

Prenatal & Early Childhood Targets in Obesity Prevention

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Determinants of Obesity

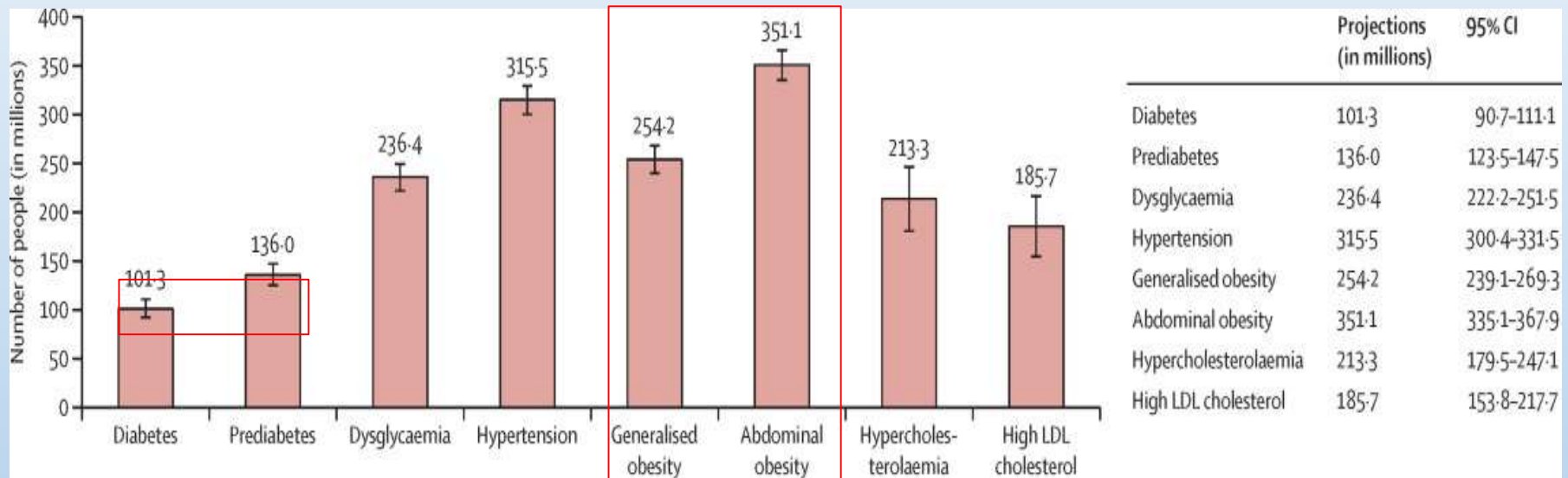
Obesity is a complex condition influenced by a variety of genetic, environmental, and behavioral factors. Understanding the key determinants is crucial for developing targeted interventions.

Factors such as diet, physical activity, sleep, stress, and socioeconomic status all play a significant role in the development of obesity.



The rising prevalence of obesity and other metabolic NCDs in India

Projections for metabolic disease prevalence in India



See abdominal obesity and generalized obesity in india

Childhood Obesity around the world

The prevalence of childhood obesity is

increasing globally, with the NCD Risk Factor

While rates remain relatively low in many low- and middle-income countries, the trend is of growing concern.

65.1M

Girls aged 5-19 living with obesity globally

94.2M

Boys aged 5-19 living with obesity globally

6.9%

Global prevalence of obesity for girls in 2022

9.3%

Global prevalence of obesity for boys in 2022



Childhood Obesity in India

Unicef's World Obesity Atlas predicts that India will have over 27 million obese children by 2030, representing one in 10 children globally. This rising trend poses a significant public health challenge,

Definition of Childhood Obesity



CDC Growth Chart

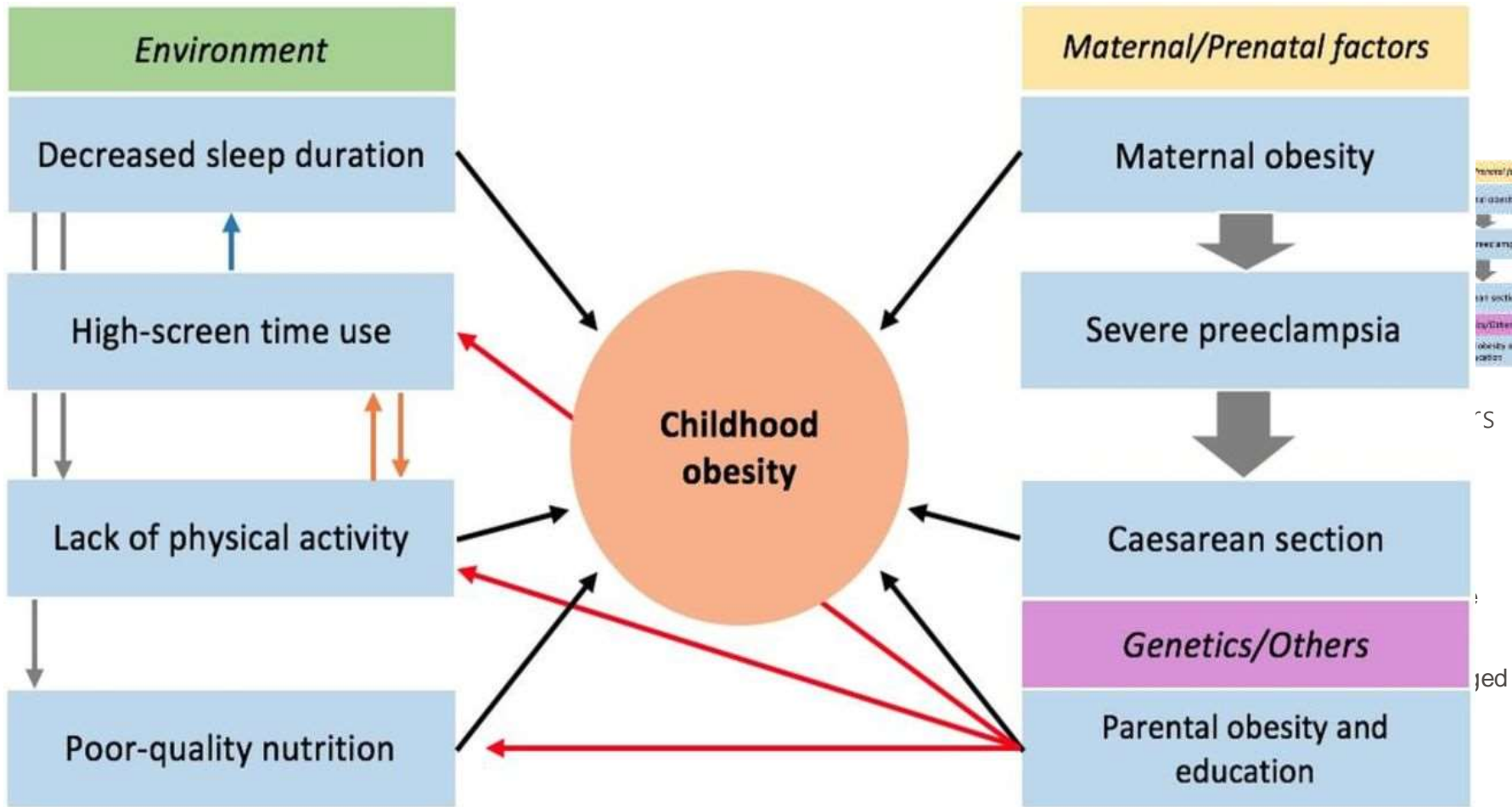
According to the CDC, a child is considered obese if their body mass index (BMI) is at or above the 95th percentile for their age and sex.

