

The Role of Schools in Obesity Prevention

Mary Story PhD, RD



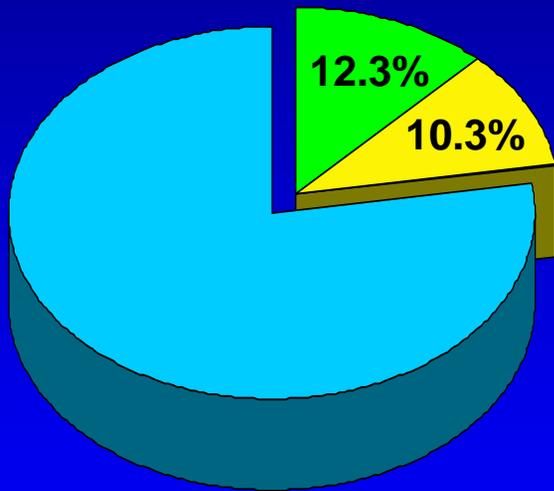
The Role of Schools in Obesity Prevention

Premise:

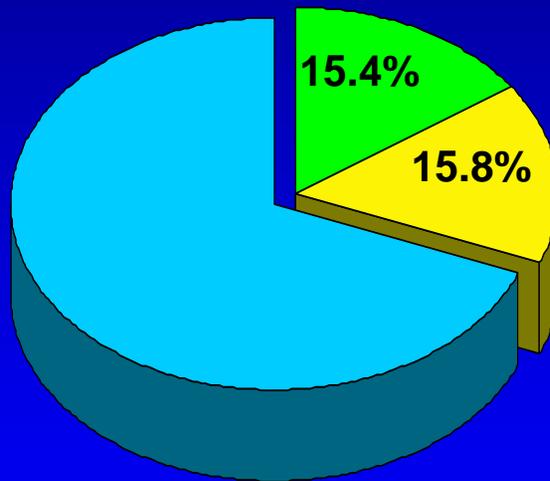
Schools cannot solve the obesity epidemic on their own, but it is unlikely to be halted without strong school-based policies and programs

Overweight is a K-12 Issue

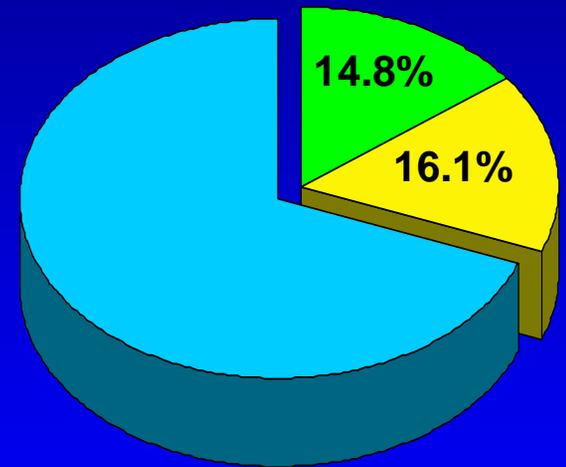
- At Risk for Overweight
- Overweight



2-5 year olds



6-11 year olds



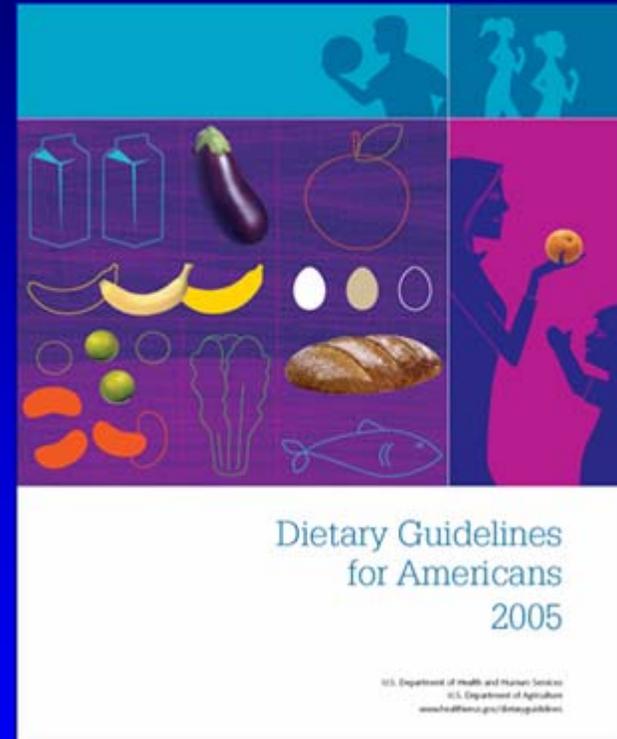
12-19 year olds

NHANES data

A Healthy Eating Plan

A Healthy Eating Plan is one that:

- Emphasizes fruits, vegetables, whole grains, and fat-free milk and milk products.
- Includes lean meats, poultry, fish, beans, eggs, and nuts.
- Is low in saturated fats, *trans* fats, cholesterol, salt (sodium), and added sugars.



