

PREVENTION OF CHILDHOOD OBESITY

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Introduction

- ▣ **Obesity is a major public health problem across the world.**
- ▣ **Obesity results from excessive caloric intake, decreased energy expenditure and/or from a combination of the two.**

World Health Organization (WHO) definitions for obesity

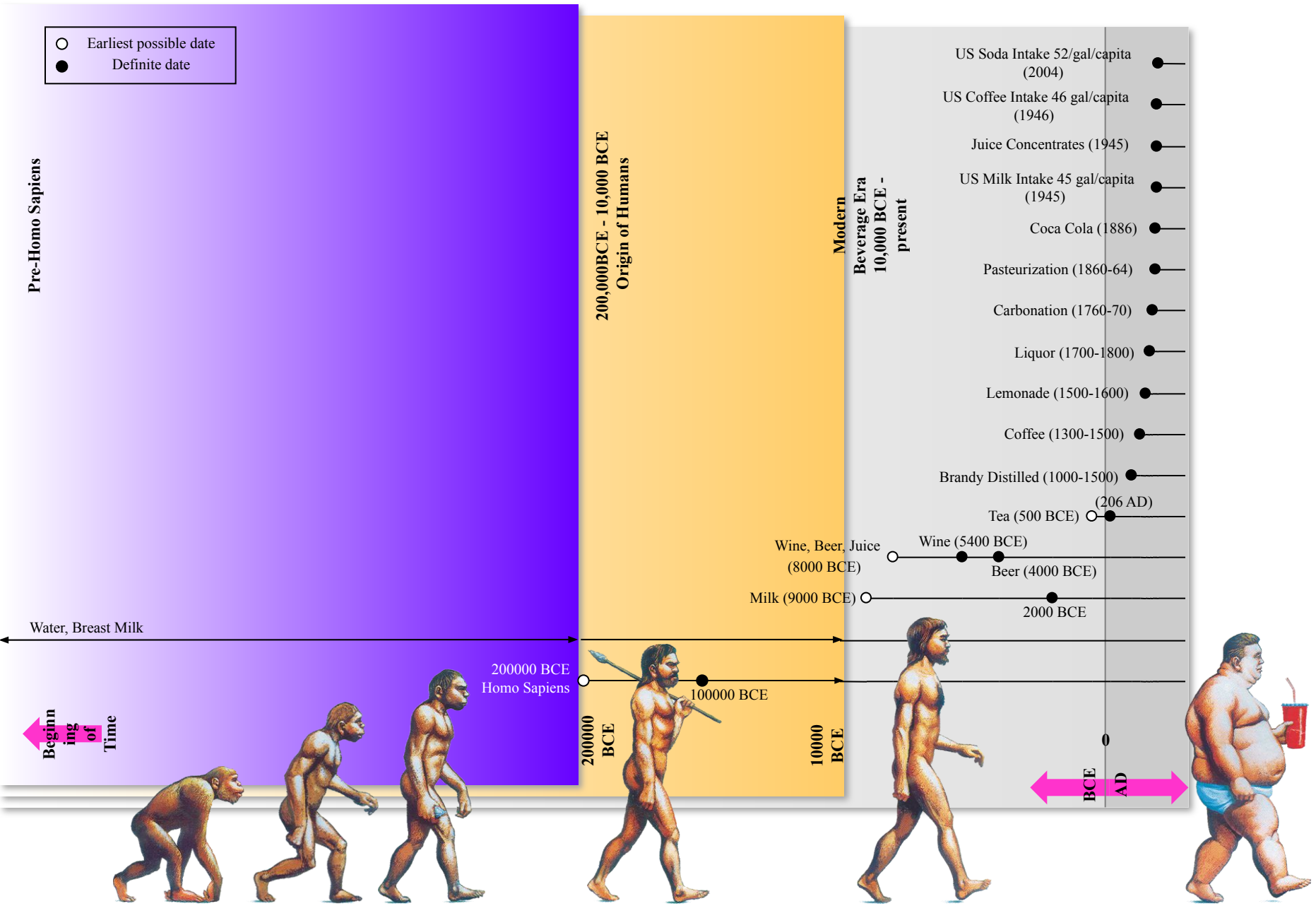
BMI = Weight kg/Height m²

- **Underweight: <18.5 BMI**
- **Healthy weight: 18.5-24.9 BMI**
- **Overweight (Grade I obesity): 25.0-29.9 BMI**
- **Obese (Grade II): 30.0-39.9 BMI**
- **Morbidly obese (Grade III): 40 or above BMI**
- **Super obese (Grade IV): BMI >50**

