Pediatric Obesity and Diabetes: What we know, don’t know, and hope to know soon!

Diana Hu, MD

MCH Consultant: Navajo Area IHS

Pediatrics: Tuba City Regional Health Care Corporation (TCRHCC)

Speaker's Objectives

- To discuss the epidemiology of Type 2 Diabetes Mellitus (DM) in a sample of Native American youth
- To discuss the relationship between obesity and diabetes in Native American youth
- To show epidemiologic data on obesity in youth
- To discuss the possible reasons for increasing obesity in youth in the US

Participants' Objectives

1. Analyze current data on pediatric obesity and type 2 diabetes in children.
2. Examine possible causes for the national increase in overweight in children in the past 20 years.
3. Review evidence based interventions for treatment of overweight and obesity.
4. Review evidence based interventions for prevention of overweight and obesity.
5. Examine public health and legislative initiatives on local, state and national levels that address pediatric obesity.
6. Give one example of how you plan to change your practice as a result of this training.

Objectives

- To review evidence based interventions for treatment of obesity and overweight
- To review evidence based interventions for prevention of obesity and overweight

Objectives

- To look at new public health and legislative initiatives on local, state and national levels that address pediatric obesity
- To propose interventions that could be used in your communities and practices

“Let’s Move!”

MARCH 22, 2010
FEED YOUR CHILDREN WELL
MY FIGHT AGAINST CHILDHOOD OBESITY
BY MICHELLE OBAMA

Definitions

- Body Mass Index (BMI) = weight/(height)(height)
- In Adults:
  - Overweight- BMI 25-29.9
  - Obesity - BMI $\geq$ 30
- In Children:
  - Obesity(Overweight)- BMI for age >95th percentile
  - Overweight/(At risk for overweight)- BMI for age > 85th percentile

Definitions

- Diabetes - Diabetes Mellitus
  - A chronic disease associated with abnormally high levels of the sugar glucose in the blood.
  - Diagnosed by
    - A fasting blood glucose of >126 mg/dl
    - A random or post-prandial blood glucose of >200 mg/dl
    - A Hemoglobin A1c (HgbA1C) of > 6.5 %

Diabetes Mellitus

- Diabetes is due to one of two mechanisms:
  (1) Inadequate production of insulin (which is made by the pancreas and lowers blood glucose) (type 1 DM)
- or
  (2) Inadequate sensitivity of cells to the action of insulin. (type 2 DM)

Diabetes Mellitus

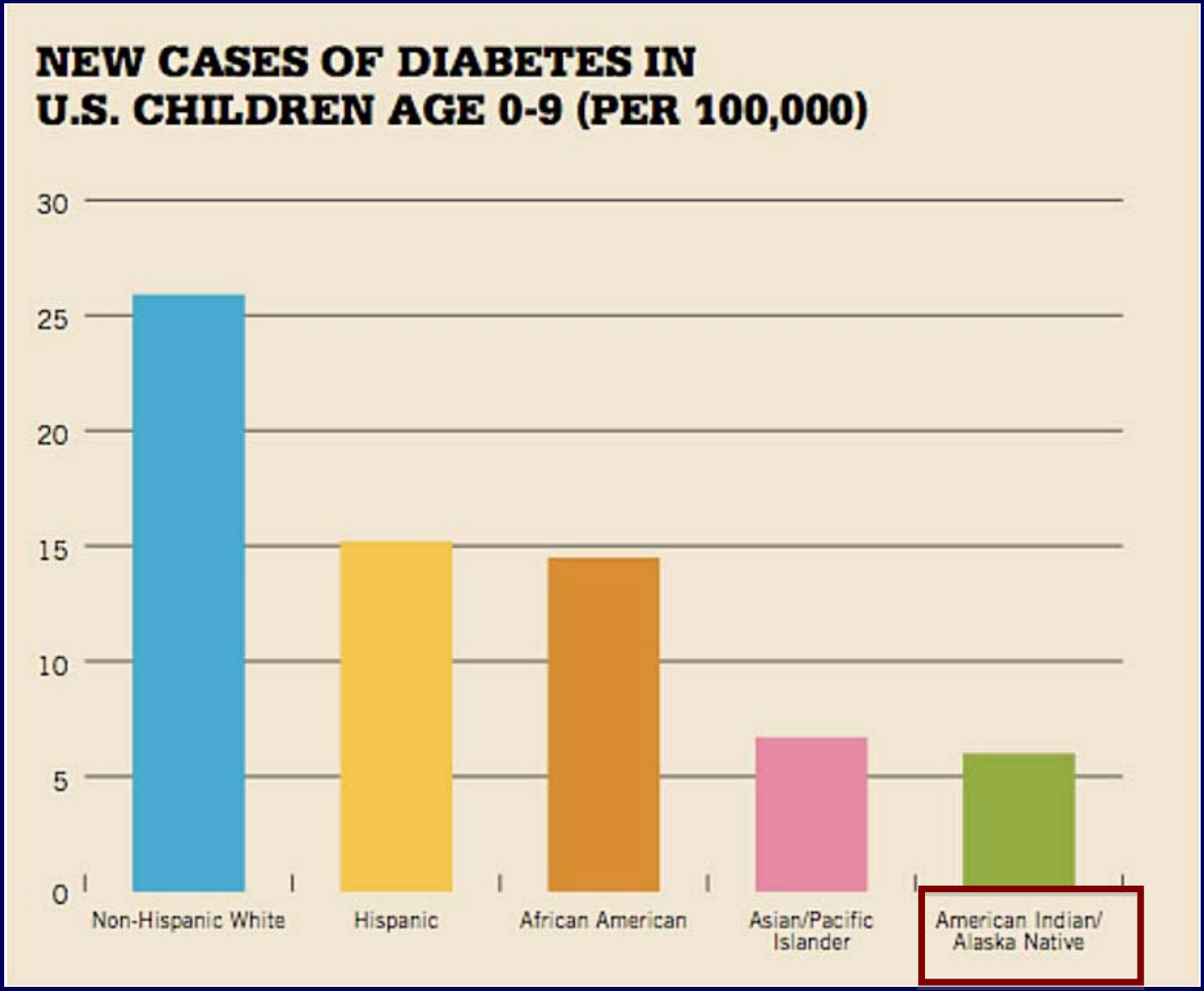
- Type 1- insulin deficiency
  - Younger age of onset- “juvenile onset”
  - More common in Caucasian race
  - Not associated with obesity
  - Associated with autoimmunity markers
  - Associated with clinical presentation in diabetic ketoacidosis
  - Polyuria, polydipsia, polyphagia - excessive urination, thirst, and appetite
  - Must be treated with insulin

Diabetes Mellitus

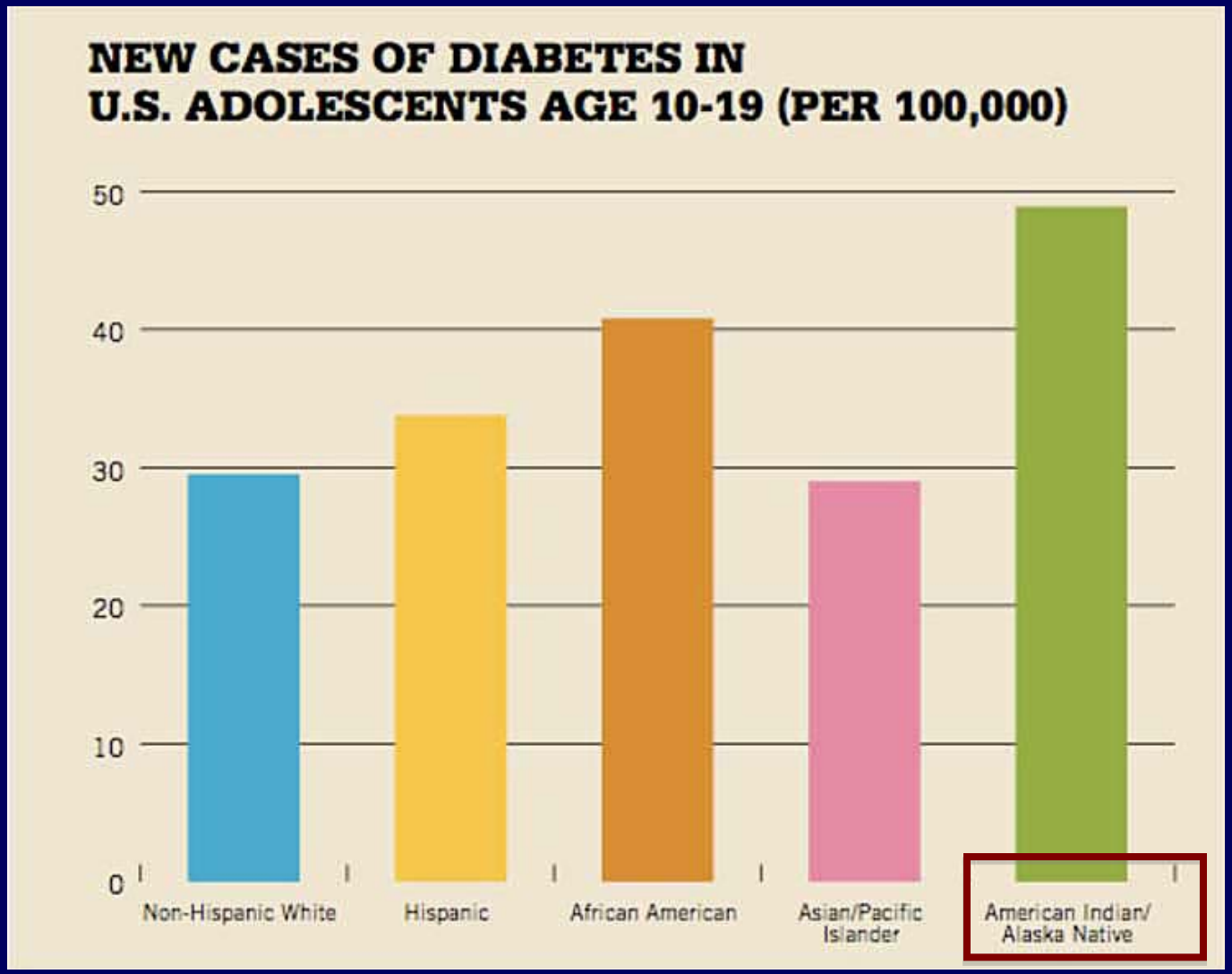
- Type 2- insulin resistance
  - Previously called “adult onset”
  - More common in persons of color
  - Associated with obesity
  - May or may not have autoimmunity markers
  - Presentation with polyuria, polydipsia, polyphagia
  - Associated with metabolic syndrome, acanthosis nigricans
  - Can be treated with oral medicines and/or insulin

Other Kinds of Diabetes

- Gestational diabetes (GDM)
  - Abnormal blood sugar when pregnant in a woman who did not previously have diabetes
    - 2-5% of pregnancies in the US
    - 8-12% of pregnancies on the Navajo Nation
    - 25% risk of Type 2 DM in 5 years after the GDM pregnancy
- Maturity onset diabetes of youth (MODY) (least common)
  - Genetic markers