National Concern About Children's Diets (6-18 yrs)

- Only 2% meet the dietary recommendations for all food groups
- Percent meeting national recommendations
 - fruit: 24%
 - vegetables: 20%
 - calcium: 30%
 - dietary fat: 25%
 - saturated fat: 16%
 - fiber: 25%
- 56-85% consume soda on any given day
- 30% ate from a fast food place on day of survey
- Added sugar and fat contribute 45% of total energy intake

National USDA CSFII data

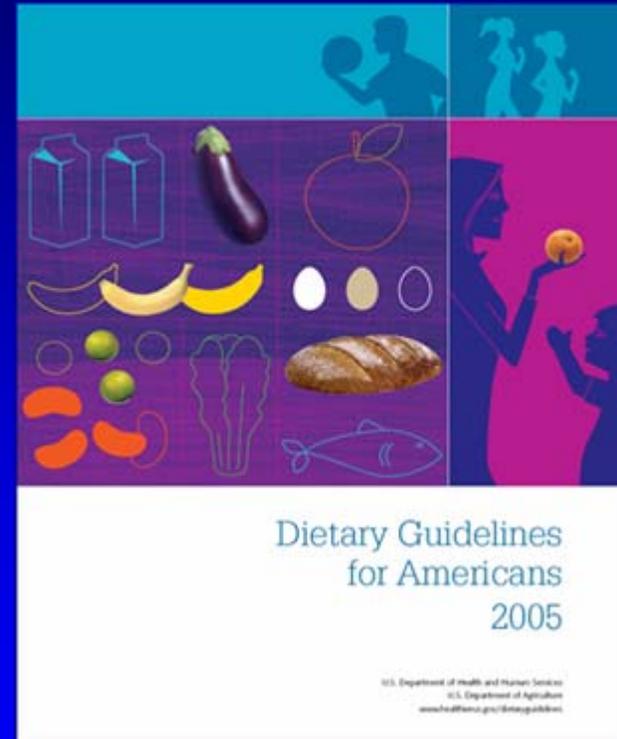
Physical Activity Recommendations

Children and adolescents:

- Engage in at least 60 minutes of physical activity, on most, preferably all, days of the week.

Adults:

- To reduce chronic disease risk, engage in at least 30 minutes of moderate-intensity activity on most days of the week.
- To manage body weight, engage in 30-60 minutes of moderate-to vigorous intensity activity on most days of the week.



2003 Youth Risk Behavior Survey (YRBS) Results (9-12th graders)

- 75% had insufficient moderate physical activity
- 12% did not participate in any vigorous or moderate physical activity
- 38% watched TV 3 or more hours a day
- 44% were not enrolled in physical education class
- 72% did not attend physical education class daily

Schools can play an important role because:

- More than 95% of young people are enrolled in schools
- Promotion of PA and healthy eating have long been a fundamental component of the education experience
- Research has shown that school programs and policies can promote PA, healthy eating, and reduction of TV time
- Connections between PA, good nutrition, and academic performance

10 key strategies schools can do to make a difference?

- Address physical activity and nutrition through a coordinated school health program
- Designate a school health coordinator and maintain an active school health council
- Assess the school's health policies and programs and develop a plan for improvements
- Strengthen the school's nutrition and physical activity policies
- Implement a high-quality health promotion program for school staff
- Implement a high-quality course of study in health education
- Implement a high-quality course of study in physical education
- Increase opportunities for students to engage in PA
- Implement a quality school meals program
- Ensure that students have appealing, healthy choices in foods and beverages offered outside of the school meals program

**Ensure that students have appealing,
healthy choices in foods and beverages
offered outside of the school meals
programs**



Competitive Foods Defined

USDA defines competitive foods broadly to include all foods offered for sale at school, except the federal school meal program.

- 1) Foods of minimal nutritional value (FMNV) – foods providing < 5% of recommended intakes for 8 key nutrients for 4 categories: soda, water ices, gum, certain candy
 - Not allowed to be sold in food service areas during school meals periods, but may be sold anywhere else in the school at any time
- 2) All other foods offered for individual sale (e.g., candy bars, potato chips, cookies, doughnuts)
 - No restrictions on where or when these may be sold

Competitive Foods are widely available in schools

	Elementary schools	Middle schools	High schools
		%	
Vending machines	46	87	91
School stores	15	25	54
A la carte	67	88	91
1 or more of above	83	97	99

n = 317 Schools GAO Report, 2005

Many foods and beverages provided through school vending machines, school stores, canteens, or snack bars are less healthy foods

Percent of schools offering selected foods and beverages through school vending machines, school stores, canteens or snack bars.

Type of food/beverage	Elementary	Middle/junior high	High
Soft drinks, sport drinks, or fruit drinks that are not 100% juice	58.1	83.5	93.6
Salty snacks (not low in fat)	51.0	62.4	83.0
Baked goods (not low in fat)	52.6	61.2	80.7
100% fruit or vegetable juice	49.4	53.1	65.0
Low-fat salty snacks	44.5	54.5	65.0
Non-chocolate candy	35.5	52.6	75.0
Ice creams/frozen yogurt (not low in fat)	31.1	33.6	42.5
Chocolate candy	20.2	46.6	72.2
Low-fat baked goods	26.4	37.7	49.6
Fruits or vegetables	20.0	11.8	22.0

 Healthy foods, defined as “low in fat” by SHPPS

 Less healthy foods, defined as “high in fat, sodium, or added sugar” by SHPPS

Association between presence of vending machines and students' F & V and fat intake

(600 students in 16 middle schools)

- As the number of snack machines increased by one, students' fruit servings/day decreased by 11%
- Snack vending machines were inversely related to students' fruit intake

Research

Open Access

School lunch and snacking patterns among high school students: Associations with school food environment and policies

Dianne Neumark-Sztainer*¹, Simone A French¹, Peter J Hannan¹, Mary Story¹ and Jayne A Fulkerson²

Methods

Assessed lunch practices and vending purchases of 1088 high school students from 20 schools. Principals and food service directors were surveyed on school food policies. Number of vending machines and hours of operations assessed.