Environment & Physiology of gaining wt

- ❑ **Older environments: an unreliable food supply & high need for physical activity to procure food to survive.**
- ❑ **No logical reason for humans to develop a strong physiological defense against weight gain.**
- ❑ **The weak physiological regulation of energy balance was effective.**
- ❑ **Today's environment provides a constant supply of high energy food with reduced needs for physical activity.**

Remarkably Short History for Caloric Beverages: Might the Absence of Compensation Relate to This Historical Evolution?

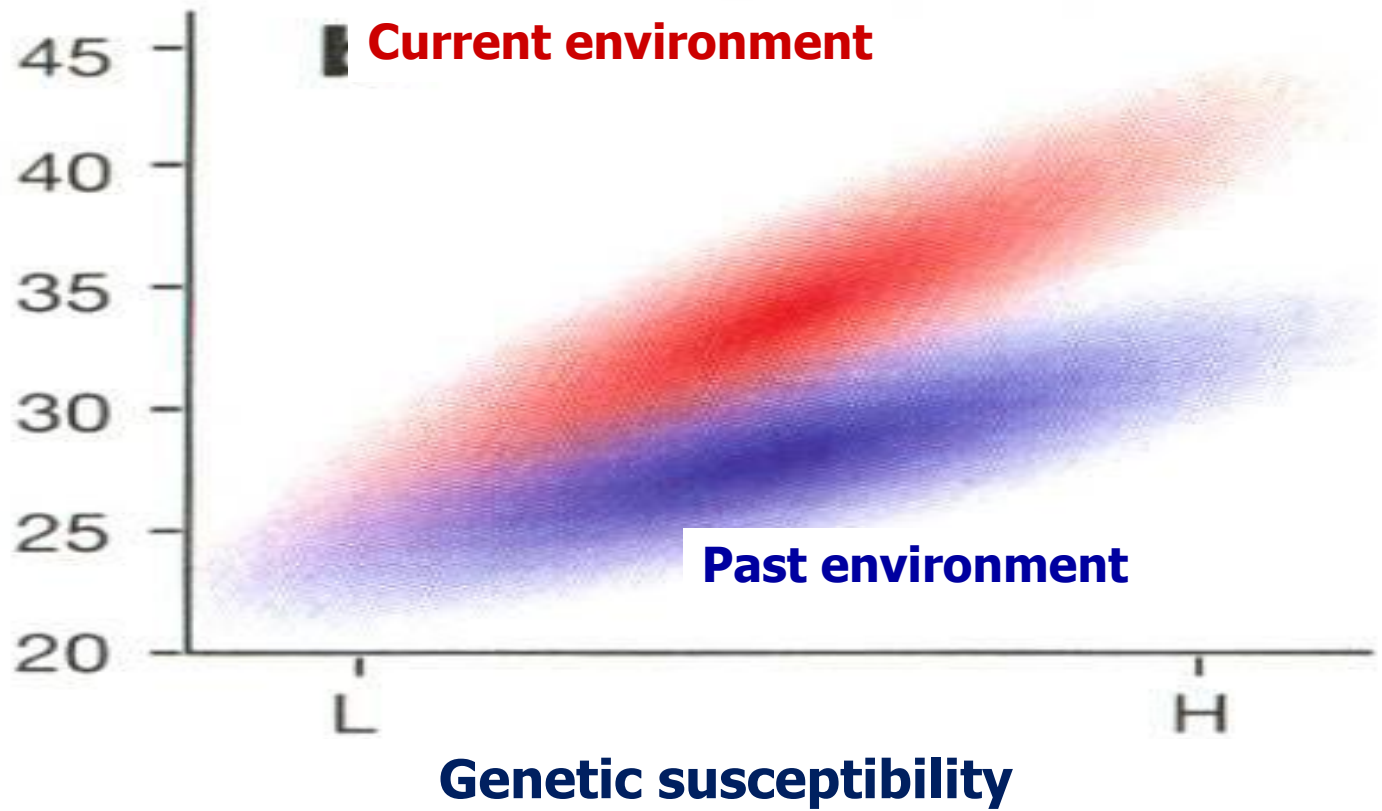


How has the obesity epidemic arisen?

- **Most of the Affluent population has been in slight positive energy balance over the past 10-15 years.**
- **Gradual weight gain of up to 1 kg/month, can be produced by a very small degree of positive energy balance of 50 kcal/day.**
- **Decreased physical activity as technology & urbanization promotes sedentary life style**

Obesity: Environmental Influence

BMI %



Built environment

- Includes transportation systems, architectural design, use of land, parks, and public spaces.
- Life style discourages physical activity & encourage automobile use
- Neighborhoods without sidewalks - discourage walking.
- Tall buildings discourage stair case & encourage elevator and escalator use

Commercial environment

- **Low cost junk food available everywhere**
- **Many schools have vending machines & fast food outlets.**
- **Heavy promotion of activities and products that discourage physical activity.**
- **Sedentary forms of entertainment e.g. Home entertainment systems ...etc**

Environment factors that promote overeating

- Availability of fast food & snacks
- Easy accessibility
- Low Cost
- Good taste
- Big Portion Size
- High Fat Content
- Energy Dense soft Drinks

Environmental factors that reduce physical activity

Technological advances *reduce need for physical activity*

- In most occupations