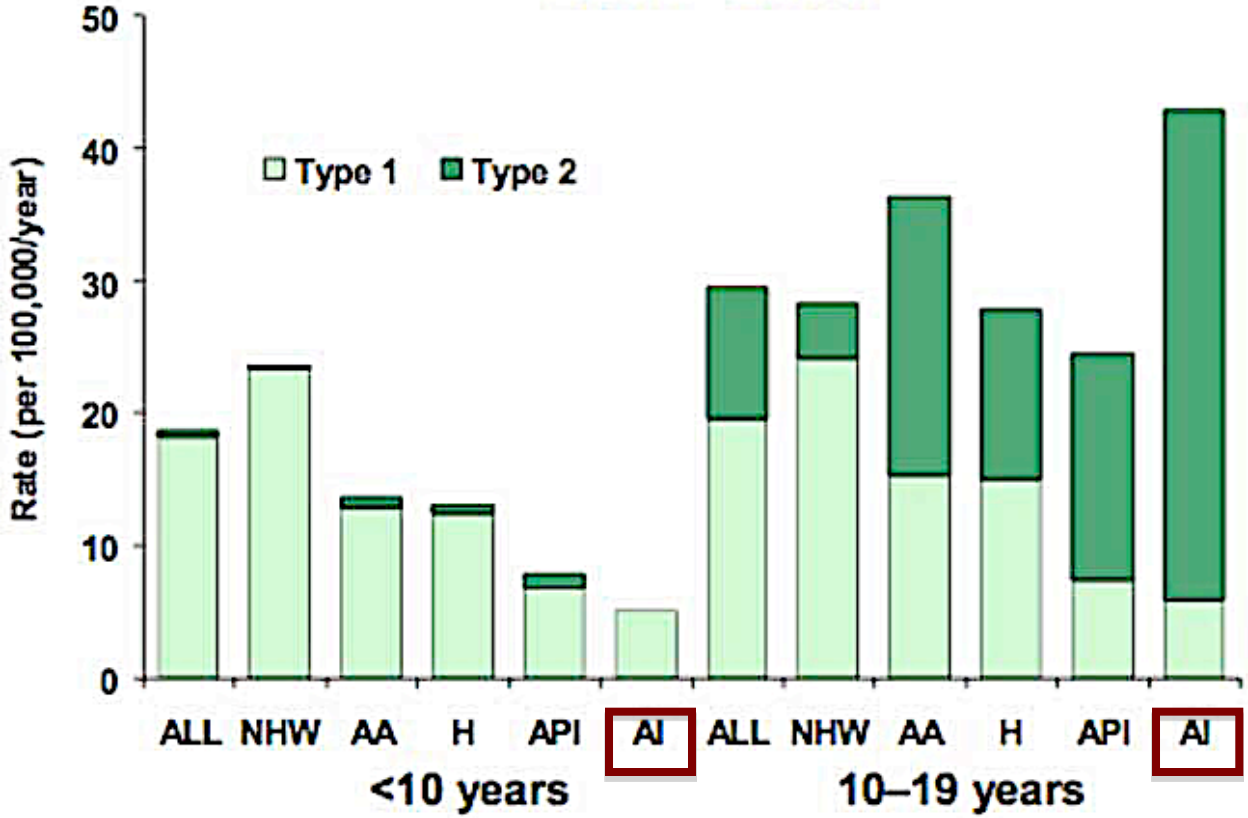
Source: "Who Has Diabetes?" by Jo Cavallo. Countdown Magazine – Spring 2006, www.jdrf.org - The SEARCH for Diabetes in Youth Study



A total of 1311 newly diagnosed patients were ascertained in 2002 in a population of 5 million. Study participants were assessed based on Diabetes Autoantibodies (DA) and C-peptide measures.

Source: Incidence of Diabetes in United States Children and Adolescents, The SEARCH for Diabetes in Youth Study Group, Winston-Salem, NC.

Rate of new cases of type 1 and type 2 diabetes among youth aged <20 years, by race/ethnicity, 2002–2003



Source: SEARCH for Diabetes in Youth Study
NHW=Non-Hispanic whites; AA=African Americans; H=Hispanics; API=Asian/Pacific Islanders; AI=American Indians

SEARCH findings (Phase 1)

- Diabetes is infrequent among Navajo youth aged <10 years
- Prevalence & incidence of diabetes are high in older Navajo youth
- In youth 15-19 years:
  - 1 in 359 Navajo youth had diabetes in 2001
  - 1 in 2542 Navajo youth developed diabetes annually
- Majority of diabetes is type 2
  - Type 1 is present in younger children

Dabelea D, DeGroat J, et al. "Diabetes in Navajo Youth: prevalence, incidence, and clinical characteristics: the SEARCH for Diabetes in Youth Study" Diabetes Care. 2009 Mar; 32 Suppl 2: S141-7.

SEARCH findings (Phase 1)

- Navajo youth with either type of diabetes were likely to have poor glycemic control, higher risky behaviors, and evidence of severely depressed mood.
- Youth with type 2 diabetes had more metabolic factors associated with obesity and insulin resistance than youth with type 1 diabetes.
  - Abdominal fat deposition, dyslipidemia, higher albumin-to-creatinine ratio

Dabelea D, DeGroat J, et al. “Diabetes in Navajo Youth: prevalence, incidence, and clinical characteristics: the SEARCH for Diabetes in Youth Study” Diabetes Care. 2009 Mar; 32 Suppl 2: S141-7.

9% of NA youth with T2DM are not obese /overweight?

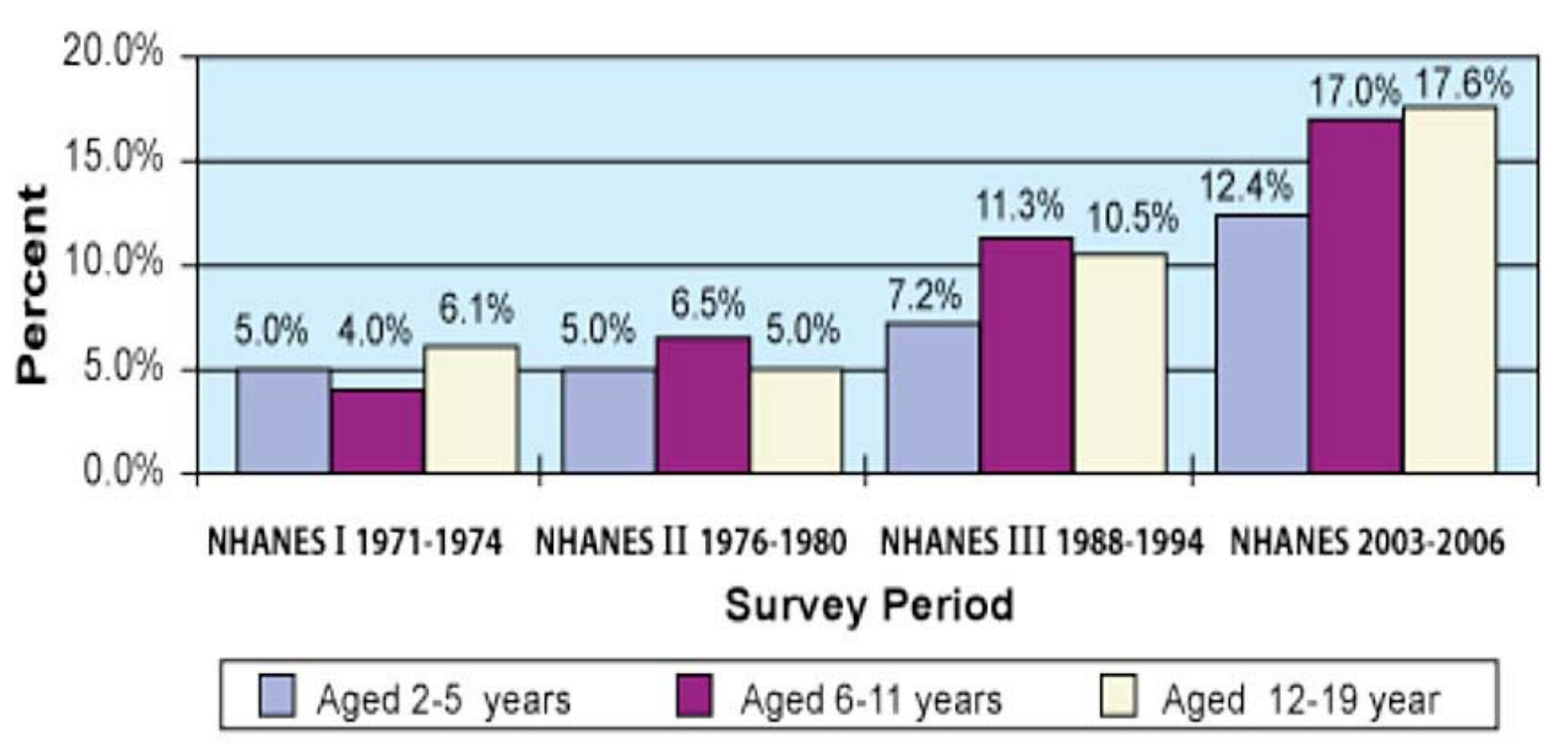
Table 2. Prevalence of obesity or overweight among nondiabetic youth and youth with T1DM or T2DM by race/ethnicity

	Race/ethnicity	Nondiabetic youth estimate*	SEARCH participants by diabetes type: Type 1			Type 2		
		% (95% CI)**	Total	N	% (95% CI)**	Total	N	% (95% CI)**
Obesity	NHW	15.8 (14.3, 17.5)	2647	287	10.7 (9.5,11.9)#^	82	64	68.8 (53.2,81.0)#^
(≥95th percentile)	AA	20.2 (18.6, 21.9)	310	69	20.1 (15.9,25.4)#	133	111	91.1 (81.0,96.1)#^
	Hispanic	18.3 (16.2,20.5)	414	71	17.0 (13.7,21.0)#	91	63	75.0 (59.8,85.7)#^
	API		132	22	16.6 (10.8,24.6)#	45	34	68.2 (43.4,85.7)#
	AI		21	1	0.0 (0.0,100.0)#	78	59	88.0 (67.9,96.2)#
	All	16.9 (15.8,18.0)	3524	450	12.6 (11.5,13.8)#^	429	331	79.4 (72.8,84.8)#^
Overweight	NHW	15.9 (14.3,17.6)	2647	546	20.8 (19.3,22.5)#^	82	10	13.9 (6.3,28.0)#
(85th to <95th percentile)	AA	14.8 (13.4,16.3)	310	75	23.4 (18.7,28.9)#^	133	15	8.0 (3.2,18.4)#
	Hispanic	18.8 (16.6,21.1)	414	115	28.0 (23.9,32.6)#^	91	11	10.5 (4.2,23.8)#
	API		132	36	24.4 (17.2,33.5)	45	7	14.9 (4.4,39.9)
	AI		21	3	15.0 (4.3,40.9)	78	7	3.3 (0.4,20.7)
	All	16.1 (15.0,17.3)	3524	775	22.1 (20.8,23.6)#^	429	50	10.4 (6.7,15.9)#^

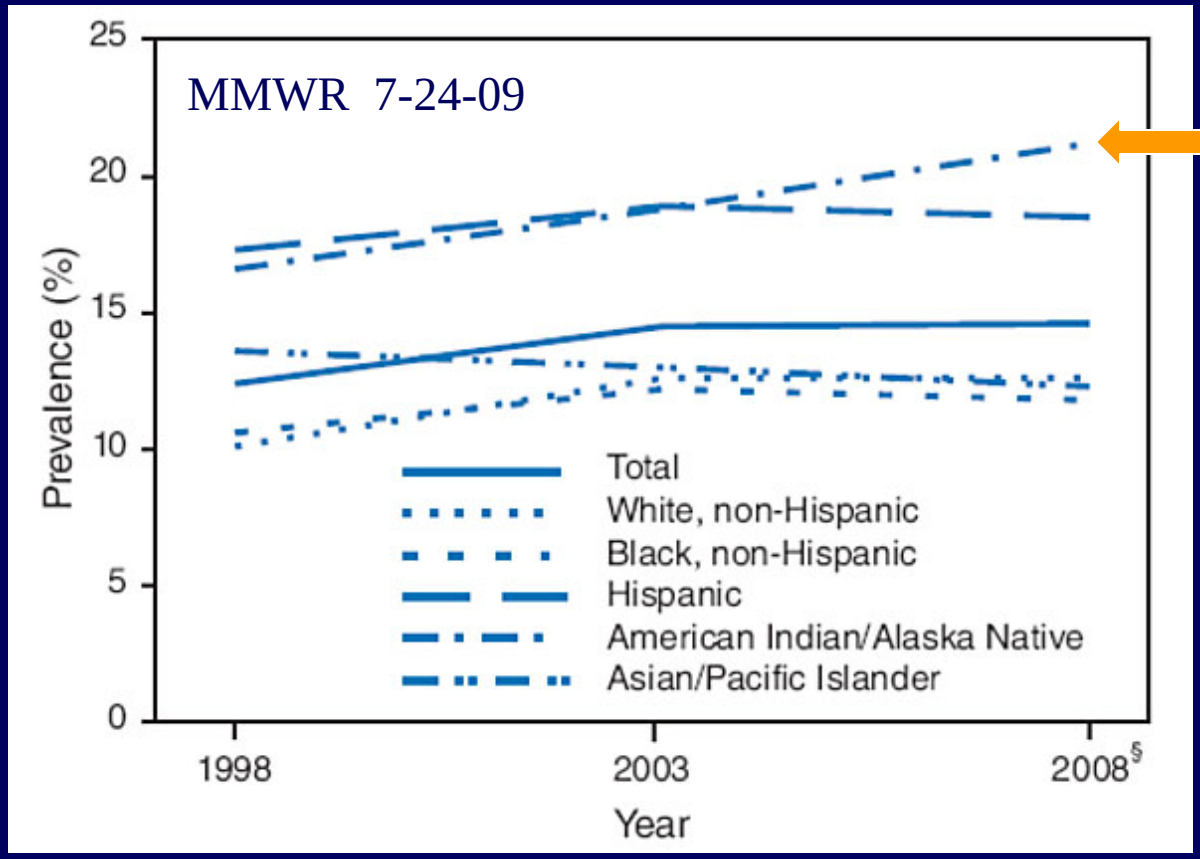
NHW, Non-Hispanic White; AA, African-American; AI, American Indian; API, Asian/Pacific Islander.
*US population estimates based on nondiabetic youth (NHANES 2001–2004). NHANES does not contain large enough samples of API and AI to provide comparable estimates.
**Based on age and gender adjusted models.
#$p<0.05$ (type 1 vs. type 2).
^$p<0.05$ (SEARCH diabetes type vs. nondiabetic youth estimate).