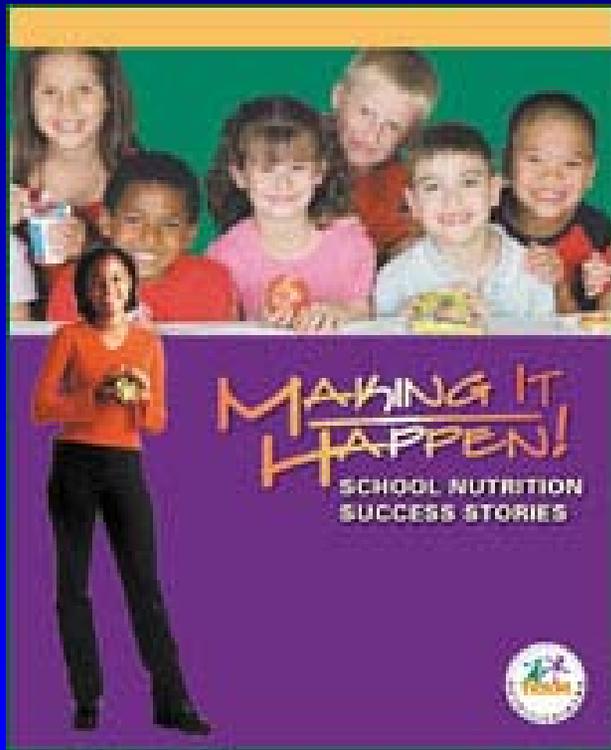
Findings

- Student snack food purchases at school were associated with number of snack machines at school and policies about types of food sold
- In schools in which soft drink machines were turned off during lunch, students purchased soft drinks less often than in schools in which they were turned on.
- Students with open campus policies during lunch were more likely to eat lunch at fast food restaurants

Conclusion

- School food policies that decrease access to foods high in fats and sugars are associated with less frequent purchase of these items in school among high school students.

Students will buy and consume healthful foods and beverages– and schools can make money



- 17 schools and school districts improved school foods
 - 12 increased revenue
 - 4 reported no change

School Fundraising

Rootbeer Floats

Large \$1.00 Small 50¢

Mrs. Gulbranson's
Kindergarten Classroom

Tuesdays & Thursdays
3:00 p.m.

Bake Sale

Place: North Pod

By: Second grade

Time: 3:00 p.m.

Come support our class.

Thank you!

DIABETIC CLINIC CHANGES

Beginning February 01, 2006
On Wednesday and Friday mornings
the Kyle Clinic will be having
Diabetic Clinic by appointment ONLY
Appointments may be made in advance
or you may call 455-8211
between 8:00 and 9:00 AM for
"Same Day Diabetic Appointment".
You may sign up for Regular/Walk-in Clinic
at 12:00 noon
on Wednesdays and Fridays.
Only people who are seeking Diabetes
care will be seen
on Wednesday and Friday mornings.
This system was started at the
Pine Ridge Hospital on
January 03, 2006



Fund-raising: In 83% of schools, organizations such as student clubs and sports teams sold food at school or in the community to raise money. The foods most commonly sold are less healthy.

Food sold through fund-raising	% of schools with fund-raising activities where food was sold
Chocolate candy	76
Cookies, crackers, cakes, pastries or other baked goods not low in fat	67
Other candy	63
Soft drinks, sports drinks, or fruit drinks that are not 100% fruit juice	37
Fruits or vegetables	28

Schoolwide Food Practices Are Associated With Body Mass Index in Middle School Students

Martha Y. Kubik, PhD, RN; Leslie A. Lytle, PhD, RD; Mary Story, PhD

Arch Pediatr Adol Med, Vol 159, Dec 2005

Design: BMI measured in 3088 8th grade students. School administrators interviewed on school wide food policies and practices in 16 middle schools

Findings:

- Mean number of food practices/school was 3 (range 0-7)
- Most prevalent food practices were use of food as incentives and rewards (69%), classroom fundraising (56%)
- BMI of the students increased .10 units of BMI for every additional food practice permitted in their school.

