>Median UIC (µg/L)</th>
<th>Date of survey</th>
<th>Data type</th>
<th>Population surveyed</th>
<th>Iodine intake 2, 3</th>
<th>References</th>
</tr>
</thead>
<tbody>
<tr>
<td>India</td>
<td>178</td>
<td>2019</td>
<td>N</td>
<td>WRA</td>
<td>Adequate</td>
<td>(65)</td>
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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

References
(Reddy, 2019)
The Thyroid Gland Cellina Brown, Published by Emmeline Johns
ICMR Nutrient requirements for Indians (2020)
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 < 3 years
- Most damaging consequences - First 1000 days
- Most vulnerable age - 6 - 12 years.
- Reduced School performance - 6 years onwards
- Reduced work productivity - In adults

Gurmeet Kaur¹

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

**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)

**WARNING SIGNS OF IODINE DEFICIENCY**

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

**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

55.3
Use of the word iodised

48.5
Brand name

21.1
As informed by the shopkeeper

20.5
Smiling Sun logo

BENEFITS OF IODIZED SALT

MEASURES TAKEN TOWARDS CREATING AWARENESS OF IODINE FORTIFICATION

LOOK OUT FOR DOUBLE FORTIFIED SALT WITH IRON AND IODINE

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
**MYTH**

Sea salt has lower sodium content than iodized salt

**FACT**

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

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**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.

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**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.

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**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 comorbidities

REFERENCES

- Division of Nutrition, Physical Activity, and Obesity, National Center for Chronic Disease Prevention and Health Promotion
- https://www.health.harvard.edu/heart-health/cut-salt-it-wont-affect-your-iodine-intake