Liu L et al "Prevalence of overweight and obesity in youth with diabetes in USA: the SEARCH for Diabetes in Youth study." Pediatr Diabetes. 2010 Feb;11(1):4-11. Epub 2009 May 15.

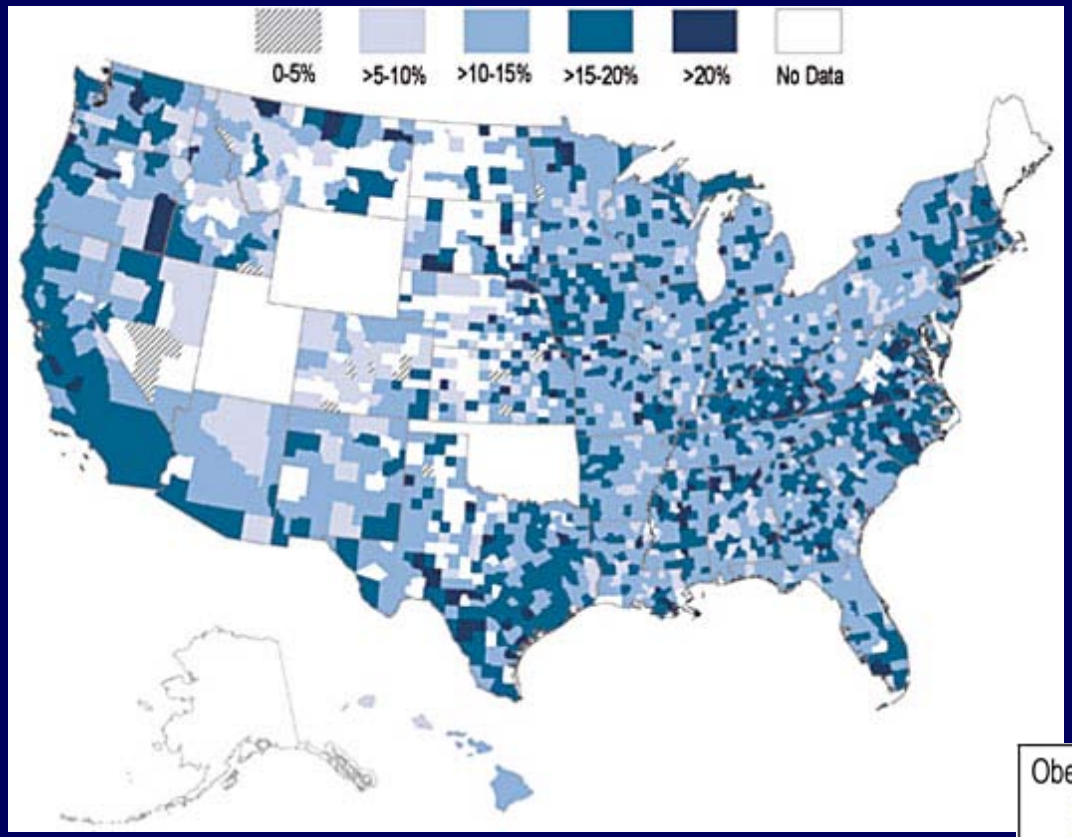
Prevalence of Obesity in Children and Adolescents 2-19y, NHANES data

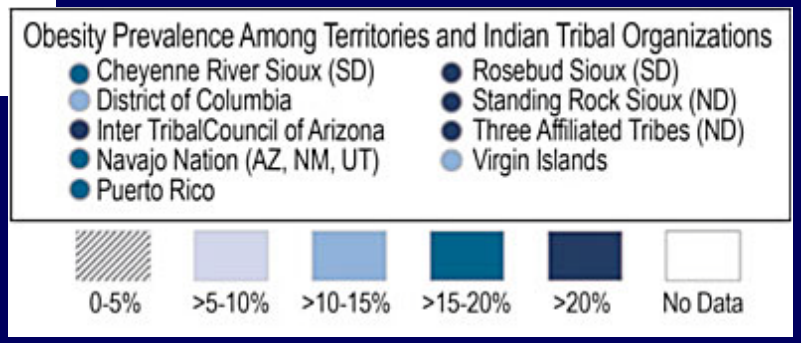


Change in obesity* prevalence during 1998--2003 and 2003--2008 among children aged 2--4 years, by race/ethnicity --- Pediatric Nutrition Surveillance System, United States, 1998-2008



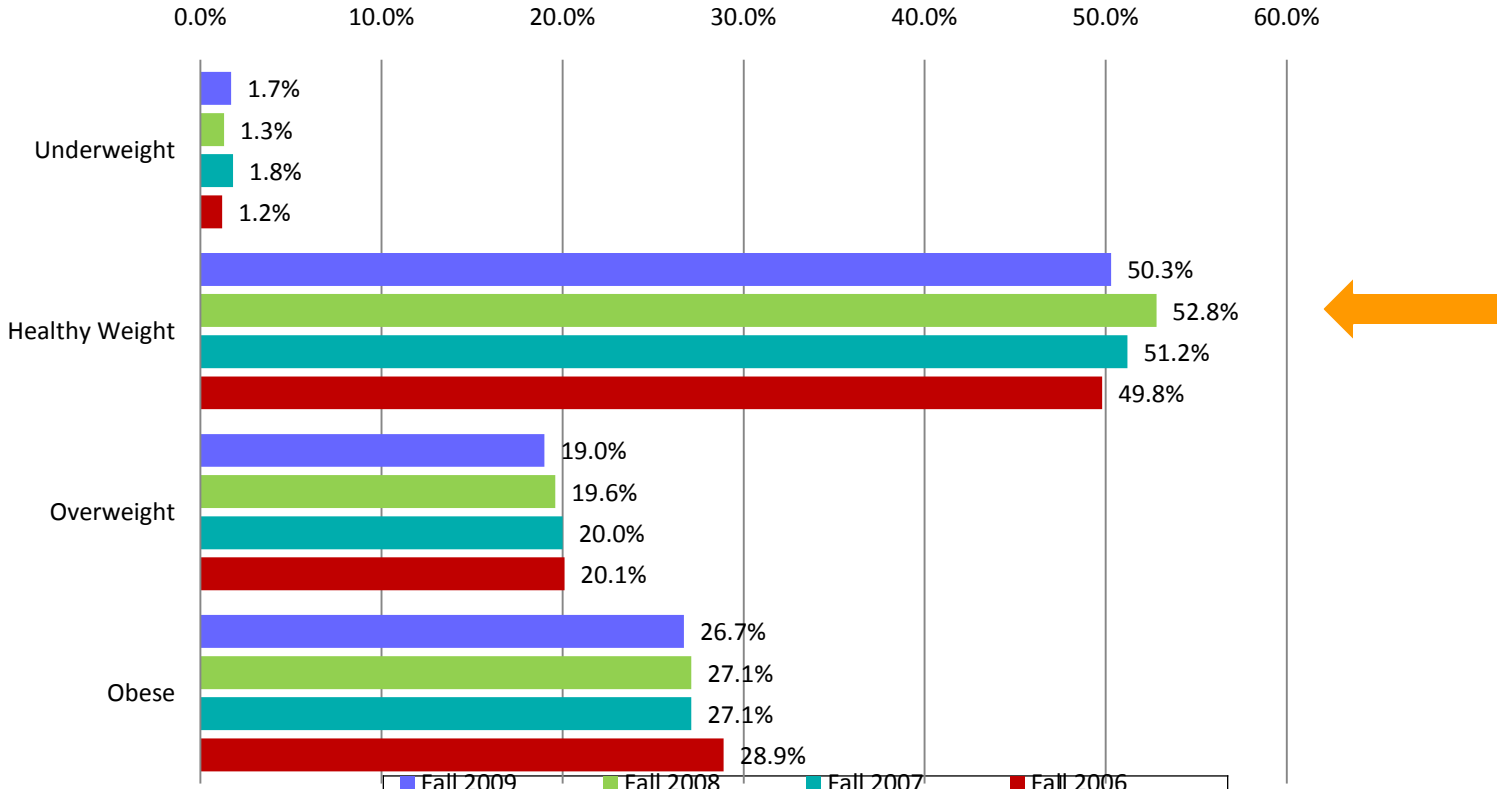
Geographic Patterns Among Low-Income, Preschool-Aged Children 2006-2008





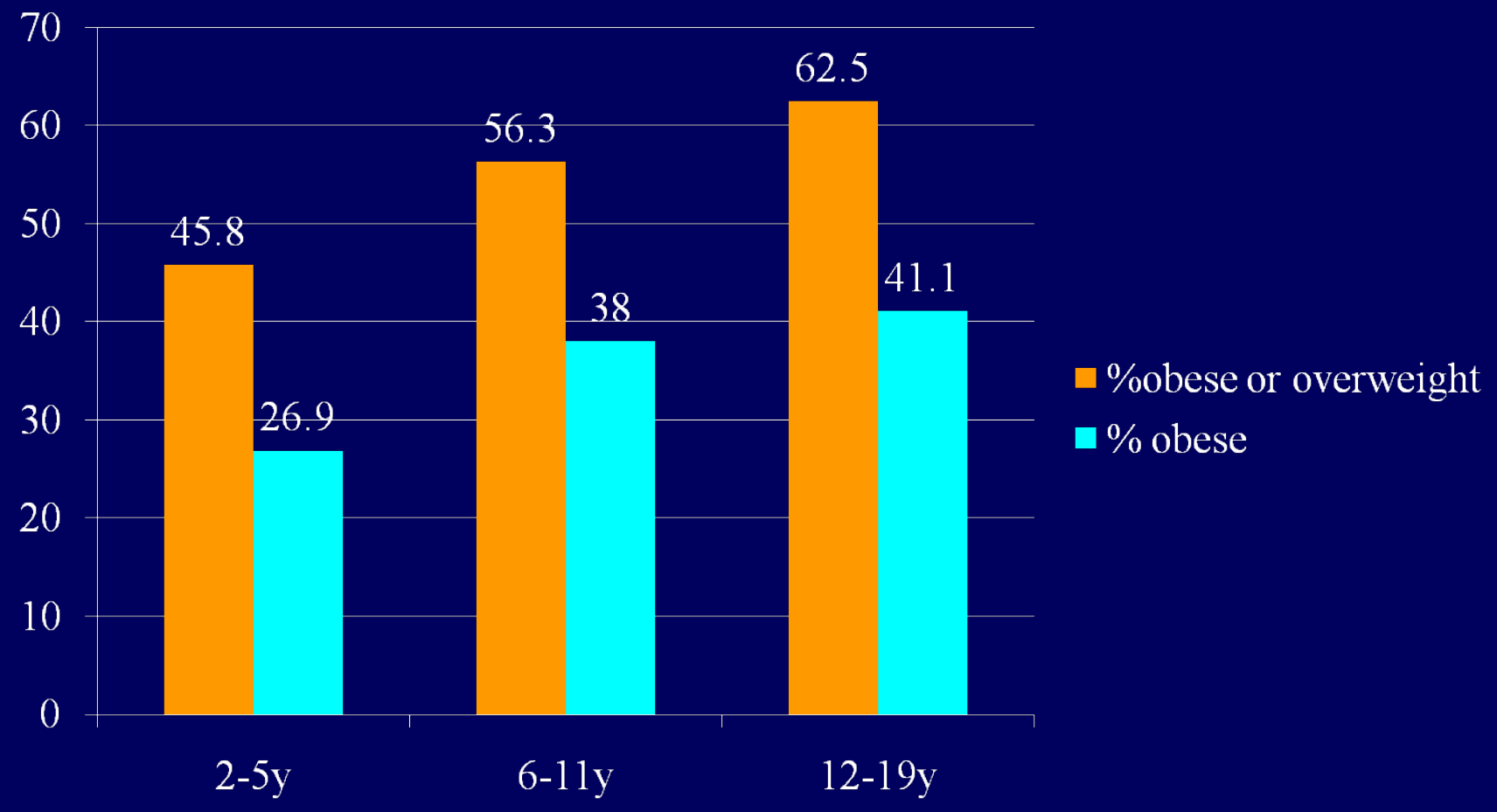
http://www.cdc.gov/obesity/childhood/lowincome.html
accessed 3-30-10

TCRHCC Diabetes Treatment Prevention Deptartment
School-Aged Children and Youth
Service Unit-Wide Percentile Body Mass Index - Four Year Trends



	Percentile Body Mass Index				Number
Year	Underweight	Healthy Weight	Overweight	Obese	Assessed
Fall 2006	1.2%	49.8%	20.1%	28.9%	1417
Fall 2007	1.8%	51.2%	20.0%	27.1%	1972
Fall 2008	1.3%	52.8%	19.6%	27.1%	3245
Fall 2009	1.7%	50.3%	19.0%	26.7%	3408

Phoenix Indian Medical Center BMI data- 2009



Obesity in Childhood

- What is predictive of overweight in children?
- What correlates with eventual overweight in adulthood?
- Parental weight vs. child's weight

Who is the highest risk of being overweight/obese as an adult?