- In most jobs
- For daily living and household activities
- In schools
- Competition from attractive sedentary activities:
 - television, video/DVD, video/computer games, internet

In 1980, about 50 percent of high school seniors reported eating green vegetables “nearly every day or more.” By 2003, that figure had dropped to about 30 percent.

(YES Occasional Papers. Paper 3. Ann Arbor, Mich.: Institute for Social Research, May 2003)



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From the statistical sourcebook “A Nation at Risk: Obesity in the United States.” To order, call 1-800-AHA-USA1 or email inquiries@heart.org

Between 1977-78 and 2000-01, milk consumption decreased by 39 percent in children ages 6-11, while consumption of fruit juice rose 54 percent, fruit drink consumption rose 69 percent and consumption of carbonated soda rose 137 percent.



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In 1970, about 25 percent of total food spending occurred in restaurants. By 1995, 40 percent of food dollars were spent away from home.



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Between 1970 and 1980, the number of fast-food outlets in the United States increased from about 30,000 to 140,000, and sales increased by about 300 percent. In 2001, there were about 222,000 fast-food outlets.



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Lack of public information

- **Some people can not judge which products are high in fat and by how much.**
- **Food manufacturers display macronutrients in grams, when the correct way would be to express their contribution in energy.**

Children eat nearly twice as many calories (770) at restaurants as they do during a meal at home (420).



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According to a national study, 92 percent of elementary schools do not provide daily physical education classes for all students throughout the entire school year.