BMI Categories

Underweight: Less than 5th percentile. Healthy weight: 5th to less than 85th percentile. Overweight: 85th to less than 95th percentile. Obesity: 95th percentile or greater.

WHO Growth Reference

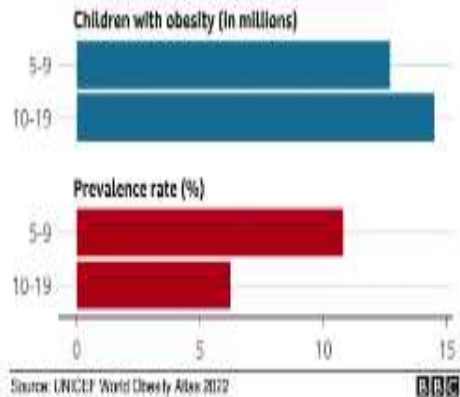
According to the WHO, overweight is defined as 1 standard deviation BMI for age and sex, while obesity is 2 standard deviations BMI for age and sex.



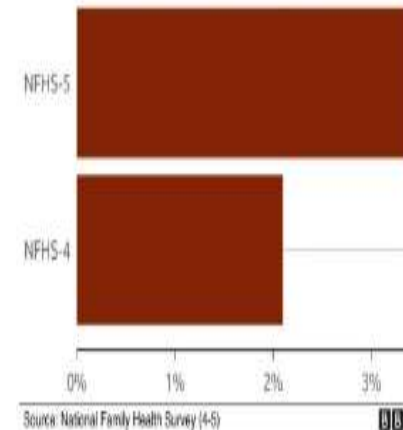
Childhood Obesity in India - Paradox

In India, where 36% of children under five are still stunted, gains in combating undernutrition are offset by the rise in overnutrition and childhood obesity. This dual burden of malnutrition is a significant public health challenge requiring comprehensive interventions.