- Infants:
  - Large for gestational age (LGA)
  - Small for gestational age (SGA)
  - Infant of diabetic mother
- Toddlers: born to obese parents
- Children: by age 5, BMI> 95th percentile
- Children born in poverty, food insecurity
- ? Native American children

What do we know contributes to pediatric overweight?

- Genetics - specific cloned mutations
  - Leptin
  - Leptin receptors
  - Melanocortin receptor 4
  - Proopiomelanocortin- red hair, adrenal insuff, obesity
  - Alpha melanocyte stimulating hormone

What do we know contributes to pediatric overweight?

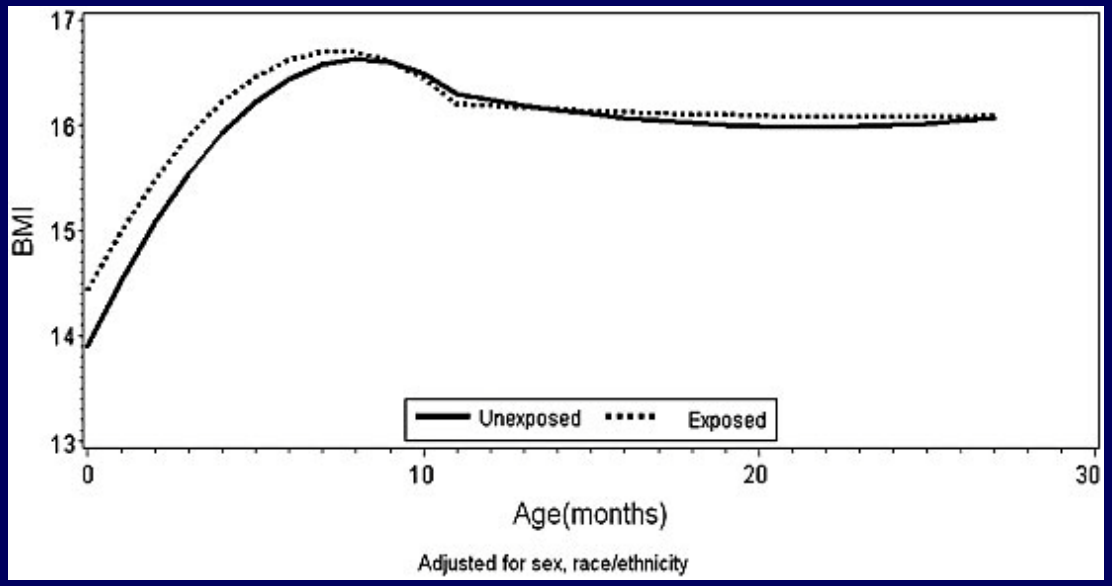
- Genetics- family characteristics
  - Predictor of adult overweight at age 3- parental BMI – 3x higher risk at all ages if parent is overweight
  - Predictor of adult overweight at age 5- child's BMI
  - Twin studies
    - Similar response to diet manipulations
    - Similar BMI even when raised in separate environments

Early Infancy Determinants of Obesity

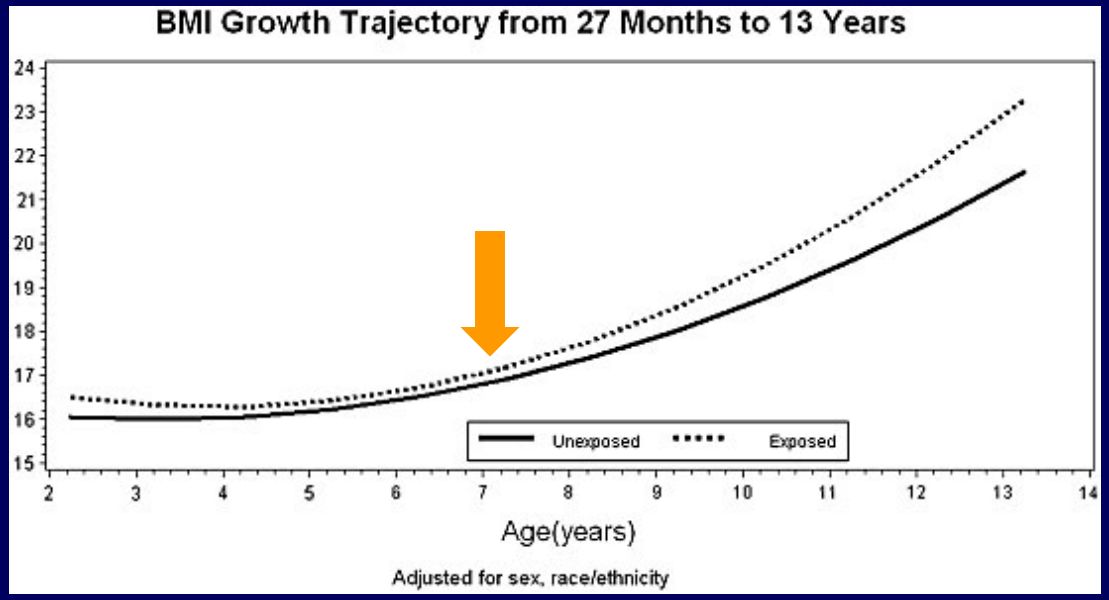
- Breast feeding vs. bottle feeding
- Maternal diabetes
- SGA vs. LGA
- Epigenetics?

Breastfeeding and Obesity

- Learned Behaviors:
  - Innate satiety vs. Overfeeding to meet a goal
- Breast milk flavor variety increases likelihood of acceptance Physiology:
  - Leptin responsivity
  - Increased adipocytes in response to increased protein load in formula
  - Increased plasma insulin in formula fed infants
- Confounding of a variety of foods later in life
- variables: maternal lifestyle



Crume, T, et. al.
"The Impact of In Utero Exposure to Diabetes on Childhood Body Mass Index Growth Trajectories: The EPOCH Study."
J Pediatr. 2011 Jan 14. [Epub ahead of print



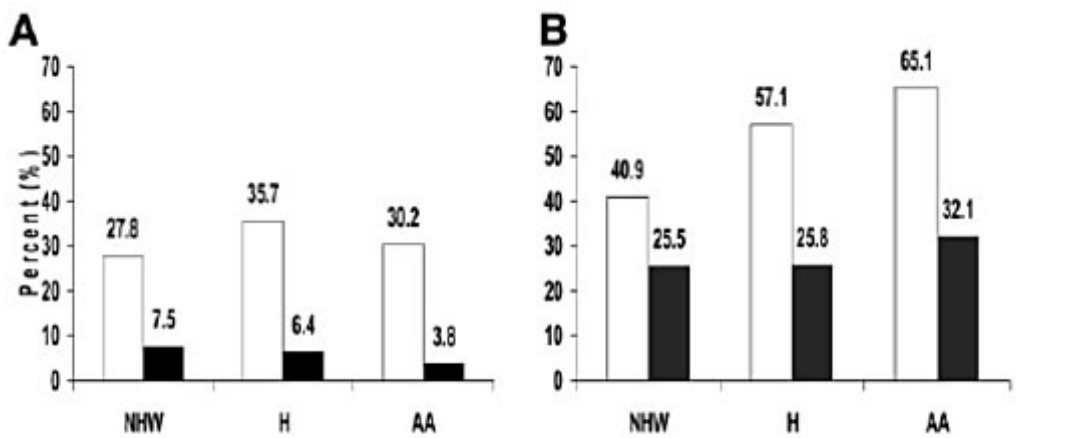


Figure 1—*Percentage of youth exposed in utero to maternal diabetes (A) and maternal overweight/obesity (B) by case-control status and race/ethnicity. □, case patients; ■, control youth. A: Non-Hispanic white (NHW) P = 0.01; Hispanic (H) P = 0.02; African-American (AA) P = 0.02. B: NHW P = 0.1; H P = 0.04; AA P = 0.001.*

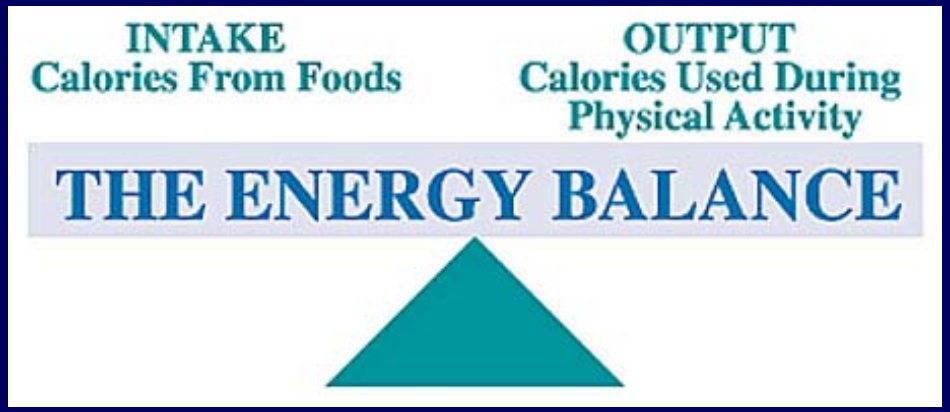
Dabelea, D, et. al. "Association of intrauterine exposure to maternal diabetes and obesity with type 2 diabetes in youth: the SEARCH Case-Control Study. "
Diabetes Care. 2008 Jul;31(7):1422-6. Epub 2008 Mar 28.

Table 2—*Proportion of type 2 diabetes in youth attributable to intrauterine exposure to maternal diabetes and overweight/obesity*

Exposure category	Case patients	Control youth	OR (95% CI)*	PAF†
Not exposed to either maternal diabetes or maternal obesity	36.7	68.9	1	Unexposed
Exposed to maternal diabetes only	6.3	3.7	3.9 (1.1–14.5)	4.7
Exposed to maternal obesity only	32.9	24.7	2.5 (1.3–5.0)	19.7
Exposed to both maternal diabetes and maternal obesity	24.1	2.6	19.2 (6.1–60.8)	22.8
Overall proportion of type 2 diabetes in youth attributable to in utero exposure to maternal diabetes and obesity		47.2 (30.9–63.5)‡		

Data are % unless indicated otherwise. *ORs for the association between mutually exclusive exposure categories and case/control status, additionally adjusted for age, sex, and race/ethnicity. †PAFs were calculated using the formula: $P_i[(OR_i - 1)/OR_i]$, where P_i is the proportion of case patients in each exposure category and OR_i is the adjusted OR comparing each exposed group with the unexposed reference category (i = 0). ‡Calculated using the formula: $\Sigma \sqrt{P_i}[(OR_i - 1)/OR_i]$.

What do we know contributes to pediatric overweight?



If (calories in) > (calories out)

(as in food) (as in physical activity)

you will gain weight!