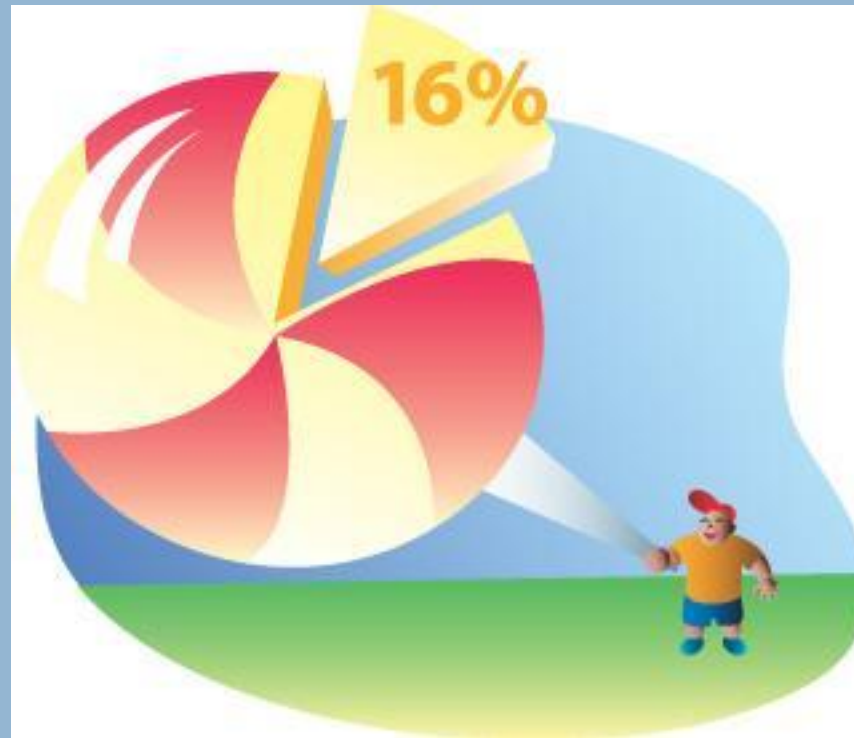


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Statistics from the Centers for Disease Control and Prevention (CDC) are alarming. Today, about 16 percent of all children and teens in the United States are overweight.



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Why people physically inactive?

- **Lack of awareness regarding the of physical activity for health fitness and prevention of diseases**
- **Social values and traditions regarding physical exercise (women, restriction).**
- **Non-availability public places suitable for physical activity (walking and cycling path, gymnasium).**
- **Modernization of life that reduce physical activity (sedentary life, TV, Computers, tel, cars).**

Six out of 10 children ages 9-13 don't participate in any kind of organized sports/physical activity program outside of school, and children whose parents have lower incomes and education levels are even less likely to participate. Nearly 23 percent don't engage in any free-time physical activity.



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Studies have shown that, between 1977 and 1996, portion sizes for key food groups grew markedly in the United States, not only at fast-food outlets but also in homes and at conventional restaurants.

One study of portion sizes for typical items showed that:

- Salty snacks increased from 132 calories to 225 calories.
- Soft drinks increased from 144 calories to 193 calories.
- French fries increased from 188 calories to 256 calories.
- Hamburgers increased from 389 calories to 486 calories.



(Nielsen SJ, Popkin BM. Patterns and trends in food portion sizes, 1977-1998. JAMA 2003;289:450-3)

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Lack of public information

- **Advertising gives children confused messages about nutrition, and can change their food preferences and buying behaviour.**
- **Subsidies on food products play an important part, as children as well as adults, are influenced by cheap prices.**

The typical American child spends about 45 hours per week using media outside of school.



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In 1977-78, children ages 6-11 drank about four times as much milk as soda. In 2001-02, they drank about the same amounts of milk and soda.



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Tackling Obesity

The WHO's 1997 interim report argues that it is not enough to tackle obesity at individual level and that a society-wide public health approach needs to be employed.

- Medical profession should work with the food industry to promote a healthier diet for everyone from childhood to adult life.**
- Management of obesity in Primary Care by a motivated well-informed multi-disciplinary team could achieve and maintain weight loss by promoting sustainable changes in lifestyle.**

GOALS OF PROGRAM

Policy components:

- **choosing a strategy to change the environment**
- Behavior changes
- **Best to Begin with small changes**

Outcome Objectives:

- **primary prevention of weight gain**
- **Prevention of further weight gain**
- **Weight loss**
- **prevention of weight regain**

National policy

- **Controlling food imports & food labelling**
- **Improving facilities for sports and making the streets safe for walking or cycling**
- **Education programmes for all, directed towards promoting healthy lifestyles and explaining the risks associated with obesity.**

Management

29

- Prevention is the Key
- Team work
- Individualized goal of wt loss
- Components:
 - Education & motivation
 - Diet modification
 - Increased activity
 - Parents are role models
 - Medicines & surgery

Educate & Motivate Children

- Public support for healthier lifestyles needs to begin with our children.
- Teach early - why physical activity and healthy eating are so important.
- Provide them with the knowledge and the cognitive skills to manage energy balance in the modern environment.