One in 10 obese children globally will be from India by 2030



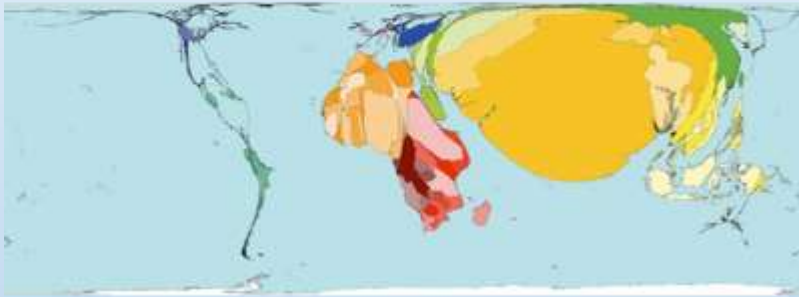
Children under 5 who are overweight



Type 2 Diabetes - The Dogma

Capital of two

Under nutrition: LBW, under 5y



Susceptibility

Genetic **Non-Modifiable**
Neele's Thrifty Genotype

Diabetes

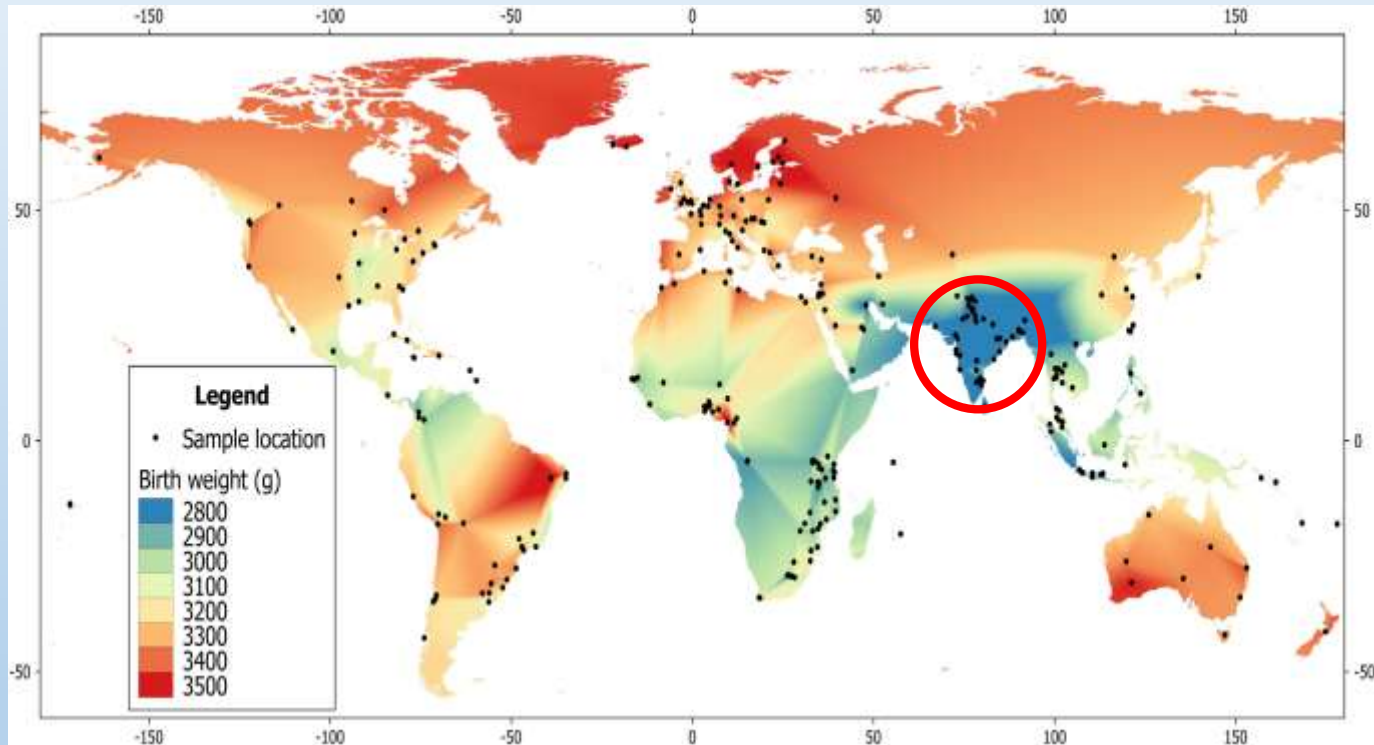


Precipitating Factors

Obesity, Diet
Physical inactivity, Stress

(cartography) worldmapper.org

Global Heat Map of Birth Weight, based on WHO Data



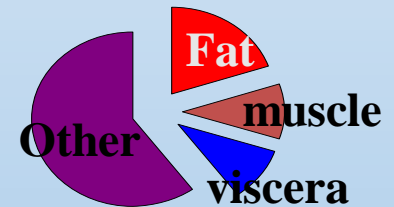
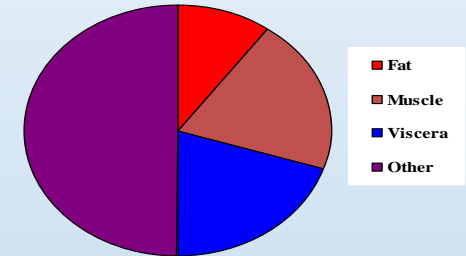
Small Thin Fat Indian Baby

- **Small size, more fat**
- **Less muscle, less viscera**
- **High Insulin**
- **High leptin**
- **Low Adiponectin**

- *In-utero* environment premature delivery with more CS
- Maternal factors, PCOS, GDM· Maternal obesity
- THIN –FAT PHENOTYPE

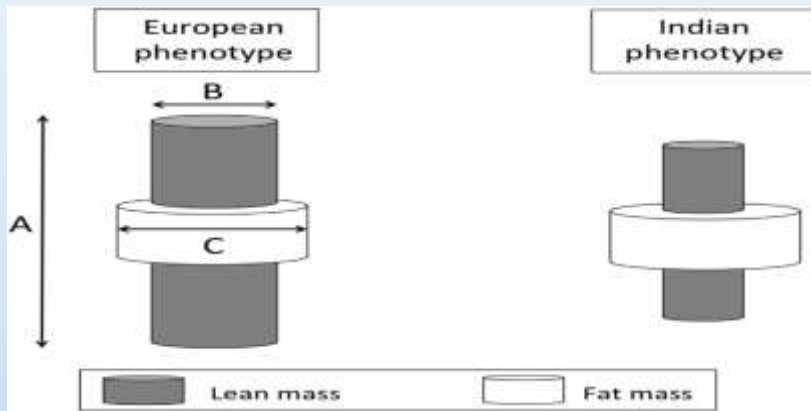


Body Composition of Newborn

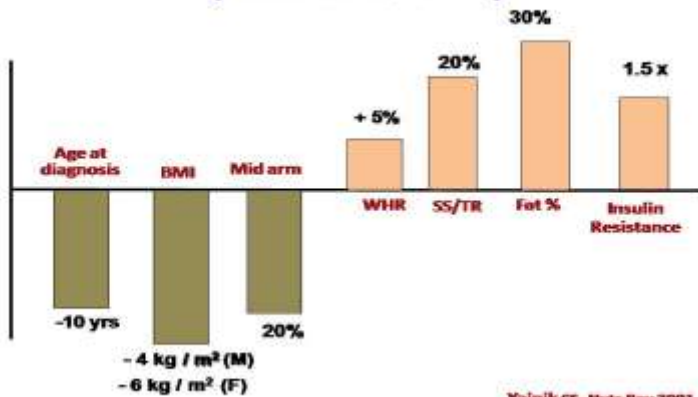


Susceptible for diabetes and CV disease even at birth

Yajnik et al, JCEM, 2002 ,Yajnik et al, Int J Ob, 2003



Newly diagnosed Type 2 DM (Indian vs UK white)

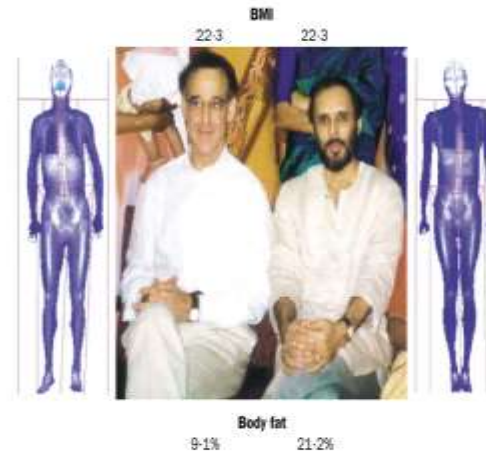


Clinical picture

Thin-fat Indian

The Y-Y paradox

Chittaranjan S Yajnik, John S Yudkin



The two authors share a near identical body-mass index (BMI), but as dual X-ray absorptiometry imagery shows that is where the similarity ends. The first author (figure, right) has substantially more body fat than the second author (figure, left). Lifestyle may be relevant: the second author runs marathons whereas the first author's main exercise is running to beat the closing doors of the

elevator in the hospital every morning. The contribution of genes to such adiposity is yet to be determined, although the possible relevance of intrauterine under-nutrition is supported by the first author's low birthweight. The image is a useful reminder of the limitations of BMI as a measure of adiposity across populations.