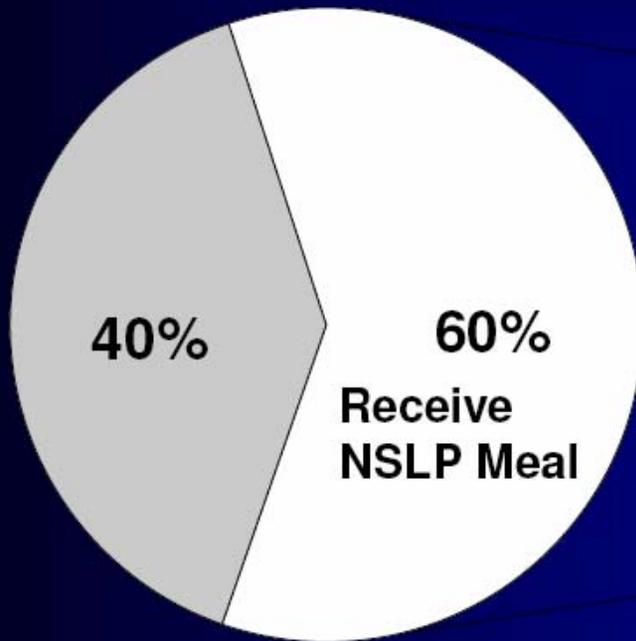
Implement a quality school meals program



