What’s Nutrition Got to do With It

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UNICEF Statement

• “….there are one billion adolescents world-wide and how effectively they cope with the perils of growing up will be a crucial element in whether humanity can surmount the challenge of the next century....”
Anonymous

“...raising a teenager is like trying to nail jell-o to the wall...”
What does Adolescence Represent?

- A transitional period between childhood and adulthood
- An opportunity to prepare for healthy, productive and reproductive life
- Opportunity to prevent nutrition related chronic disease
Why pay attention?

- Timely period of adoption and consolidation of healthful habits
- Adolescent health and nutrition is an investment in adult health (dollars NOT spent in adult health care)
- Adolescents as early “adapters” and act as an entry way to cultural groups
Objectives

- Participants will be able to:
  - Identify dietary factors that contribute to overweight and metabolic syndrome
  - Identify strategies for dietary management of metabolic syndrome
  - Identify screening tools and strategies to identify adolescents at risk for metabolic syndrome
Overview

• Pediatric overweight and obesity a new frontier (that's getting old)
• Definition of Metabolic Syndrome
• Prevalence of metabolic syndrome in the adolescent population
• Treatment strategies
Prevalence of Obesity in Adolescence

Adolescent Boys
Prevalence of Obesity* by Race/Ethnicity
(Aged 12–19 Years)
National Health and Nutrition Examination Surveys

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<td>11.6%</td>
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Survey Period

NHANES III 1988 - 1994
NHANES 2003 - 2006

Non-Hispanic White  Non-Hispanic Black  Mexican American

*Sex-and age-specific BMI ≥ 95th percentile based on the CDC growth charts.
Prevalence of Obesity in Adolescence

Adolescent Girls
Prevalence of Obesity* by Race/Ethnicity
(Aged 12–19 Years)
National Health and Nutrition Examination Surveys

*Sex-and age-specific BMI $\geq$ 95th percentile based on the CDC growth charts.
Obesity and Adolescence in Los Angeles County

- Youth Behavior Risk Surveillance Survey in Los Angeles High School Students, 2007
  - 16% obese
  - 73% ate LESS than the recommended servings (5/d) of fruits and vegetables over 1 week
  - 28% drank 1 soda per week
  - 58% did not meet recommended levels of physical activity
Pediatric Obesity: Connections

- Drewnowski (2009) Poverty and Childhood Overweight in California Assembly districts
  - % of residents below poverty level was an independent predictor of the high prevalence of obesity for the population
  - Obesity spatially clustered
Pediatric Obesity: Connections

• Lee (2008) Fat oxidation in black and white youth, a phenotype that predisposes black girls to obesity
  – Lower fat oxidation and resting metabolic rate during puberty in black girls could be a risk factor pre-disposing to obesity
Pediatric Obesity: Connections

- Boyington et al, 2008
  - Qualitative exploration of cultural attitudes about body image, food and PA in a sample of overweight AA girls 12-18 yrs
  - Attitude about weight and body size influenced by individual and immediate social circle
  - Food choices based on taste, texture not nutritional value
  - Personal aesthetics seen as barrier to PA
Defining MetSyn in Adolescents

- National Cholesterol Education Program (NCEP) typically used for adults
  - Waist circumference*
  - Blood pressure*
  - Blood blood glucose*
  - Cholesterol
  - Triglycerides

* Reference standards available for adolescents
Prevalence of Metabolic Syndrome in Adolescents

- Johnson et al (2009)
  - Dx criteria for Metabolic Syndrome
    - Waist Circumference > 90th for age and sex
    - Blood Pressure > 90th for age and gender
    - Triglycerides > 110 mg/dl
    - HDL Cholesterol < 40 gm/dl
    - Blood glucose > 100 mg/dl
Prevalence of Metabolic Syndrome in Adolescents

- Johnson et al (2009) continued
  - Overall prevalence rate of 8.6%
  - > 50% met at least 1 criteria
  - Males > Females
  - Hisp > White Non-Hisp > Black
  - Hisp and White N-H with increased waist circumference, HDL and triglycerides
  - Black females with highest rate of waist circumference that exceed std
Factors that Influence Metabolic Syndrome in Adolescents

- Pan & Pratt (2008)

  Adolescents with BMI > 95th had 15 times greater risk than those with a normal BMI (< 85th)
  - 14.5% vs 0.9% (P< 0.0001)
  - No significant difference between those at risk with a BMI (85-95th) and those with a normal BMI (P<0.238)
Factors that Influence Metabolic Syndrome in Adolescents

• Pan & Pratt (2008) Continued
  - Lower prevalence of MetSyn in adolescents that scored higher on the Healthy Eating Index (HEI) and reported higher fruit consumption
  - Increased levels of physical activity also associated with lower rates of MetSyn, but more of a trend with no statistical significance
Metabolic Syndrome in Adolescents: Trends