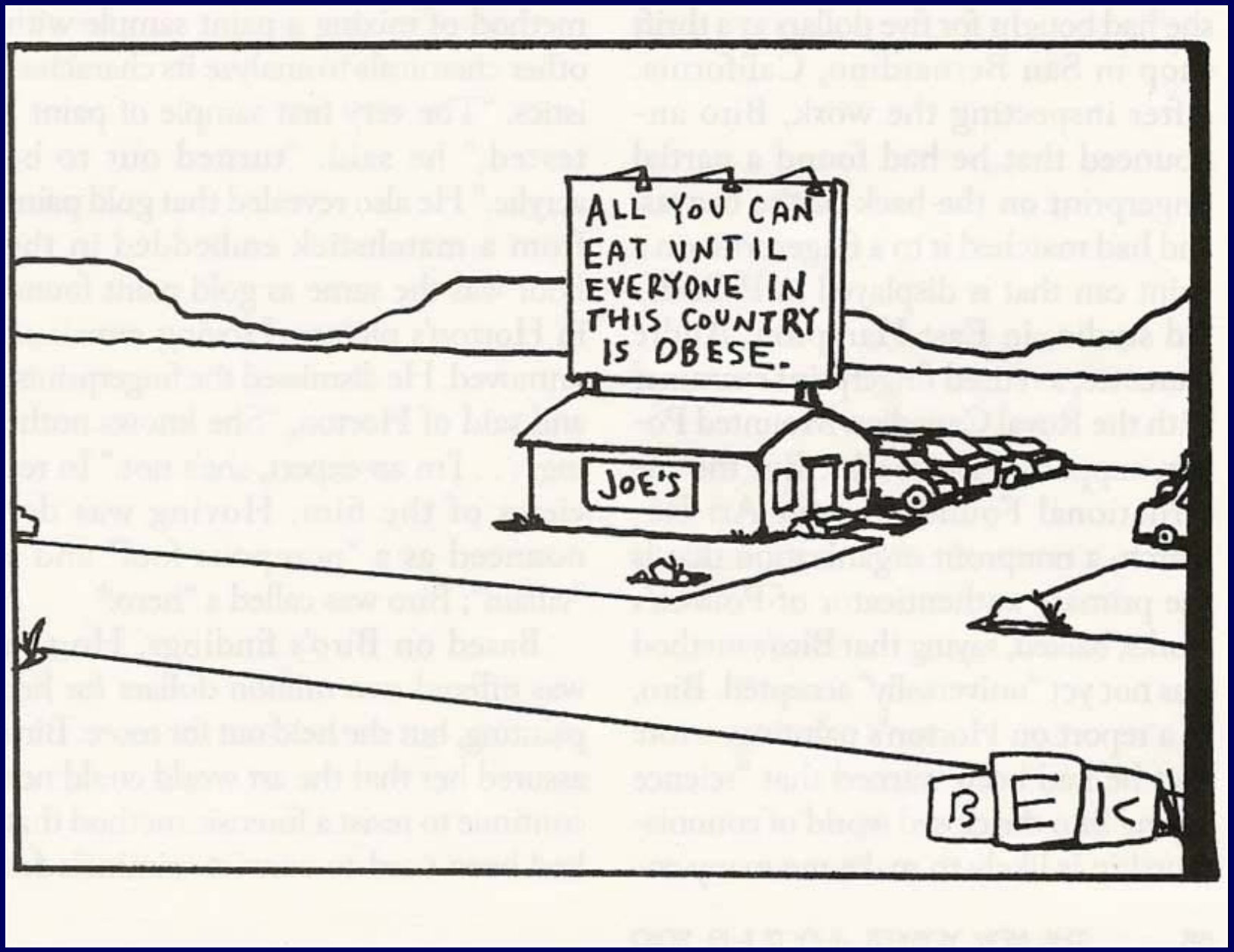
“Tell me what you eat - I will tell you who you are.”

J.A. Brillat-Savarin, French Gastronome

(motto of the Iron Chef)

What do we think contributes to pediatric overweight?

- Dietary issues
  - Increased sweetened beverage consumption
  - Increased portion size
  - Increased caloric density of foods
    - Fast foods/meals purchased outside the home tend to be more energy dense, have larger portions, and are often consumed with sugar sweetened beverages
  - Food availability/food insecurity


ALL YOU CAN EAT UNTIL EVERYONE IN THIS COUNTRY IS OBESE.
JOE'S
BEK

Portion Size

- Super sizing
  - Learned behavior to eat it all
  - Food insecurity
    - Overly restrictive feeding behaviors by parents increases overeating between meals
  - Economics of fast food

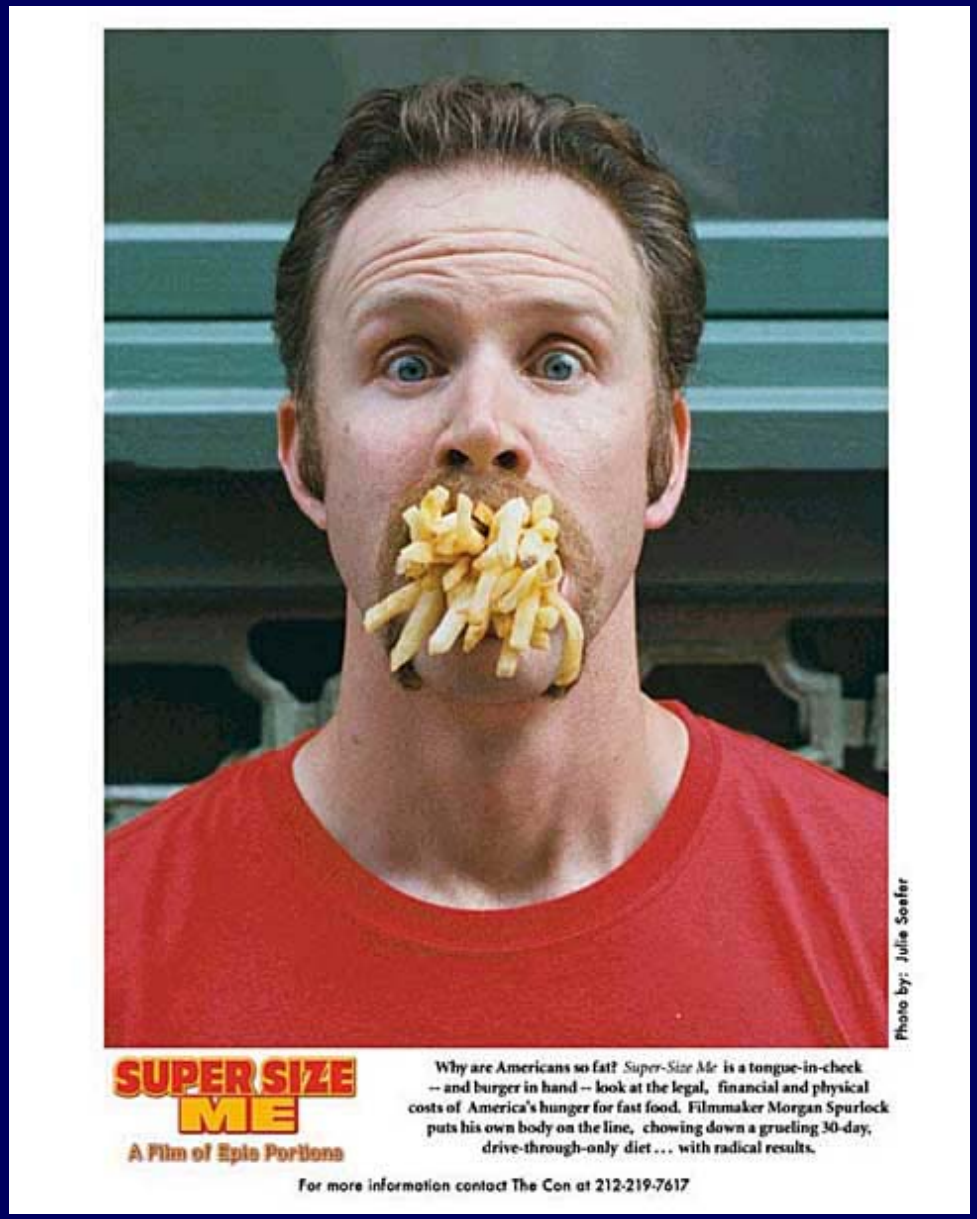
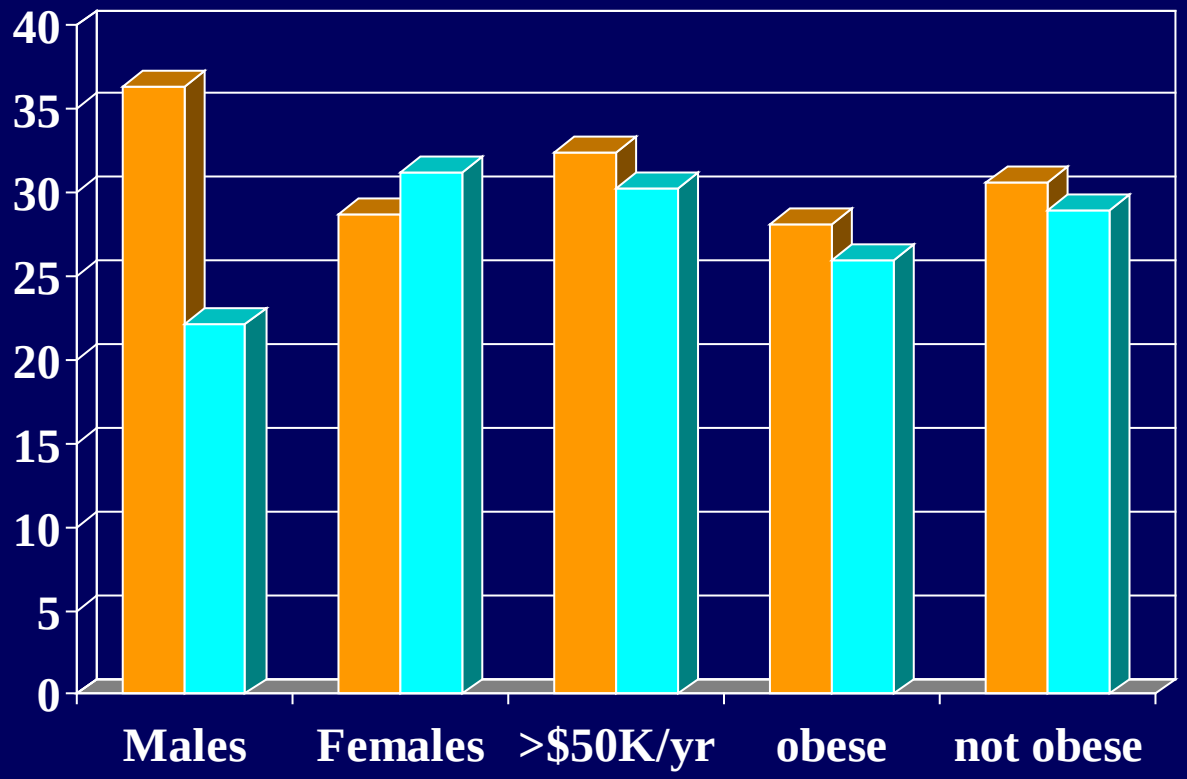


Photo by: Julie Soefer
SUPER SIZE ME
A Film of Epic Portions
Why are Americans so fat? Super-Size Me is a tongue-in-cheek -- and burger in hand -- look at the legal, financial and physical costs of America's hunger for fast food. Filmmaker Morgan Spurlock puts his own body on the line, chowing down a grueling 30-day, drive-through-only diet ... with radical results.
For more information contact The Con at 212-219-7617

Fruit and Vegetables
US Adult Consumption- 2005



HP 2010 goal-
75% ≥2 fruit/d
50% ≥ 3 veg/d

MMWR 56: (10) 213-215 March 16,2007

Is it more expensive to eat healthy?

- 7 studies listed addressing this issue
  - Varying methodology, recall issues
- Conflicting results
  - Consideration of cost per calorie versus nutritional value of food purchased
    - 2004 US Department of Agriculture (USDA) study of fruits and vegetables
      - 27 fruits in 69 forms, 30 veg in 85 forms- 3 servings fruit, 4 veg = $.64 (1999 dollars)
    - 2006 California study- “thrifty food plan” vs “healthy food plan” (lower fat, higher fiber foods) 18% increase in cost

Role of School Based Nutrition Programs

- Children with lower socio-economic status and higher risk of food insecurity are more likely to receive 2 out of 3 meals per day through a school based nutrition program
  - Economics
  - Use of commodity foods/USDA-supplied foods
    - Non perishable /preprepared foods
  - Food acceptance by students

“I really don’t think I need buns of steel. I’d be happy with buns of cinnamon.”

Ellen DeGeneres

What do we know contributes to pediatric overweight?