Diabetes Unit, KEM Hospital Research Centre, Rasta Peeth, Pune 411011, India (C S Yajnik MD); International Health and Medical Education Centre, University College London, UK (J S Yudkin FRCP)

A new thought...



Intervene early to *prevent obesity*



Prenatal factors which can help to prevent obesity

“The womb may be more important than the home,”

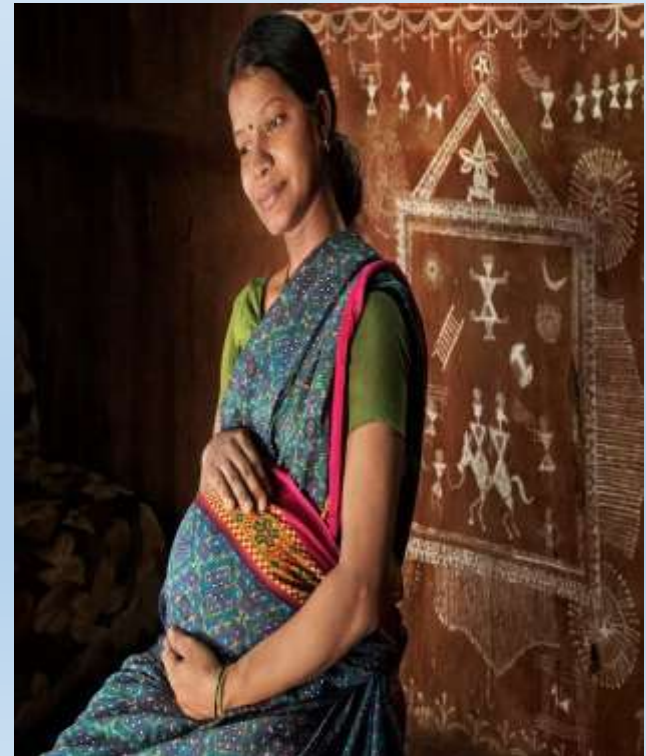
Highest risk of metabolic syndrome seen in those with lowest birth weight

(Barker 1993 ; Hales & Barker 2001)

- **Healthy Moms have Healthy Babies**



Adult diseases are programming by the environment developed in fetal and infant life.”
[Barker, 1990](#)).



Prenatal Targets for Obesity Prevention

- Target Maternal Malnutrition
- Target Childhood Overnutrition & Obesity
- Target Lifestyle of adolescents and adults



Preparing every female child for healthy motherhood.

Nutrition Interventions: Optimizing Maternal Diet

Balanced Meals

Emphasize whole, nutrient-dense foods like fruits, vegetables, whole grains, and lean proteins.

Micronutrient Intake

Ensure adequate intake of essential vitamins and minerals, such as folic acid, iron, and calcium.

Portion Control

Encourage mindful eating habits and appropriate portion sizes to prevent excessive weight gain.

Personalized Guidance

Work with a healthcare provider or registered dietitian to develop a customized nutrition plan.



Early childhood (0-2 yrs)

- Promote breast feeding
- Avoid sugar
- Responsive feeding
- Controlling screen time
- Risk assessment
- Age appropriate physical activity
- Sleep hygiene
- Growth monitoring as per birth weight



Young children (3-8 years)

- Growth monitoring
- Healthy diet in school canteens
- Discourage fast food everywhere
- Physical activity & Promoting sports .
- Screening for obesity



Children (8-13 years)

- **Health science booklet in school curriculum**
- Growth monitoring
- Healthy diet in school canteens
- Discourage fast food every where
- Physical activity & Promoting sports .
- Screening for obesity

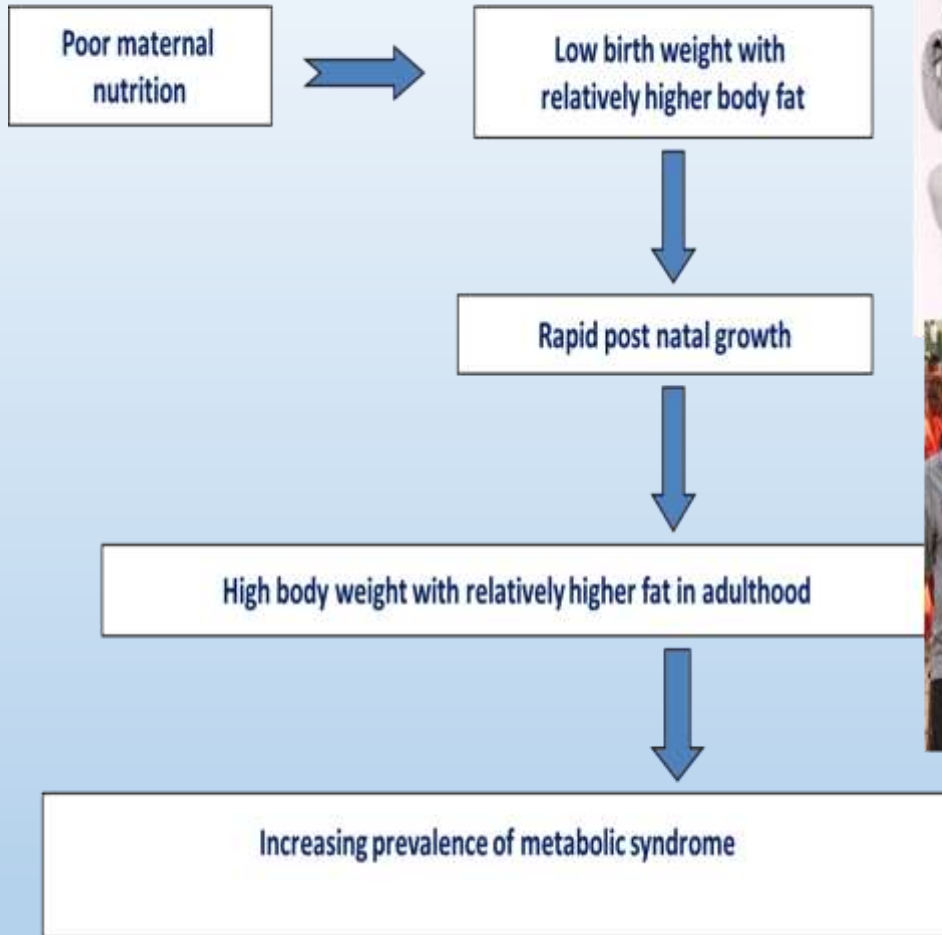


Teenagers & Adolescents (13-19)