Education points to address

- ❑ **Resist temptation to always clean your plate**
- ❑ **Do not eat while talking on the phone or watching TV**
- ❑ **Avoid appetizer and dessert in restaurants**
- ❑ **Eat a healthy snack before going to a holiday party so you will feel full**

Your Eating Habits

- **Small, frequent meals at regularly scheduled times**
- **Regularly scheduled snacks of fruit or vegetables**
- **Do not skip meals**
- **No foods are off limits however in order to encourage success moderation is the key**

Portion Sizes

- ❑ **Most of us underestimate the amount of food we eat**
- ❑ **Limiting portion sizes is critical for good health**
- ❑ **Check serving sizes listed on packages & learn to judge sizes more accurately.**



Cutting Back On Calories But Feeling Full

- ❑ **Add vegetables to as many things as possible**
- ❑ **Eat several servings of fruits daily**
- ❑ **Avoid processed & fried foods, red meat, ghee butter, cream & chocolates**
- ❑ **Some fat is needed to provide essential nutrients to the body; use veg. oils like olive & sunflower, but avoid saturated fats.**
- ❑ **Watch foods labeled “fat-free” or “low-fat”; you may consume more calories overall.**

Cutting Back On Calories But Feeling Full

- ❑ **Traditionally, dieters cut cereals, pasta and potatoes to control weight**
- ❑ **These are sources for complex carbohydrates that help you feel full and maintain a healthy weight**
- ❑ **Avoid high-fat toppings on carbohydrates and try plain or low-fat yogurt.**
- ❑ **Foods high in protein are often high in fat, so limit protein to 10-15% of total daily calorie intake**

Food Diaries

- ❑ **Most people do not realize the amount of food they eat per day and what they are doing at the exact time they are eating that food**
- ❑ **Suggest taking notebook and taking a one week diary**
- ❑ **Note in diary all intake of food, snacks, drinks and activities while eating**

Management

37

- For overweight children small reduction in calories allows gradual decline in BMI
- For obese children & adolescents weight loss of 0.5-1 kg/week is the goal.
- Rapid wt loss can lead to electrolyte disturbances (\downarrow K^+ , \uparrow uric acid)
- Special diets like protein rich diet not recommended

Atkin's diet

38

- High-protein low-CHO diet
- Induces ketosis.
- Caloric intake as protein is less prone to fat storage than the equivalent caloric intake as carbohydrate,
- Has no supporting physiologic basis.
- No long-term data to evaluate safety.