- Darathia & Bindler (2009)
  - Looked at prevalence rates of MetSyn (crossectional) in several cohorts of adolescents over time (1999 - 2006)
  - Substantial increase in plasma glucose levels > 100 mg/dl (boys > girls)
  - Substantial increase in waist circumference for females
Thinking out loud

- Insulin resistance
- Central adiposity
- Elevated blood glucose levels
- BMI > 95th %ile
- Low levels of physical activity
- Low levels of HDL-Cholesterol
Factors that influence food choices in Adolescence

- Time! and Convenience!
- Availability (access + affordability)
- Advertisements ($1.2 billion)
- Influence of peers
- Personal preferences
- IGNORANCE
The FAST LANE
Dietary Management: Breakfast

• Timlin et al 2008
  – Project EAT (eating among teens)
    • Surveys completed 1998-99, 2003-04
    • both surveys, demonstrated an inverse relationship between breakfast and BMI
    • Adjustment for confounding factors and dietary behaviors did not account for the finding.
    • BREAK THE FAST (pizza is good)
Dietary Management

- Reduction in energy intake to produce weight loss
- Preference for foods with low glycemic index (or glycemic load)
- Moderate fat restriction (25-30%)
Low CHO diet vs Low Glycemic Index Diet

- **What is the glycemic index**
  - Rate of CHO absorption after a meal, based on elevation of blood sugar
    - 50 gm Sugar - 2 hour post prandial BS
    - 50 gm Food - 2 hour post prandial BS
  - **Examples of foods**
    - Brown rice (low GI)
    - Baked potato (high GI)
Low CHO diet vs Low Glycemic Diet

- What is a low CHO diet?
  - % of energy derived from CHO
  - Atkins (low CHO, high greens, limited fruits)
  - Pritikin (mod protein, Very Low Fat, high fruits & vegetables)
  - Zone (1/3 protein, 2/3 fruits and vegetables)
The Usual Suspects

- Hot Cheetos (chips, etc)
- Sports Drinks (gatorade, powerade)
- Takis (snack food)
- Sweet Snacks (Gansitos, Twinkies, Hohos)
The Not so Usual Suspects

- Starbucks (Frappachinos: 40 g)
- Jamba Juice (smoothies: 30-90 g)
- Bowls (rice or noodle bowls: 125 g)
- Cup of Noodles (37 g)
- Breakfast burritos (15 g Fat, 35 g CHO)
Dietary Management: Fat Restriction

- **Omega 3 FA vs Omega 6 FA**
  - Ideal ratio > 3:1 (Omega 6: Omega 3)
- **Saturated vs Polyunsaturated**
  - The more liquid the fat the better
  - Look for trans fat free marking on the label
- **Beware of FAT Free Products (the taste has to come from somewhere)**
Prevention: Screening

- Start EARLY, intensify efforts for adolescents at or above 85th percentile
- Consider using waist circumference and FBS as screening measures for all adolescents with BMI ≥ 85th percentile
Prevention

- Encourage the consumption of fruit instead of juice or fruit “products”
- Encourage the consumption of vegetables
- Encourage physical activity
- Limit energy from beverages
Keeping it “REAL”

- **Increasing Fruits**
  - Packing frozen fruits (grapes, strawberries) for easy snacking
  - Packing dried fruit or fruit leathers (NOT Roll ups)
  - Homemade trail mix (cereal, raisins, craisins, apricots, cherries, nuts)
Keeping it REAL

- Increasing vegetables
  - Packing cut up RAW vegetables with individual packet of dressing
  - Salads (IT'S NOT JUST LETTUCE ANYMORE)
  - Blanched (or thawed) vegetables with individual packet of dressing
For Eating out: Think NAKED

- No Breading
- No thick gravy/sauces
- Condiments on the side (dressing, mayonnaise)
- Minimal packaging
- In season (it works)
Planning Ahead

- NOT something that adolescents do well
- Need to coordinate with parents /caregivers (helping not tattling)
- If the plan sounds too good to be true, IT IS...call them on it and make a better plan
- Pursue PROGRESS not PERFECTION
Tools for Immediate USE

- www.mypyramid.gov
- www.BAM.gov
- www.fruitsandveggiesmorematters.org
- www.mealsmatter.org
TAKE HOME POINTS

- Get to young people **SOONER**
- Keep it **SIMPLE**
- Keep it **REAL**
- Keep **THEM** engaged in the process (technology helps)
- **YOU** will need help (RD, Psychologist, LCSW and School)
THANK YOU

• There is nothing wrong with today's teenager that twenty years won't cure. ~Author Unknown
What's Food got to do with it?

• Objective 1:
  ________________________________________

• Objective 2:
  ________________________________________

• Objective 3:
  ________________________________________