- High risk of developing obesity
- Counselling and peer support
- Digital health engagement
- Nutrition workshops
- Lifestyle choice campaigns
- Community involvement & mental well being



Indian Scenario (overview) :-

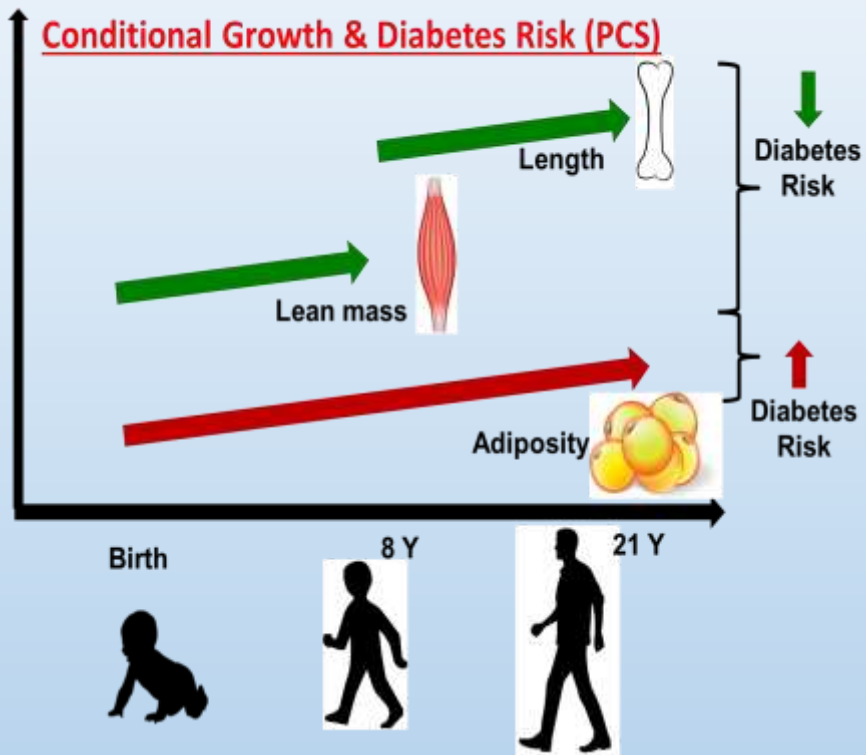


Early Childhood Diet

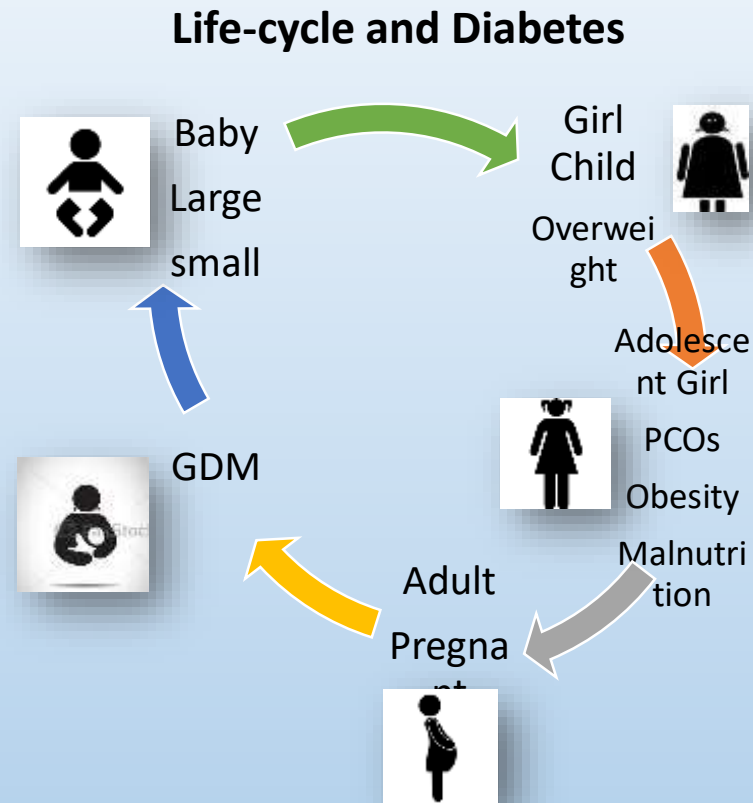
- High simple carbohydrates and sugar
- Overfeeding practices
- Nutritional imbalances and insulin resistance

Urbanization and Changing Lifestyles

- High-carb diets and processed foods
- Sedentary lifestyle and technology dependency
- Inadequate exercise, more fat in belly



Aim for every female child to grow as a healthy, normal weight female



This one single intervention has the potential to change the health of entire generation.

Model a healthy eating pattern



Adopt Healthy Patterns

Embrace healthy eating habits as a family, which can help children maintain a healthy weight as they grow.



Nutritious Foods

Focus on fruits, vegetables, whole grains, lean proteins, and low-fat/fat-free dairy products.



Rethink Drinks

Replace sugary beverages like soda, juice, and flavored milk with water or plain low-fat milk.



Community mobilization



Health Walks

Organize and participate in health walks to promote active lifestyles in the community.



Healthy Food Festivals

Host festivals that showcase nutritious and affordable food options for families.



Nutrition Education

Provide nutrition information and workshops for parents, especially mothers and newlyweds.



Safe Routes

Establish safe walking and biking paths to encourage active transportation to school.