Dieting and Eating Habits

- **Maximum recommended daily calorie intake:**

1600 calories: house wives & older adults

2200 calories: most children, teen girls, active women, and sedentary men

2800 calories: teen boys & active men

Diet: Bottom Line

40

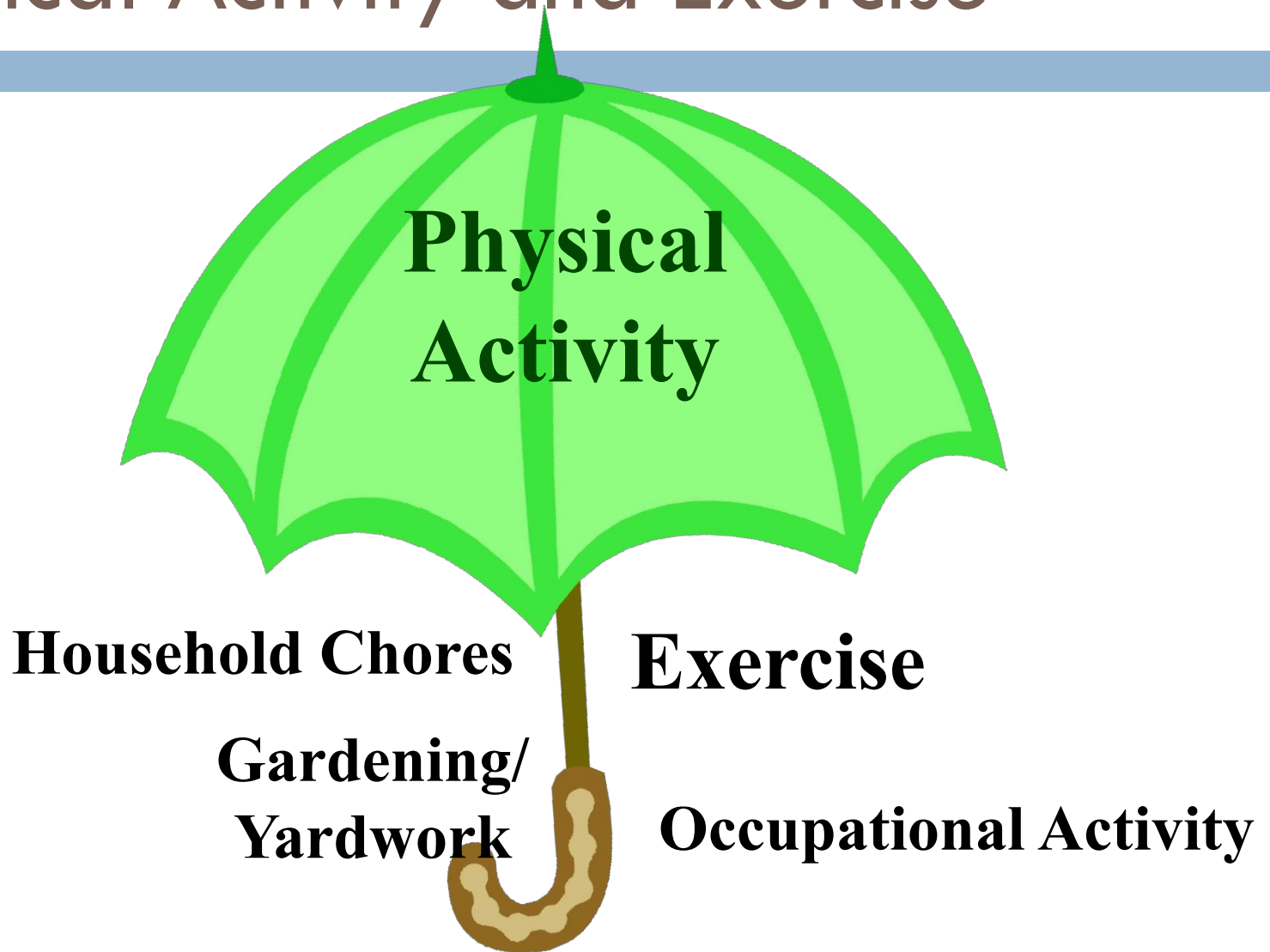
- Follow the food pyramid
- Low calorie, low fat, low saturated fat diet
- Avoid junk food & extra salt
- Practice moderation, not avoidance
- Parents are the role models
- Permanent changes to family eating habits

FOOD Guide PYRAMID for Young Children

A Daily Guide for
2- to 6-Year-Olds



Physical Activity and Exercise



Physical Activity

- **Burns calories and keeps metabolism geared towards using food for energy instead of storing it for fat.**
- **Increase house & daily activities**
- **Sports & structured exercise**
- **Begin slow and gradually increase exercise time to 30-60 minutes per day**

Exercise: Bottom Line

44

- Use “life activity” not formal exercise programs whenever possible
- Find partners :friends, family
- Home activities 3 kcal/min
- Walking 4 kcal/min
- Jogging 6 kcal/min
- Running 8 kcal/min
- Running up the stairs 10 kcal/min