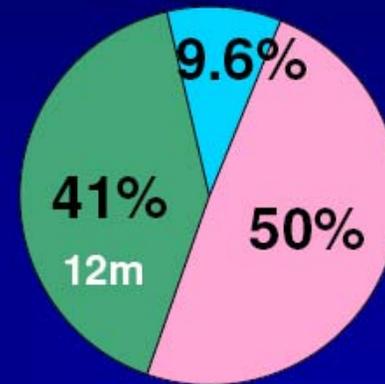
National School Lunch Program Meals

60% of students on an average day

Of all students attending NSLP schools

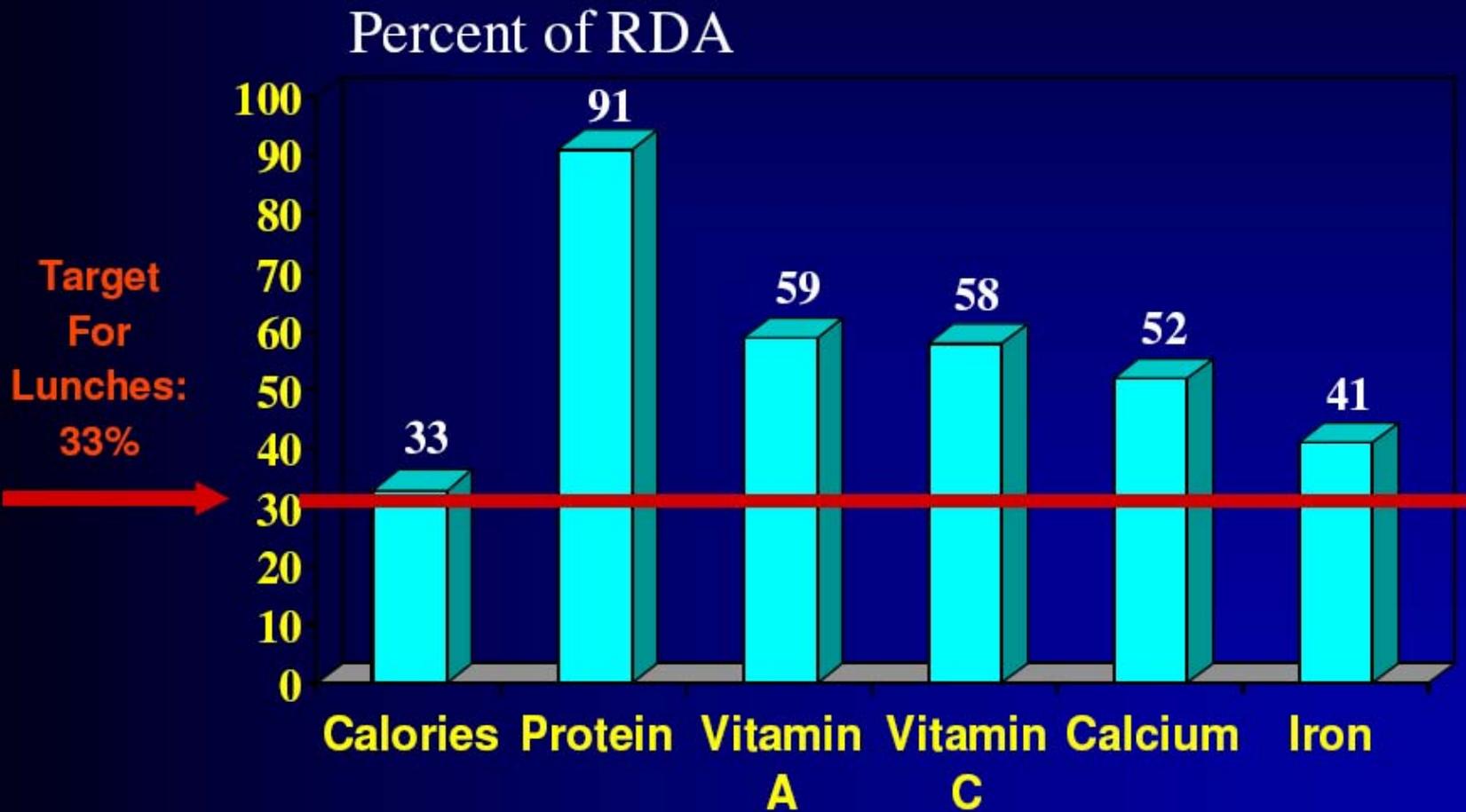


Of those receiving NSLP meal



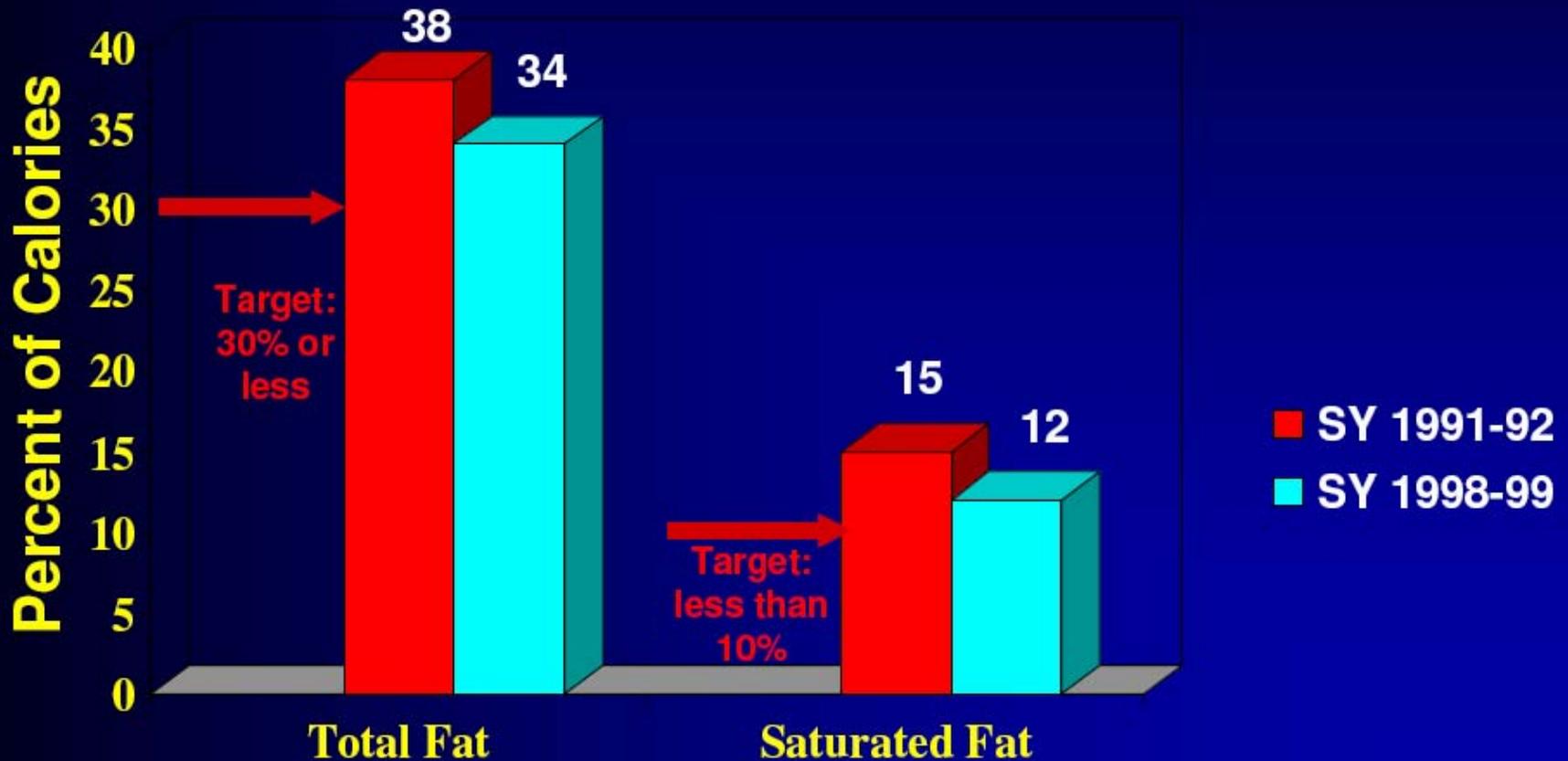
■ Not NSLP ■ Paid ■ Reduced Price ■ Free

NSLP Lunches Provide One-third Or More Of The Daily RDA



School Meals Improved

School Lunches Offered in 1998-99 Were Significantly Lower in Fat and Saturated Fat



Low nutrition foods are widely available through a la carte lines in many schools

- 83% of all schools offered food or beverages a la carte.
- A la carte sales have increased in secondary schools.
- Financial pressures have led schools to serve less healthful a la carte items because these items generate needed revenue.



Foods and beverages most commonly provided through school a la carte lines

Percentage of schools offering selected foods and beverages through school a la carte lines in 2000

Type of food/ beverage	Elementary	Middle/junior high	High
Fruits or vegetables	68.1	74.0	90.4
100% fruit or vegetable juice	57.8	63.9	77.4
Baked goods (not low in fat)	48.8	66.8	79.9
Pizza, hamburgers, sandwiches	46.1	63.7	76.2
Lettuce, vegetable, or bean salads	42.0	56.6	79.5
Bread products	40.9	55.9	73.8
Low-fat baked goods	36.1	40.8	48.0
Low-fat or nonfat yogurt	31.0	33.1	47.9
French-fried potatoes	30.1	45.7	61.8
Low-fat salty snacks	29.5	42.6	58.3
Ice cream/frozen yogurt (not low in fat)	26.3	48.4	54.5