The communication and interventions should be supportive rather than blaming, and family-centered rather than focused on the child alone. Long-term changes in obesity-related behaviors should be emphasized over short-term diets and exercise prescriptions.

Health education

Routine Health Care

Routine health care for all children and their families should include obesity-focused education to promote healthy lifestyles.

Nutrition & Physical Advice

Provide nutrition and physical activity advice through audio-visual media and culturally appropriate methods to engage families.

Community Endorsement

Prominent local figures and community champions should endorse healthy lifestyle messages to increase their impact.

Clinical Counseling

For children who are overweight or obese, a series of targeted clinical counseling sessions in primary care settings is recommended.



Policy Formulation

1 National Task Force

Creation of a dedicated national task force to address the issue of childhood obesity and develop comprehensive policies.

2 Pricing and Labeling

Decrease taxes on healthy foods like fruits and vegetables, while enforcing strict food labeling requirements and quality monitoring.

3 Built Environment

Increase availability of public spaces like playgrounds, parks, and walking/biking trails to encourage physical activity.

4 Marketing Restrictions

Restrict advertising of unhealthy foods on TV during prime time and children's programming, and ban misleading nutrition claims.



EPODE initiative in Europe

Community-Based Approach

EPODE is a community-based initiative launched in 2004 in France to prevent childhood obesity through a positive, concrete, and stepwise learning process.

Capacity Building

EPODE focuses on improving training for healthcare professionals to help them recognize and address obesity risks in children and adolescents.

Healthy Food Environments

The initiative aims to control the sales of unhealthy foods in public institutions and regulate food/drink advertising to promote healthier options.

Policy Reform

The initiative advocates for reforms to the Common Agricultural Policy to increase subsidies on healthy foods like fruits and vegetables.

EPODE initiative in Europe



ensemble-prévenons- l'obésité-des-enfants meaning

“Together Let's Prevent Childhood Obesity”

is a community initiative which was launched in 2004 in 10 towns in France and is an intervention for children aged 5–12 who are overweight or at risk of weight gain.

- The approach is “positive, concrete and stepwise” learning process with no stigmatization of any culture, food habits, overweight, and obesity.
- Controlling sales of foods in public institutions to ensure that only healthy foods are sold in schools and preschools
- Controls on food and drinks advertising on TV, the Internet and in schools
- Mandatory nutritional information labeling that is clear and easy for the consumer to understand
- Common Agricultural Policy reform and subsidies on healthy foods, i.e., fruit and vegetables
- Improve training for health professionals so that they can recognize and diagnose obesity risks in infancy, childhood, and adolescence. It is also important that professionals are able to offer advice without appearing prejudiced or patronizing.



Ref: 1. The American Heart Association: http://www.heart.org/HEARTORG/HealthyLiving/HealthyKids/ChildhoodObesity/What-is-childhood-obesity_UCM_304347_Article.jsp#.Wd6RXVtSx9M

2. World Health Organization (2022) Draft recommendations for the prevention and management of obesity over the lifecourse, including considering the potential development of targets in this regard. See Annex 9: apps.who.int/gb/ebwha/pdf_files/EB150/B150_7-en.pdf

Background – Introduction –

SECRET – Screening Educating Adolescents for Obesity

Country	Prevalence 2030
Thailand	22%
Maldives	18%
Indonesia	14%
Sri Lanka	13%
Timor-Leste	12%
Myanmar	11%
Bhutan	10%
Bangladesh	8%
India	8%
Nepal	6%

Source: NCD Risk Factor Collaboration

India is predicted to have over 27 million children with obesity, representing over half of the children with obesity in the region and 1 in 10 of all children globally.