Exercise vs. Lifestyle Physical Activity



Exercise

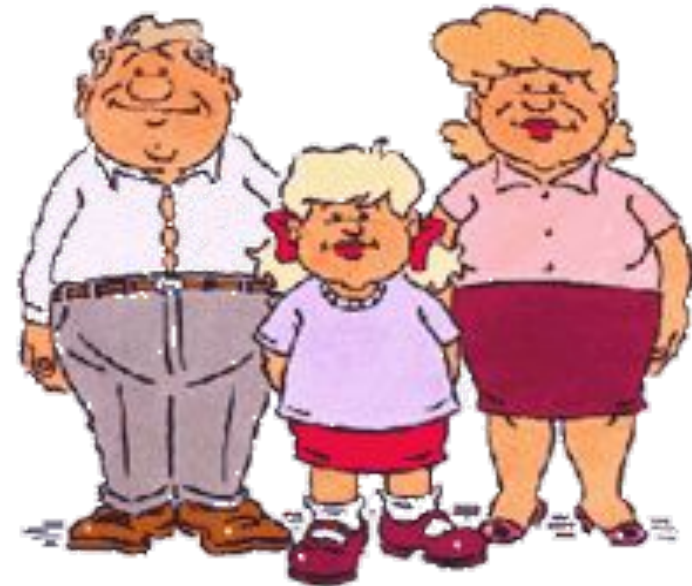


Lifestyle Physical Activity

Behavior

46

- Most people resist change
- Patterns are learned over a lifetime
- Limit T.V., internet, games <2hr/day
- Family therapy not just the child
- Psychological dimension



Medications

47

- ❑ Only two medicines & one fat substitute are approved by FDA for long-term use.
- ❑ Central acting : impair dietary intake, e.g. Sibutramine (Meridia[®])
- ❑ Impair lipid absorption, e.g. Orlistat (Xenical[®])
- ❑ *Olestra* (Olean[®]) fat substitute
- ❑ No drug has been approved for use in children below 15 years of age

Sibutramine (Meridia[®])

48

- Enhances satiety
- Raises the basal metabolic rate by inhibiting norepinephrine reuptake
- CNS side effects
- Several drug interactions

Orlistat (Xenical[®])

49

- Gastrointestinal lipase inhibitor
- Reduces absorption of some fat-soluble vitamins (A, D, E, K)
- Causes flatulence & leakage of oily stools

Fat substitutes

50

Olestra (Olean[®])

- Sucrose polyester plus fatty-acids
- Fast food
- Zero kcal
- Less tasty
- Flatulence and diarrhea

FDA approved with fat soluble vitamins

Surgery

51

- Bariatric surgery
- Morbid obesity (BMI >40)
- Most common procedures are:
 - Roux-en-y gastric bypass
 - Gastric banding
 - Ballon
 - Omentumectomy
 - Fat liposuction

Fasting for wt loss?

- ❑ **Fasting is popular because it can provide dramatic weight-loss but it is primarily water rather than fat**
- ❑ **Lost water is regained quickly when eating is resumed.**
- ❑ **Prolonged fasting is not recommended and may lead to nutritional imbalances**

Conclusions

- ❑ **Obesity is not a disease, it is a public health problem and it is a risk factor for several chronic diseases.**
- ❑ **Understanding the role of environmental factors on development of obesity help in control & prevention.**
- ❑ **Healthy eating combined with increased physical activity is the answer**

Summary

- **No miracle “cures” or products**
- **No “revolutionary” diets**
- **No pill or potion**
- **No magic**
- **Your will and your lifestyle are in control of weight management.**

Weight-Control Organizations

- ❑ **TOPS (Take-Off Pounds Sensibly) started in 1948 and has over 300,000 members in 20 countries.**
- ❑ **WW (weight watchers) started in the 1969 and has branches in 60 countries.**
- ❑ **Overeaters Anonymous is founded in 1960 for compulsive overeaters. It has about 8500 groups in 50 countries. It operates on the premise that overeating is a progressive illness that cannot be cured but can be arrested.**

Thanks for your attention