Healthy foods, defined as "low in fat" by SHPPS
 Less healthy foods, defined as "high in fat, sodium, or added sugar" by SHPPS

Source: SHPPS, 2000

Association between presence of *a la carte* and students' F & V and fat intake (600 students in 16 middle schools)

- Students attending schools with *a la carte* programs reported lower fruit and vegetables intakes, and higher fat intakes compared to students in schools without *a la carte*

Implement a high quality school physical education program

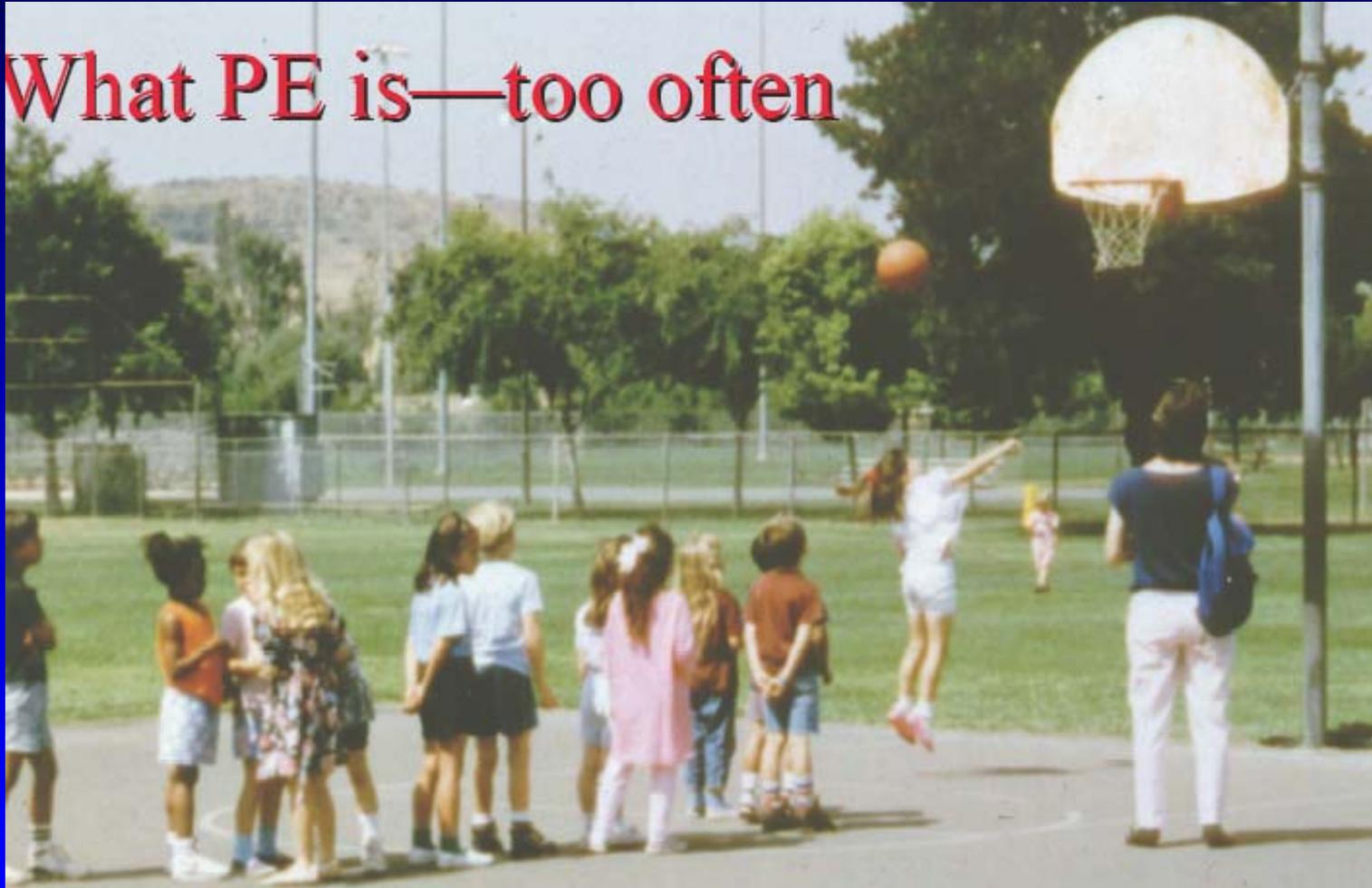


Physical Activity Recommendations: Schools

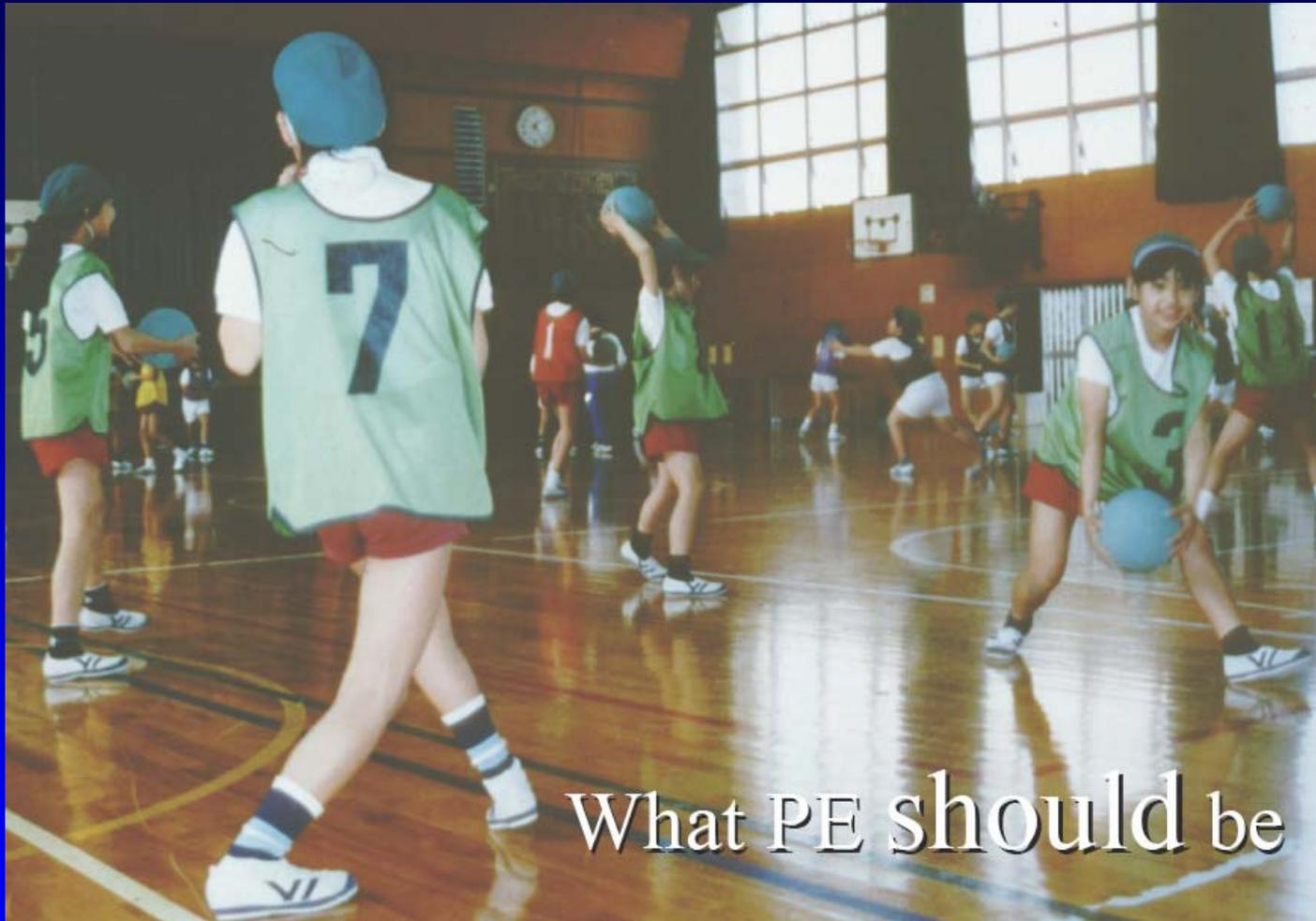
- The IOM recommends that at least 30 minutes of PA be accrued during the school day
- The National Association for Sport and Physical Education (NASPE) recommendations for K-12 physical education are 150 min/week for elementary school children and 225 min/week for middle and secondary school children

Nationally, only 8% of elementary schools, and 6% of middle/junior and senior high schools meet these recommendations

What PE is—too often



In a typical 30 minute elementary school PE class, the average child was vigorously active for only 2-3 minutes.



What PE should be

Increase opportunities for students to engage in physical activity



School Walking Programs





American Indian Walking for Health Study

- 3 year pilot study to assess the feasibility of school-based environmental change to increase PA to reduce obesity
- Policy change to incorporate a daily one mile walk for 3rd and 4th graders into the school day for two years