2030 projections for child obesity (5-19 years) in South East Asia

Ref: World Obesity Atlas 2022, accessed 18.10.22

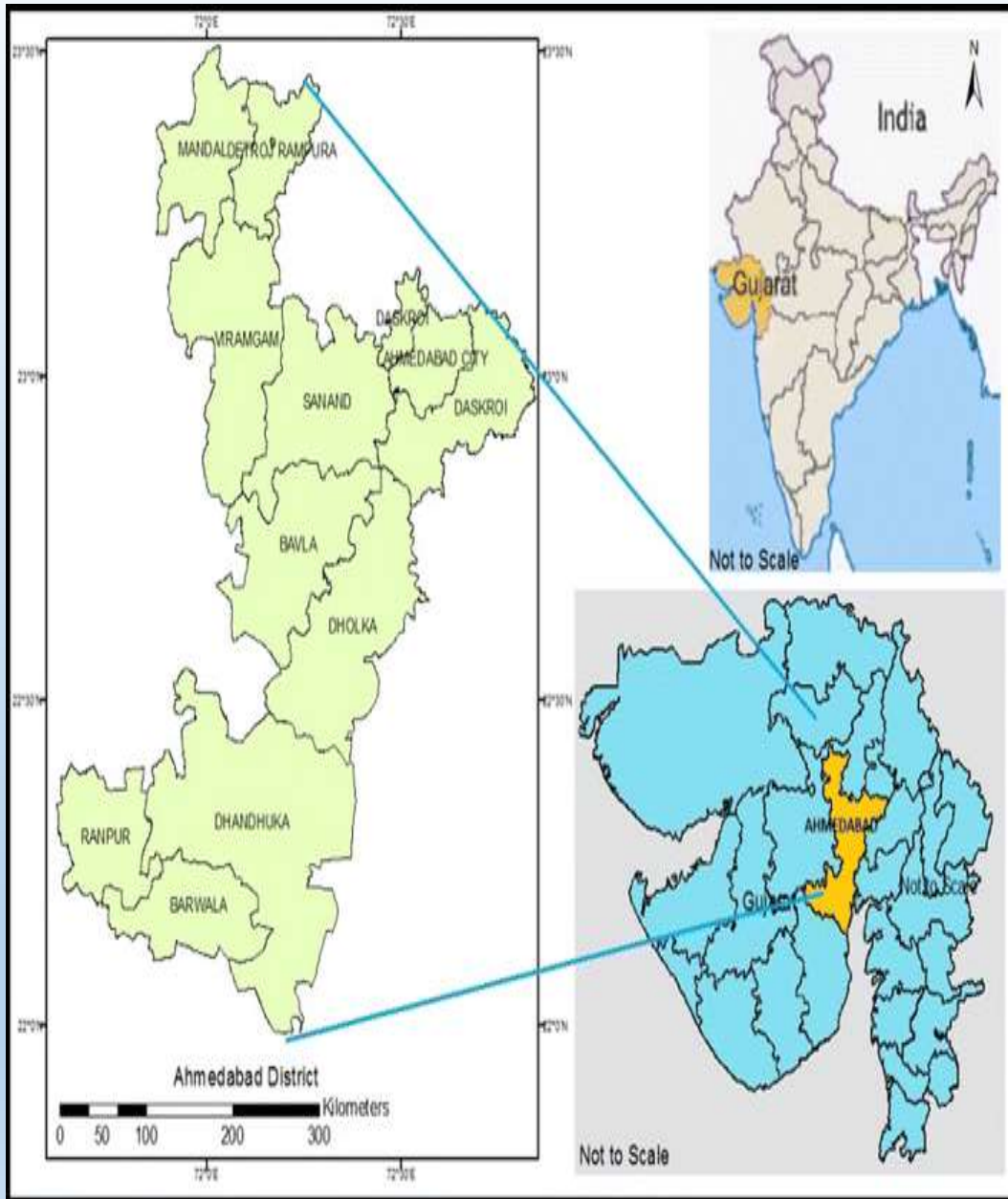
Aim

- To study the Obesity prevalence in Adolescents and making timely interventions for a healthier lifestyle adoption in urban and rural Ahmedabad

SECRET – Screening Educating Adolescents for Obesity

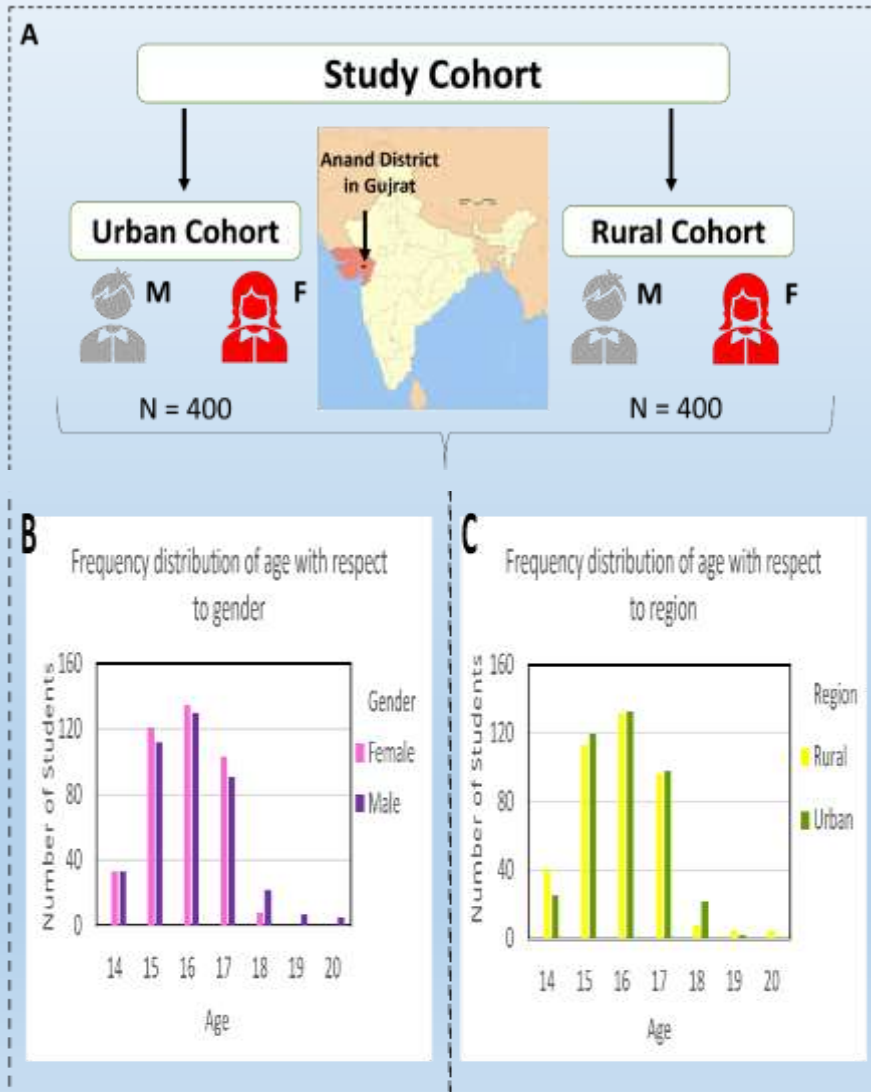
Objective

1. To find the prevalence of obesity in adolescents in rural vs urban Ahmedabad
2. To make timely interventions to prevent disorders resulting from obesity in the young population



Ahmedabad's population in 2022 is 8.2 million, and its area is 1,866 sq km.

Methodology



- A population-based cross-sectional study was designed.
- A team of physician, nurse, pediatrician, educator took up the task of collecting data from schools in the rural and urban areas of Ahmedabad and periphery of 50 kms during the months of March-May 2022 with prior permission and consent from the guardians from 4 schools of predefined geographies.
- All anthropometric data including:
 - height, weight, abdominal girth, neck circumference was collected along with a survey on food intake and type, exercise and habits.
 - Adolescents of the age category between 14 to 18 yrs were included. For girls, a menstrual history was taken.

Phase I - Screening

- Consent from the authorities
- Defining the protocol
- Screening of the adolescents
- Identifying the problem areas
- Meeting with the stakeholders

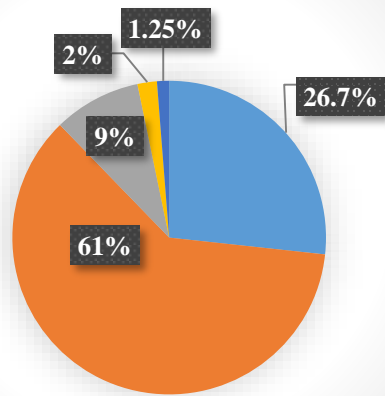
Phase II - Educating

- Conducting small group seminars with the teachers and the guardians
- Educating the kids irrespective of their health status on healthy lifestyle
- Scaling up the project and apply for funding

Results

Total study population: 800 between the age group 14-18 years with a 1:1 ratio of girls: boys and the same in rural and urban areas.