- Physical activity
  - More sedentary activity
    - Television
      - At meals, in the bedroom
    - Other screen activities
  - Less physical activity
    - Physical education (PE) in schools
    - Non school activity
      - Recreation versus competition
      - Access and safety
      - Transportation

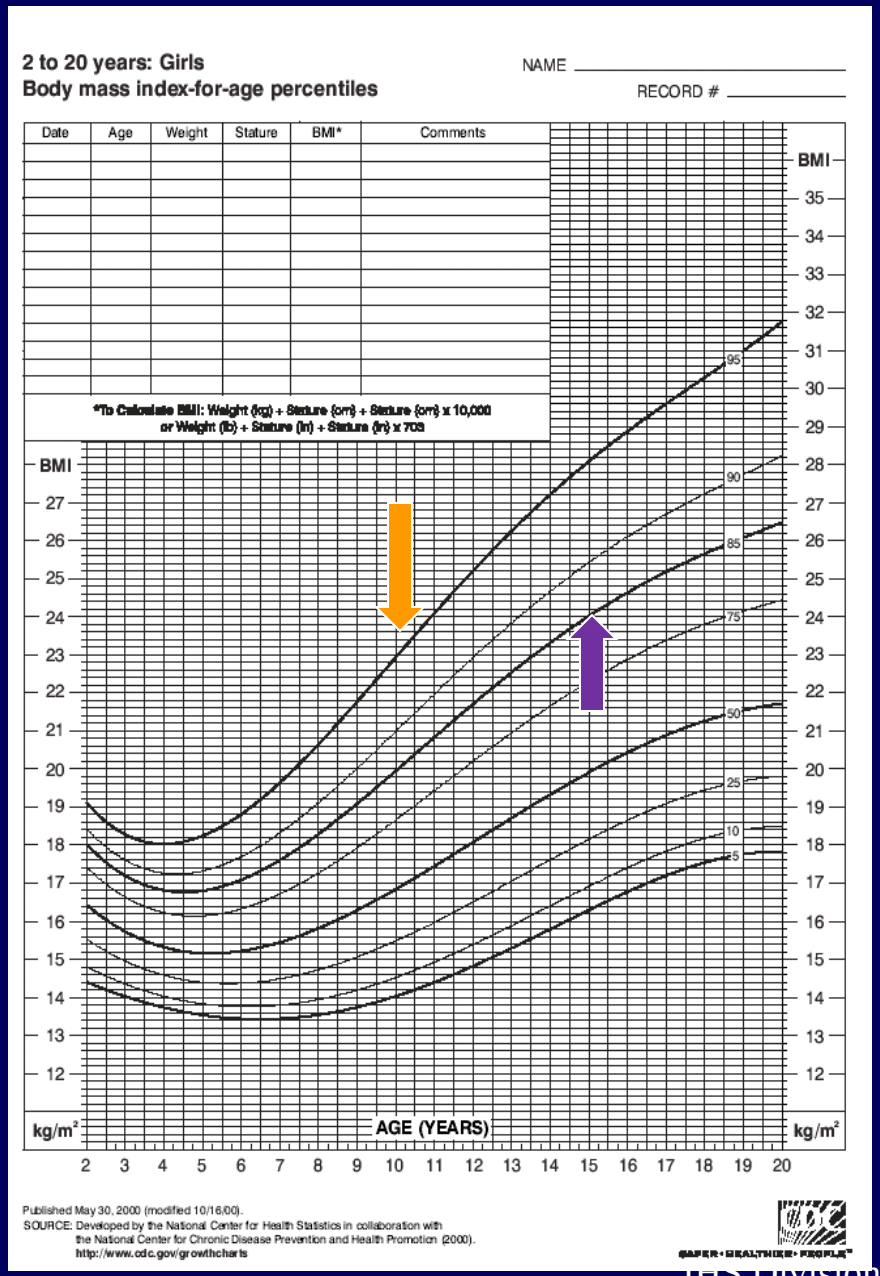
Physical Activity

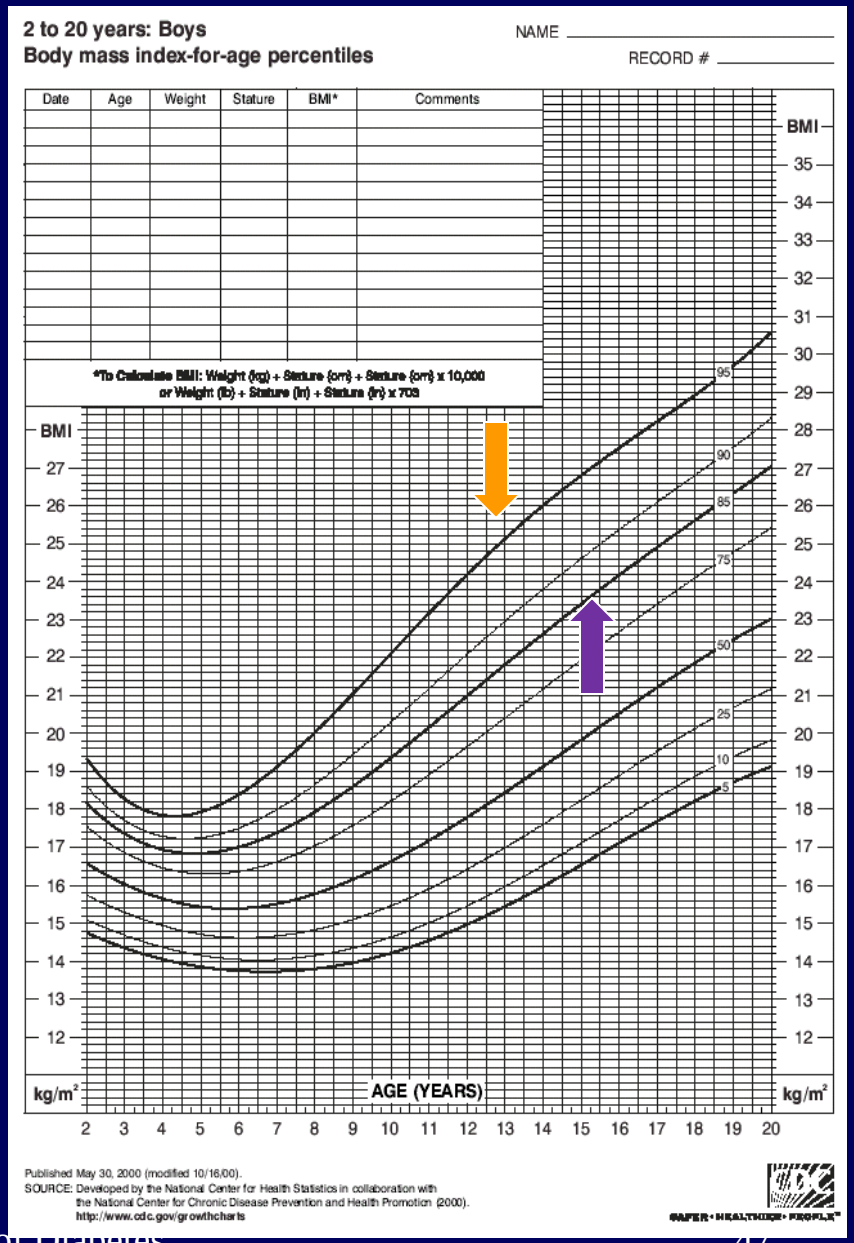
Sedentary	kcal	Active	kcal
Reclining for 30 min of phone calls	4	Standing for 3 10-min phone calls	20
Waiting 30 min for pizza delivery	15	Cooking for 30 min	25
Buying presliced vegetables	0	Washing, slicing, chopping veg.	10-13
Letting dog out the back door	2	Walking dog for 30 min	125
Letting cashier unload shopping cart	2	Unloading full shopping cart	6
Shopping online 1 hour	30	Shopping at mall 1 hour	145-240
Sitting, listening to lecture, 60 min	30	Giving lecture	70
Using car wash 1x per month	18	Washing & waxing car 1h/mo	300
Taking elevator up 3 flights	0.3	Walking up 3 flights	15
Using a lawn service	0	Gardening & mowing each 30 min	360

Mayo Clinic Proceedings; February 2002; Volume 77(2); 109-113

Treatment of Childhood Obesity

- Identify children who are overweight
  - Use of BMI curves
  - Dynamic vs. static situation
- Develop a clear message about your concern for the child's weight and the potential for change-
  - 5-2-1-0 model
- Motivational inteviewing


2 to 20 years: Girls
Body mass index-for-age percentiles
NAME
RECORD #
Date
Age
Weight
Stature
BMI*
Comments
*To Calculate BMI: Weight (kg) ÷ Stature (cm) ÷ Stature (cm) x 10,000
or Weight (lb) ÷ Stature (in) ÷ Stature (in) x 703
BMI
95
90
85
75
50
25
10
5
kg/m²
AGE (YEARS)
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
Published May 30, 2000 (modified 10/16/00).
SOURCE: Developed by the National Center for Health Statistics in collaboration with
the National Center for Chronic Disease Prevention and Health Promotion (2000).
http://www.cdc.gov/growthcharts


2 to 20 years: Boys
Body mass index-for-age percentiles
NAME
RECORD #
Date
Age
Weight
Stature
BMI*
Comments
*To Calculate BMI: Weight (kg) ÷ Stature (cm) ÷ Stature (cm) x 10,000
or Weight (lb) ÷ Stature (in) ÷ Stature (in) x 703
BMI
95
90
85
75
50
25
10
5
kg/m²
AGE (YEARS)
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
Published May 30, 2000 (modified 10/16/00).
SOURCE: Developed by the National Center for Health Statistics in collaboration with
the National Center for Chronic Disease Prevention and Health Promotion (2000).
http://www.cdc.gov/growthcharts

Medical Complications of Overweight in Childhood

- Type 2 DM/impared glucose tolerance
- Obstructive Sleep Apnea
- Obesity hypoventilation syndrome
- Hypertension
- Hyperlipidemia
- Hepatic Steatosis
- Cholelithiasis
- Early Menarche
- Polycystic ovarian syndrome
- Slipped capital femoral epiphysis
- Osteoarthritis of the knee
- Asthma

Psychosocial Complications of Overweight in Childhood

- Depression
- Diminished self esteem
- Diminished body image
- Stigmatization/victimization
- Lower socioeconomic status

“If it was easy, everyone would be doing it.”

Tom Hanks as Jimmy Dugan to
Geena Davis as Dottie Hinson in

“A League of Their Own”

Drugs

- Orlistat (Xenical®)- lipase inhibitor, causes malabsorption of fat
  - Trials in kids- does work
    - Approved 12 and older
  - Poorly tolerated long term
- Sibutramine (Meridia®)- appetite suppressant
  - No studies in children
  - Approved only > 16yo

Drugs

- Metformin- not approved for weight control only- used in impaired glucose metabolism patients.
  - Statistically significant changes- but perhaps not clinically significant?
- Octreotide- not approved for weight loss
  - Trials ongoing at UC San Francisco

Obesity Treatment

- Alabama, Los Angeles, Stanford, Davis
- All the same model- intensive 6-24 session course, average 6 mos to 1 year commitment
- Parent/family participation
- Nutrition, exercise, psychological support

The Results

- 75-80% lose weight, reduce BMI
  - Blood pressure & triglyceride decreases,
  - For DM patients, reduction in medications
  - Improved food choices
  - Improved self esteem
- 80% or more complete the program
- 10-15 years of data

The Down Side

- None of the programs showed significant change of BMI percentiles overall, amounts of weight loss were highly variable
- Need to have $\geq$ 25 contact hours per patient in a 6 month period
- Cost of programs $700-3000 per person
  - All staff costs

The Biggest Loser

- Money as an incentive for weight loss
- TV program also has intense nutrition and physical activity components
- Model similar to drug treatment programs
  - Periodic monetary or equivalent incentives to "stay clean"

Evidence Based Data on Obesity Interventions

- Review of 50 different studies
  - Some on general population, some on different school populations, some on obese populations only
  - Prevention as well as treatment interventions
  - Outcome measures varied- KAB, BMI, minutes of activity, food choices, etc.
- Listed what works, what was mixed, and what did not work
- http://www.childtrends.org/Files//Child_Trends_2010_03_25_FS_WWObesity.pdf

Evidence Based Data on Obesity Interventions

- Results
  - Most of the programs targeting overweight or obese children had impact on at least one outcome
  - Programs with narrower goals were generally more successful in achieving the specific desired behavioral improvements
  - Programs that implemented a therapy/counseling component can be successful at improving child and adolescent nutrition and physical activity

Evidence Based Data on Obesity Interventions

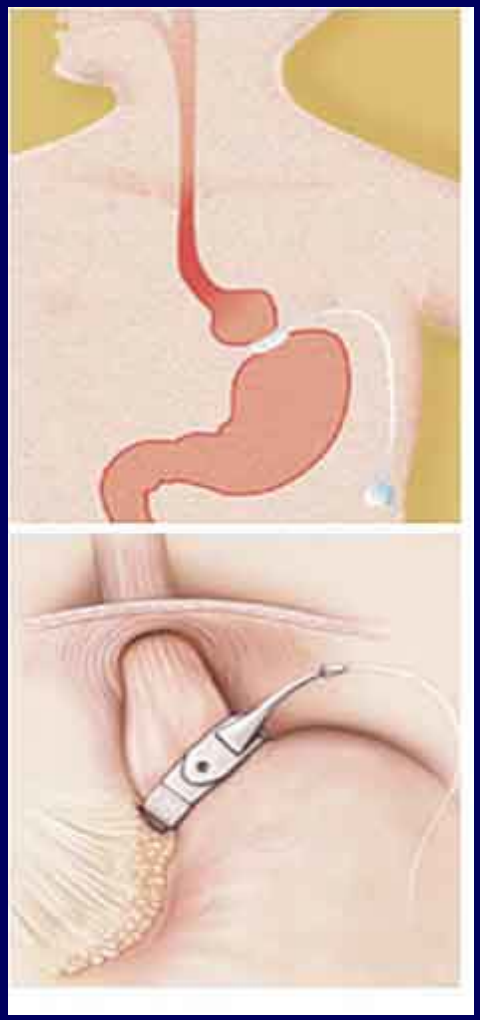
- Long term programs that addressed physical activity were more successful.
- Programs that teach skill building were more successful, especially for improving physical activity.
- Programs that required tracking progress were fairly effective at improving physical activity.
- Interventions with school nutrition or mandatory PE alone did not necessarily improve student overall nutrition or physical activity.
- Weight loss programs in young children were not successful long term.