- 110 students in two elementary schools (intervention): 90 students in control school



American Indian Walking for Health Study

RESULTS:

- Walking is feasible; students walked 85% of the possible school days
- Children in the intervention school had significantly reduced body fat ($p < .05$) and triceps ($p < .01$)

TAKE 10!

Classroom-based PA: Getting kids active 10 minutes at a time

- Short, fun “activity learning breaks”
- Physical activity is integrated with core academic learning objectives
- Classroom-based curriculum
- Materials present positive health images



www.take10.net

TAKE 10!

Energy Expenditure

- **Student activity levels were increased with the implementation of TAKE 10! activities**
 - MET levels, ranging from approximately 3-7 (Moderate-to Vigorous), were sustained throughout the 10-minute sessions.
 - Caloric expenditure per session ranged from 22-43.
 - Pedometer step counts averaged from 743 to 1,022 counts per activity and also increased with grade.

Stewart J, Dennison D, et. al. Journal of School Health, December 2004

TAKE 10! Student Classroom Behavior

- **Student behavior improved directly after implementing TAKE 10! activity**
 - Reduction in off-task time (21%).
 - Reduction of fidgeting (20%).
- **Students were actively engaged in the activities**
 - Students were off-task 3.2% of the time during an activity.
 - Students waited for instructions 2.3% of the activity time.
 - Students fidgeted less than a minute (0.27/min) during the activities.