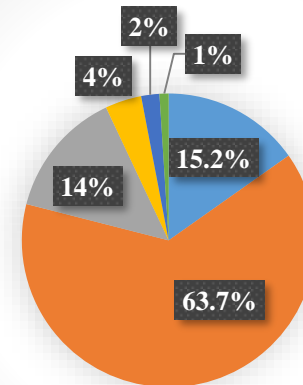
Weight Status Distribution (Rural)



n = 400

■ UNDERWEIGHT ■ NORMAL ■ OVER WEIGHT
■ Class 1 obesity ■ Class-2 obesity

Weight Status Distribution (Urban)



n = 400

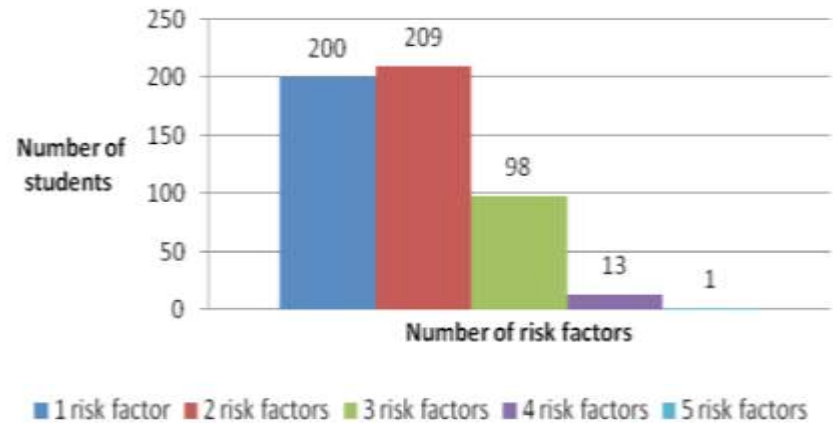
■ UNDERWEIGHT ■ NORMAL ■ OVER WEIGHT
■ Class 1 obesity ■ Class-2 obesity ■ Class-3 obesity

Metabolic Syndrome : Not Even the Urban Indian Youth is Spared
 Anumeha Bhagat, Anita S. Malhotra, Gurjit Kaur and Nandini Kapoor

- Cross-sectional observational study. College going students
- Age group of 18-25 years. N- 611
- IDF consensus for Indian subjects using ethnic specific cut offs for waist circumference used.

	Number of subjects	Prevalence of metabolic syndrome (%)	p value
Total	611	18.3	
Male	190(31.1%)	18.4	0.969
Female	421(68.9%)	18.3	
BMI			<0.001
<18	136(22.3%)	8.8	
Normal	292(47.8%)	15.4	
Overweight	82(13.4%)	26.8	
Obese	100(16.4%)	33.0	
Parental history of DM			0.2
Yes	81(13.3%)	23.5	
No	530(86.7%)	17.5	
Parental history of HT			0.253
Yes	180(29.5%)	21.1	
No	431(70.5%)	17.2	
Parental history of MI			0.375
Yes	51(8.3%)	13.7	
No	560(91.7%)	18.8	
Socio economic status			0.105
Grade I	6(1%)	50	
Grade II	58(9.5%)	20.7	
Grade III	120(21.1%)	21.7	
Grade IV	418(68.4%)	16.5	

Number of students with various risk factors for metabolic syndrome



NCD Alliance's annual Global Week for Action on NCDs campaign

TIME TO ACT ON NCDs!
Time to Act on Childhood Obesity

CHILDREN HAVE A RIGHT TO ACCESS HEALTHY NUTRITIOUS FOOD CARIBBEAN GOVERNMENTS HAVE COMMITTED TO POLICIES TO TACKLE CHILDHOOD OBESITY

HCC AND PARTNERS ARE CALLING ON CARICOM TO PRIORITISE CHILDHOOD OBESITY PREVENTION POLICIES

1 MANDATORY 'HIGH IN' FRONT OF PACKAGE NUTRITION WARNING LABELLING

2 BANNING THE SALE AND MARKETING OF SWEET BEVERAGES AND UNHEALTHY FOODS IN SCHOOL SETTINGS

3 TAXATION OF SWEET BEVERAGES

GLOBAL WEEK FOR ACTION ON NCDs ACT ON NCDs #ActOnNCDs

Childhood obesity is an emerging crisis globally and **in the Caribbean where 1 in 3 children are overweight or obese.**

At various high-level meetings, CARICOM Governments:

- Pledged to address advertising of potentially harmful foods & elevating taxes on sugar, salt and trans fats (2016)
- Highlighted the grave concern of obesity in primary and secondary school children (2017)
- Endorsed UN High Level NCDs priorities including front-of-package labelling (2018)

Had an opportunity to discuss our mission with Honorable President, Smt Droupadi Murmu



Hon'ble President of India
Smt. Droupadi Murmu

recognizes **DiabetesIndia** efforts

Dr. S. R. Aravind
President

Dr. Banshi Saboo
Secretary

Dr. Amit Gupta
Joint Secretary

**for creating a plan for primordial prevention
of diabetes for future generation**

On 9th April, 2024
at
Rashtrapati Bhavan

conclusion

A Lifecourse Approach to Obesity Prevention

Addressing obesity requires a comprehensive, long-term strategy that starts even before birth and continues throughout early childhood. Effective interventions must consider the complex interplay of biological, behavioral, and environmental factors across an individual's lifespan.





Thank
you



It is time for a return to
childhood, to
simplicity, to running
and climbing and
laughing in the
sunshine, to
experiencing happiness
instead of being trained
for a lifetime of
pursuing happiness.
It is time to let children
be children again.

- LR Knorr

www.dontteachinature.com



AOCO

5TH - 7TH SEPTEMBER

HOTEL PULLMAN
NEW DELHI, AEROCITY, INDIA

2025

ASIA-OCEANIA CONFERENCE ON OBESITY 2025

Together **E**ach of Us can **A**chieve **M**ore



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Past President
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