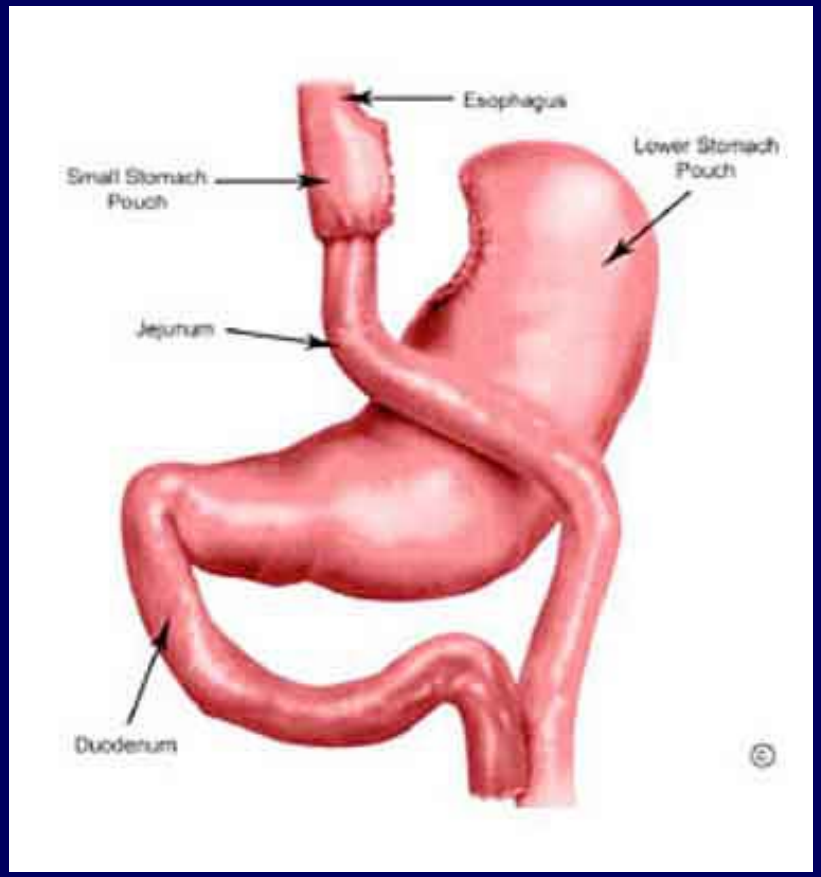
Bariatric Surgery

- More effective than any of the other programs
  - Gold standard is 50-60% of excess weight lost
- Data on kids does not exist but has been used in teens
- BMI>40 or BMI >35 with comorbidity
- Failure of at least 6 months of intensive diet/exercise management

Bariatric Surgery

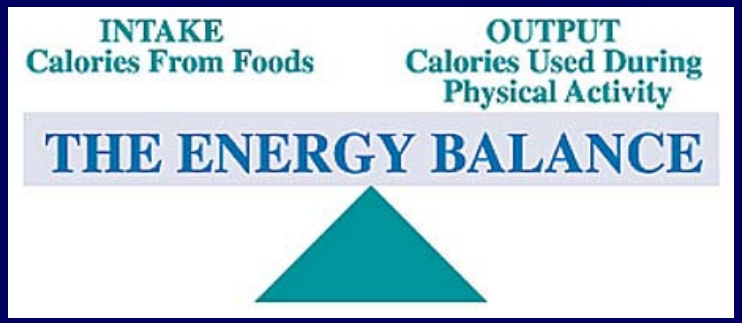
- Multiple techniques
  - Roux en Y anastamoses with gastric stapling- malabsorption and restriction
  - Laparoscopic gastric banding- restriction
- Safety
- Cost- many insurance companies don’t cover




Esophagus
Small Stomach Pouch
Lower Stomach Pouch
Jejunum
Duodenum

Primary Prevention

- Energy balance equation
  - Decrease calories in
  - Increase caloric expenditure
- What are prevention strategies that work?



Strategies

- Need to attack the myths:
  - Healthy food tastes bad
  - Exercise is work
  - Teens and children don’t have to worry about being unhealthy until they grow up
- Make a campaign that involves youth in the planning
- Use media to promote

Childhood obesity.
Don't take it lightly.
my kinda
shoppin'
spree

Individuals vs. Societal change

- Clinical intervention with patients
  - Limited range of impact
  - Potential High impact on individual
- Group intervention (esp. with weight loss- like Diabetes Prevention Program)
- Environmental changes
  - Recreation/exercise venues
    - Safety
    - Accessibility
  - Food deserts
  - SCHOOLS

Prevention- is it possible?

- National Initiative for Children's Healthcare Quality summit on obesity and current interventions
- 3 award winning programs:
  - Maine/Harvard cooperative Health program
  - Envision New Mexico
  - Kaiser Permanente Northern California

The 4 Message Programs-5-2-1-0

- 5-Eat more fruits and vegetables- “Eat 5 a day”
- 2-Decrease TV /screen time to less than 2 hours a day- “Turn off the TV”
- 1-Increase physical activity to 1 hour daily “Get up and Play hard”
- 0- Decrease sweetened beverage consumption- “Stop the pop”

keep ME healthy

5 2 1 0

POWER UP

What can YOU do?

5: Eat fruits & vegetables at least 5 or more times on most days. Limit 100% fruit juice.

2: Cut screen time to 2 hours or less daily.

1: Participate in at least 1 hour or more of moderate physical activity every day
& 20 minutes of vigorous activity at least 3 times a week.

0: Restrict soda and sugar-sweetened sports & fruit drinks.
Instead, drink water and 3-4 servings/day of fat-free/skim or 1% milk.

Keep ME Healthy is a joint initiative of the Maine Center for Public Health, Maine Harvard Prevention Research Center and the Maine Chapter of the American Academy of Pediatrics.

MAINE CENTER for Public Health

Get More ENERGY
HEALTHY, STRONG BODIES COME IN ALL SHAPES & SIZES
GET UP & PLAY HARD
At least 30-60 minutes a day
CUT BACK ON TV & VIDEO GAMES
No more than 1 hour a day
Remove TV from bedroom
EAT 5 HELPINGS OF FRUITS & VEGETABLES A DAY
1 fruit or 1/2 cup of vegetables = 1 helping
CUT DOWN ON SODAS & JUICE DRINKS
No more than 1 can or small cup a day
Drink water when thirsty
How ready are you to get more energy?
0 1 2 3 4 5 6 7 8 9 10
What would make me more ready?
What might my next steps be?
What is my plan?
MORE ENERGY MEANS MORE FUN!
KAISER PERMANENTE
UNM CHILDREN'S HOSPITAL

"Get More Energy!" Poster

4 Key Messages

Readiness to Change Tool

Behavioral Motivational Interviewing

- Motivation scale
- Readiness for change
- Brief interventional technique

Motivational Interviewing

- Are you concerned about your weight?
- How willing are you to make a change?
  - What would it take to make you more motivated (increase in number scale)
- What are you willing to change?
- If they aren't interested- JUST WALK AWAY!
  - Resist the temptation to fire a parting shot….
  - But emphasize your concern, readdress another visit.

Prescription for Healthy Living

- Health care providers are an important influence on the choices patients make.
- Health care providers may be the only ones willing to address this issue directly.
- Gives the patient a clear directive of what to do.

Rx for Healthy Active Living

Name _____ Date _____

Ideas for Living a Healthy Active Life

5 Eat at least 5 fruits and vegetables every day.
2 Limit screen time (for example, TV, video games, computer) to 2 hours or less per day.
1 Get 1 hour or more of physical activity every day.
0 Drink fewer sugar-sweetened drinks. Try water and low-fat milk instead.

My Goals *(choose one you would like to work on first)*

- ☐ Eat _____ fruits and vegetables each day.
- ☐ Reduce screen time to _____ minutes per day.
- ☐ Get _____ minutes of physical activity each day.
- ☐ Reduce number of sugared drinks to _____ per day.

_____
Patient or Parent/Guardian signature

_____
Doctor signature

From Your Doctor

American Academy of Pediatrics
DEDICATED TO THE HEALTH OF ALL CHILDREN™

Healthy Active Living
An initiative of the American Academy of Pediatrics

Environmental Interventions

- School environment
  - School nutrition
    - Food service
      - Salad bars, ethnic foods
    - Pouring contracts/vending machines
    - Parties/fund raisers
    - Nutrition education in science courses
  - Increase moderate to vigorous physical activity (MVPA) in school setting
  - Schools as venues for MVPA after hours