Metzler M, Williams S. Journal of Educational Research. (In review).

Active Recess

- Goal
 - Daily
 - 20-30 minutes
- Increase amount of time spent in moderate to vigorous activity
- Encourage free play



Strengthen the school's nutrition and physical activity policies



Legislative Overview on State Actions December, 2005

	# of states introducing legislation	Enacted measures
Nutrition guidance in schools	42	21
Setting guidelines for PE or PA standards	44	22
Inclusion of nutrition or PA in health education curriculum	25	11
BMI reporting	19	3

Local Wellness Policy Provisions

Local wellness policies must:

- Include goals for nutrition education, physical activity
- nutrition guidelines for all foods
- Involve a broad group of individuals in policy development
- Include a plan for measuring policy implementation

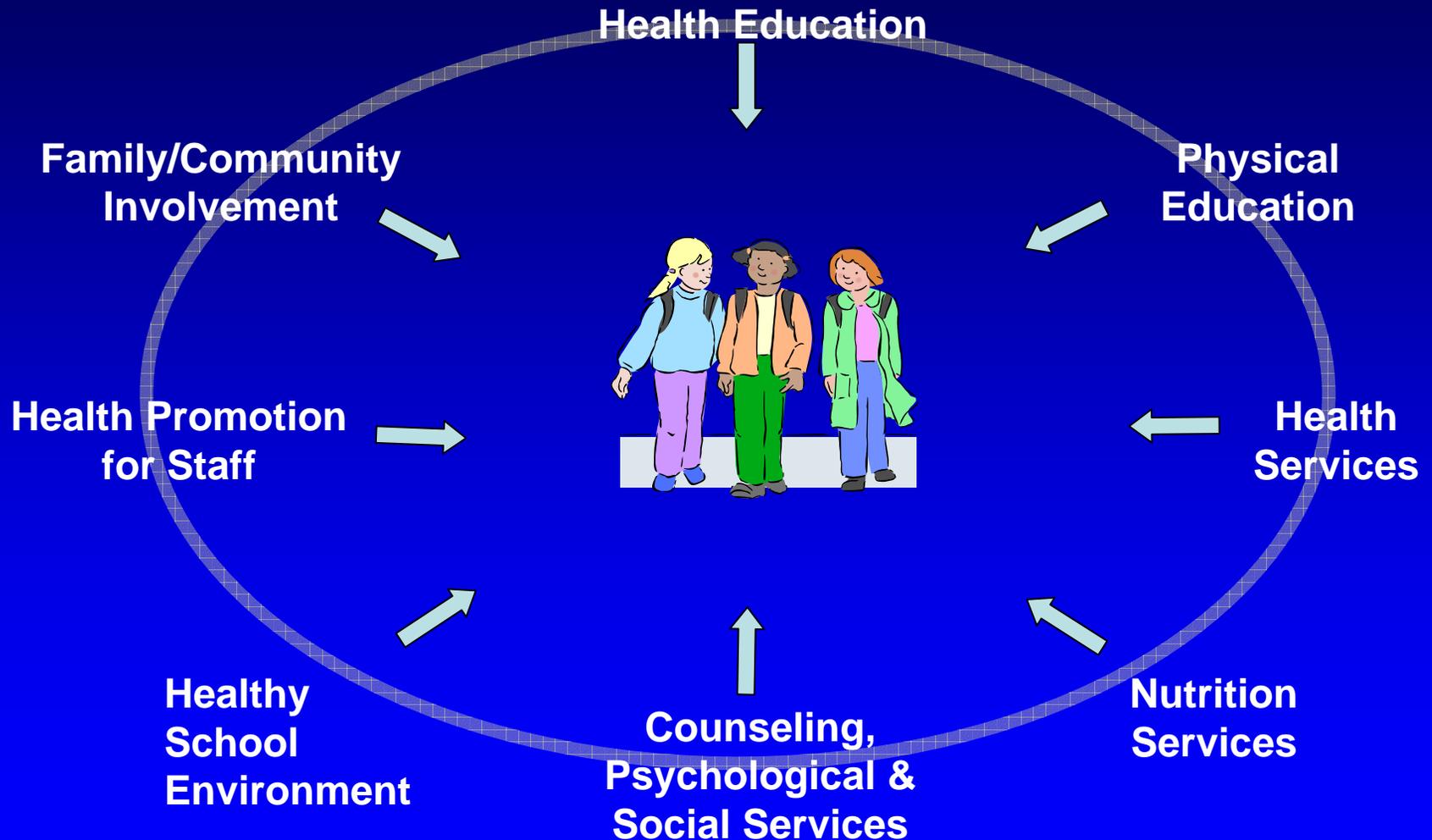


Every school district must have a local wellness policy by Fall 2006

Implement a high quality course of study in health education

- Health education highlights the importance of nutrition and PA as a component of a healthy lifestyle
- Can help students develop the knowledge, attitudes, and behavioral skills needed for a healthy lifestyles
- 44 states require schools to provide health education
 - Actual content and time devoted to nutrition and PA topics are unknown
- To be effective, schools need a coordinated, behavioral curriculum in nutrition and PA
- Topics could also be infused into other school subjects

Address physical activity and nutrition through a coordinated school health program



Eight Components of a Coordinated School Health Program