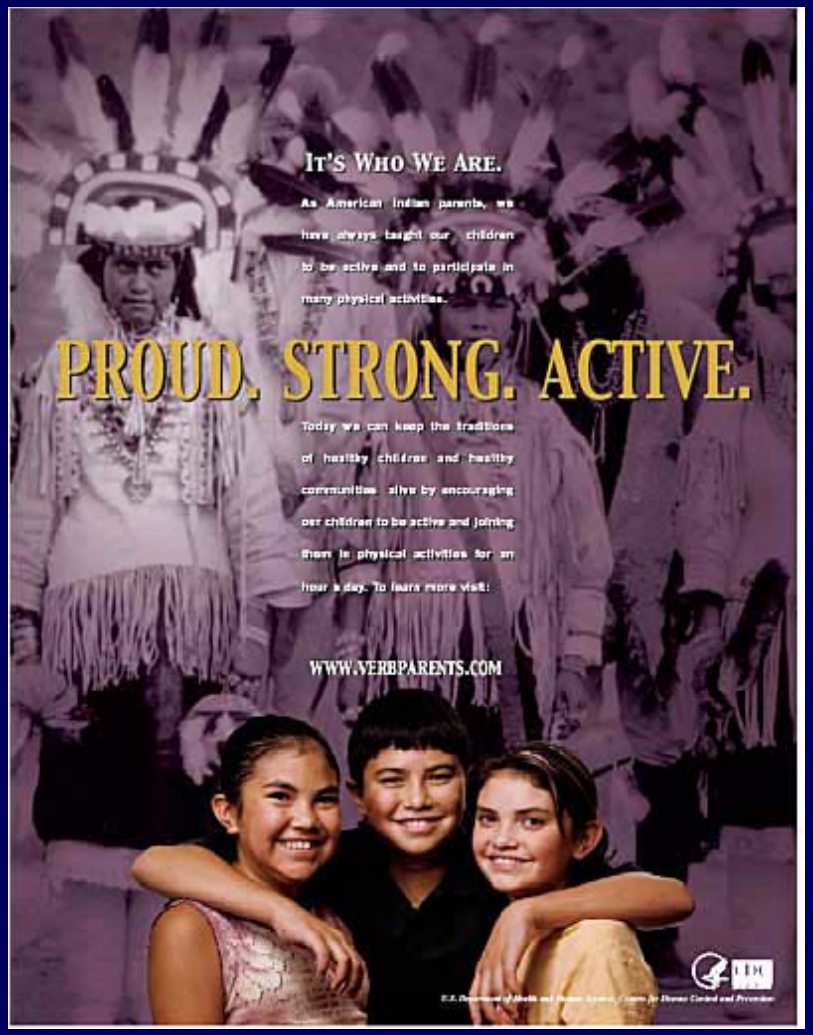
Diabetes Education in Tribal Schools

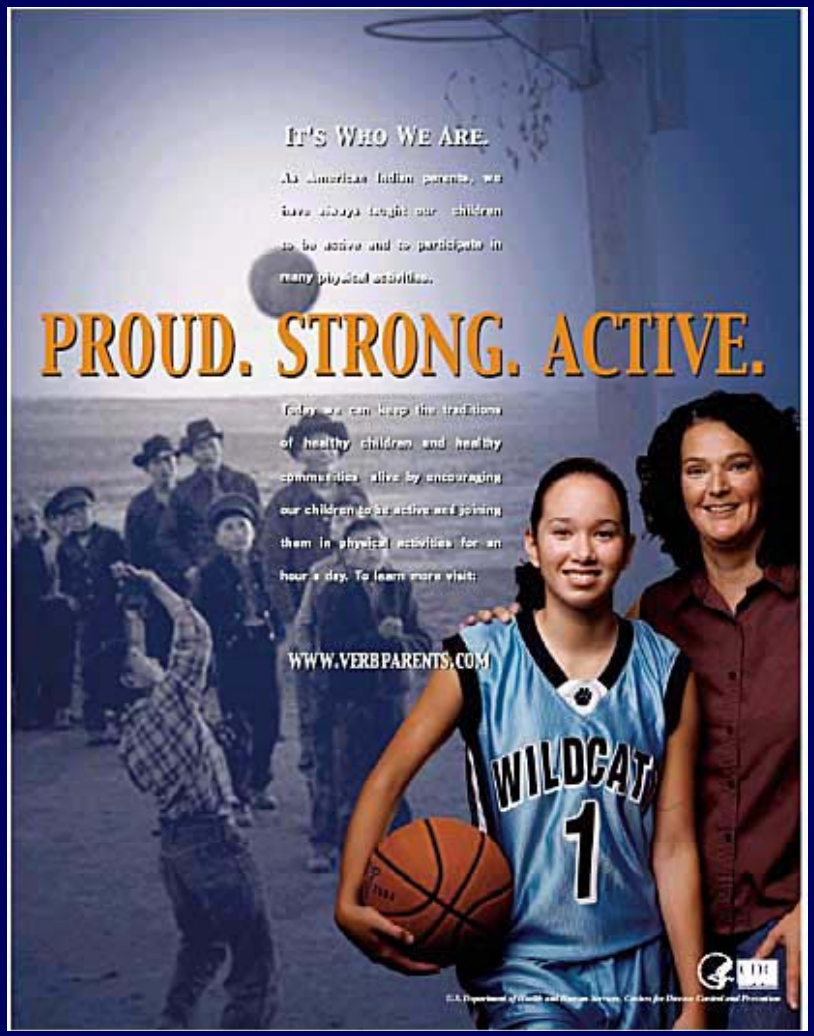
- National Institute of Diabetes and Digestive and Kidney Diseases funded
- School based lessons for K-12
  - “Eagle books” for mid school children
- Goals-
  - Increase understanding about healthy lifestyle, DM prevention, encourage interest in science and health careers
- Content
  - Healthy food and lifestyle choices
  - Science behind diabetes
- http://www3.niddk.nih.gov/fund/other/dets/

Environmental Interventions

- Community environment
  - Physical activity promotion
    - Create opportunities
    - Create venues
  - Support for healthy food sources
    - Farmer's markets
    - Community gardens
    - Alternative "fast food"
    - Food displays in stores (choice architecture)
    - Eliminate "food deserts"

HORSEBACK RIDE
BASKETBALL
MOUNTAIN BIKE
SHAWLDANCE
DOGSLED
SOCCER
VERB. It's What You Do. Native Style.
www.VERBnow.com


IT'S WHO WE ARE.
As American Indian parents, we have always taught our children to be active and to participate in many physical activities.
PROUD. STRONG. ACTIVE.
Today we can keep the traditions of healthy children and healthy communities alive by encouraging our children to be active and joining them in physical activities for an hour a day. To learn more visit:
WWW.VERBPARENTS.COM

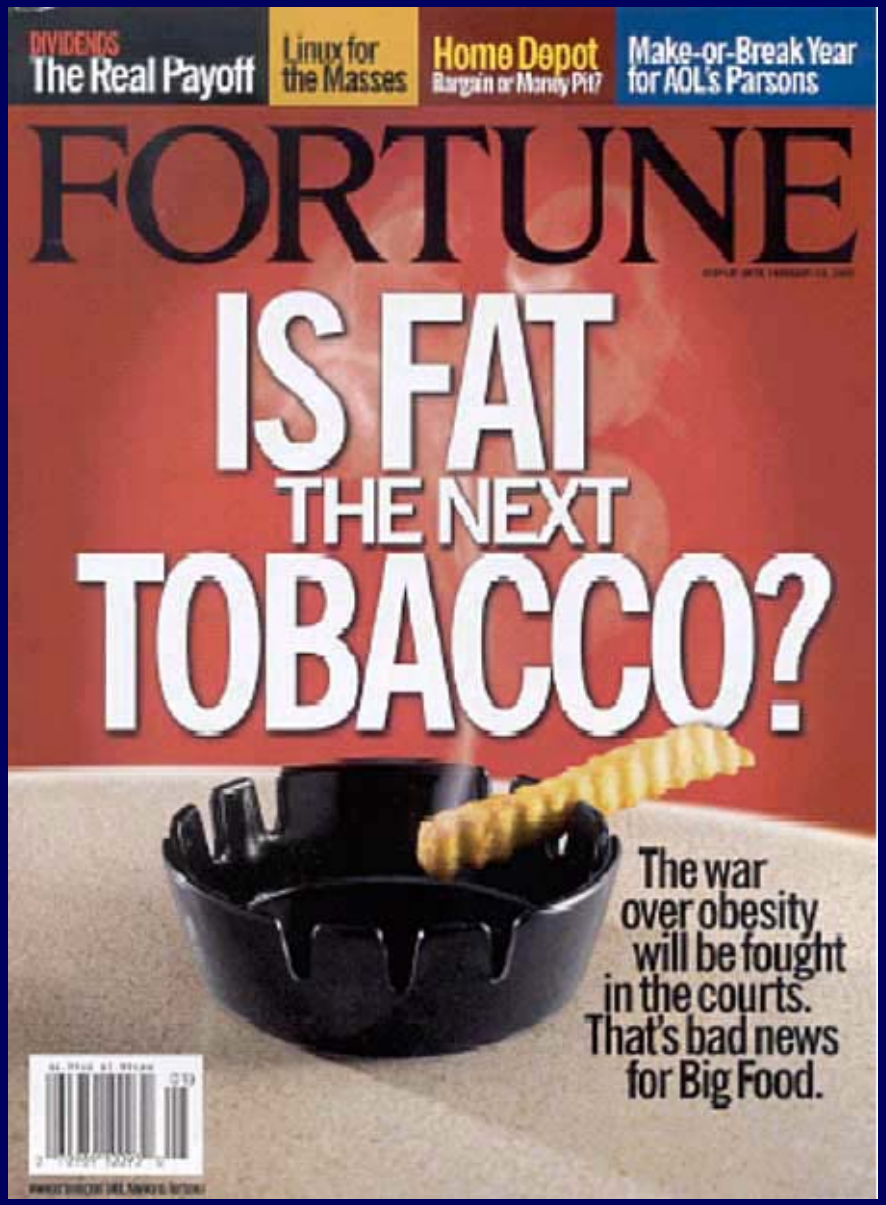

IT'S WHO WE ARE.
As American Indian parents, we have always taught our children to be active and to participate in many physical activities.
PROUD. STRONG. ACTIVE.
Today we can keep the traditions of healthy children and healthy communities alive by encouraging our children to be active and joining them in physical activities for an hour a day. To learn more visit:
WWW.VERBPARENTS.COM
WILDCAT
1

JUST MOVE IT

It's up to you!

“Choice Architecture”

- Thaler and Sunstein: “Nudge: Improving Decisions about Health Wealth and Happiness”
- Premise: “libertarian paternalism”
  - People should be permitted to make choices and opt out of arrangements they don’t like
  - It is okay for “choice architects” to try to influence people’s decisions for the benefit of their health


DIVIDENDS
The Real Payoff
Linux for the Masses
Home Depot
Bargain or Money Pit?
Make-or-Break Year for AOL's Parsons
FORTUNE
IS FAT THE NEXT TOBACCO?
The war over obesity will be fought in the courts. That's bad news for Big Food.

“You don’t have to smoke, but you do have to eat.

Gerald Hastings, PhD,

University of Edinburgh,

Expert on media and food advertising

Environmental Interventions

- National environment
  - Changes in Women, Infants, and Children (WIC) program
  - Changes in Commodities program
  - Changes in Food Stamp program- not!
  - School nutrition regulations -SB 12,965 Calif.
  - School activity bill- SB 19 Texas
  - Soda/snack tax- Calif.

Legislation

- SB 19- California 2001
  - All food available in elementary schools that is sold outside the federal meal program must be
  - ≤ 35% of calories as fat
  - ≤ 10% of calories as saturated fat
  - ≤ 30% of total weight is sugar
  - Only beverages that may be sold are milk, water, or juice that is at least 50% fruit juice with no added sweeteners

Legislation

- HB 2544- Arizona-
  - Nutrition standards to be implemented K-8 by July 2006
  - Similar food composition restrictions
  - Does not limit sales for fund raising off school grounds

Legislation

- Child Nutrition and WIC reauthorization act of 2004- federal
- Local wellness policy must be in place by June 30, 2006
  - Establish goals for nutrition education, physical activity, and other school based activities
  - Includes nutrition guidelines for all foods available on a school campus

Legislation

- Healthy and Hunger Free Kids Act of 2010
  - Improve access to school lunch/school breakfast/summer food programs
  - reimbursable meals under federal guidelines must meet USDA standards for nutritional content
    - assesses implementation of the wellness plans
    - includes community members/partners in generating the plan
  - Increase funding by 6 cents per meal

Legislation

- Healthy and Hunger Free Kids Act of 2010
  - Training and new equipment for school cafeteria staff
  - Obesity prevention program funding for states
  - Funding for demonstration projects for healthy schools
    - Farms to schools
    - School /community gardens
- $1.2 billion

“I have set a goal to solve the problem of childhood obesity within a generation so that children born today will reach adulthood with a healthy weight.”

President Barack Obama
in the Executive Memorandum establishing a
Task Force on Childhood Obesity

Feb. 9, 2010

4 Goals

- Ensuring access to healthy, affordable food
- Increasing physical activity in schools and communities
- Providing healthier food in schools
- Empowering parents with information and tools to make good choices for themselves and their families.

Let's Move- www.letsmove.gov

- Family resources
  - Healthy choices- food resources, recipes, new pyramid, tool kits for parents to empower for change
- School resources-
  - Child nutrition act, USDA Team Nutrition
- Physical activity
  - President's council on physical fitness, Presidential Active Lifestyle Award
- Access to healthy affordable food

LET'S MOVE!

America's Move to Raise a Healthier Generation of Kids

HOME • BLOG • ABOUT LET'S MOVE • SIGN UP FOR EMAIL UPDATES

Search LetsMove.gov GO

Learn the Facts RAISING HEALTHIER KIDS | **Eat Healthy** FOOD & NUTRITION | **Get Active** PHYSICAL ACTIVITY | **Take Action** SIMPLE STEPS TO SUCCESS | **Join Us** LET'S MOVE TOGETHER

Home • Learn the Facts • The Epidemic of Childhood Obesity

The Epidemic of Childhood Obesity

Getting Started: What is Obesity?

Health Problems & Childhood Obesity

Learn the Facts

"The physical and emotional health of an entire generation and the economic

WHAT'S NEW

GET E-MAIL UPDATES ▸

White House Task Force on Childhood Obesity

Report to the President

VIEW REPORT ▸

Healthy Food IN SCHOOLS

SIGN UP ▸

What can we do?

- Measure the BMI
  - Tell the family and child what the BMI is, and graph at every well child visit
- Give prevention messages -5-2-1-0 at every visit for every child
- Use motivational interviewing
- Give prescriptions for healthy living to our patients
- Engage hospital, school, and community partners to develop programs for healthy living

Resources

- http://nature.berkeley.edu/cwh/index.html
  - UC Berkeley Center for Weight and Health
- http://www.aap.org/obesity/index.html
- http://www.cdc.gov/obesity/childhood/index.html
  - obesity stats
- www.usda.gov
  - School nutrition policies
- http://www.letsmove.gov/index.html

“Yes, we can!”

Barack Obama

2008 presidential campaign