



**Pennington Biomedical
Research Center**
Louisiana State University



Be the Reason Kids Greaux Healthy

Annual Childhood Obesity Conference

Help Kids Eat Real Food and Move More

Presented by Cathy Carmichael, MS, RD and Stefan M. Pasiakos,
PhD, FACSM, FASN

Help Kids Eat Real Food

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Louisiana Fit Kids

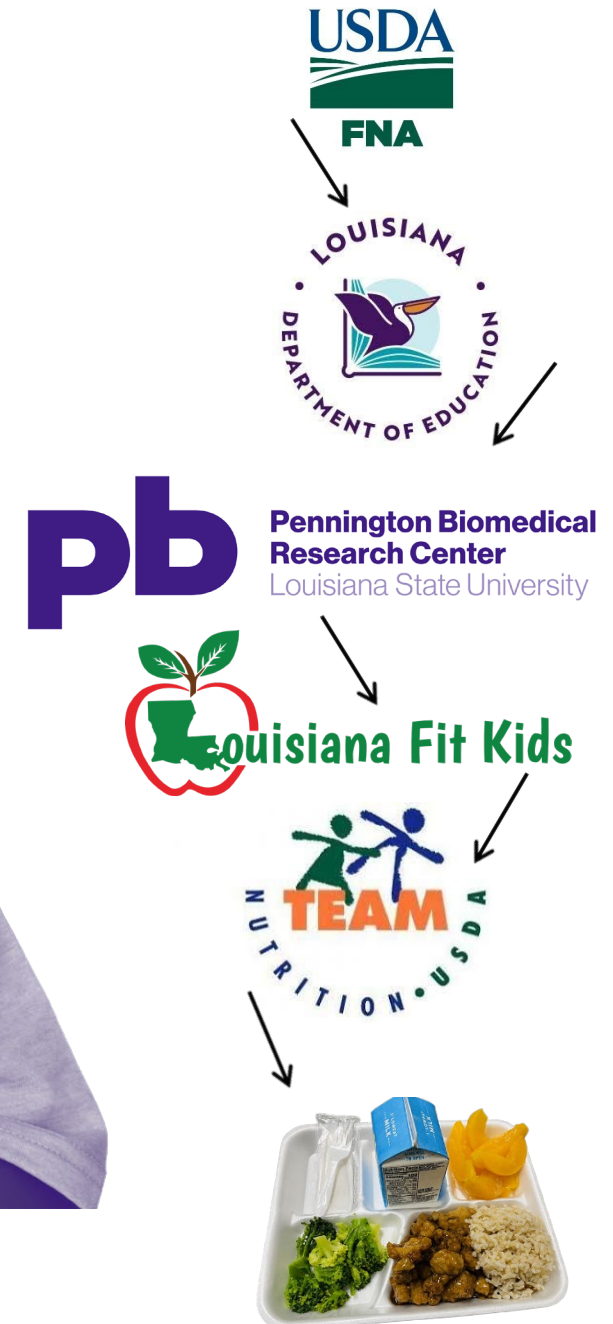
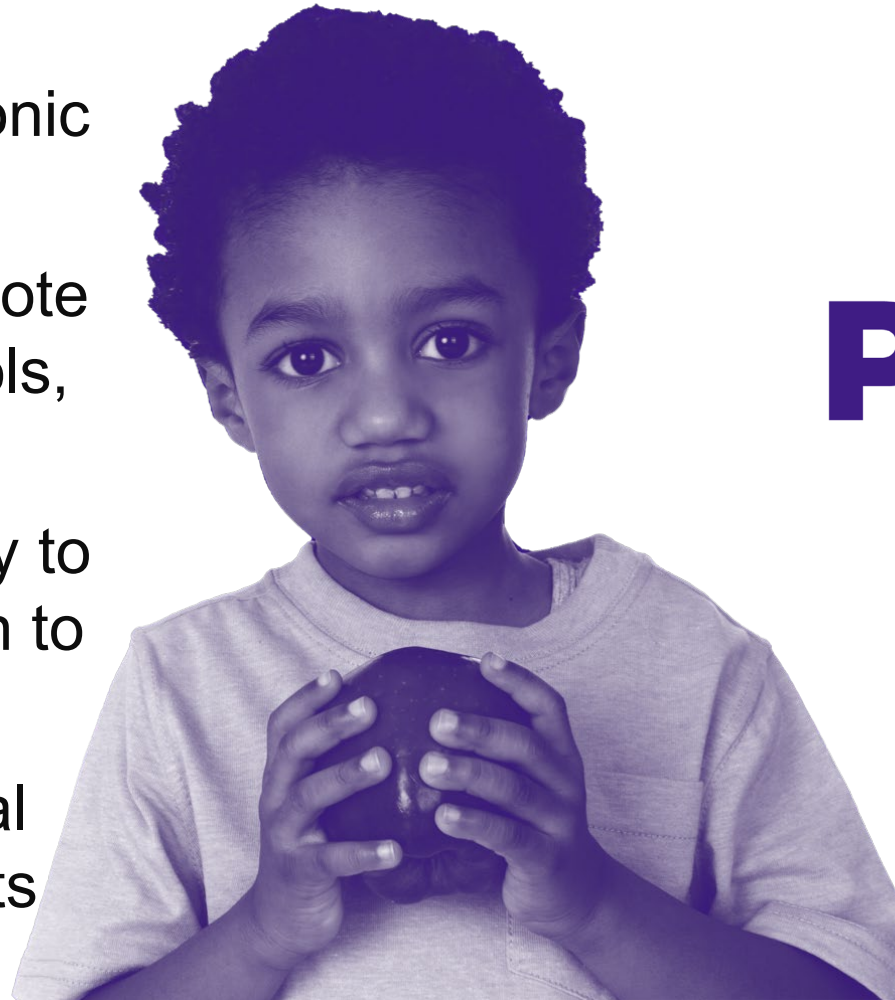


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Population and public health sciences

- Identifies novel risk factors for chronic diseases
- Works with the community to promote healthy behaviors in homes, schools, and local settings
- Harnesses cutting edge technology to deliver evidence-based information to people
- Collaborates with local and national organizations to disseminate results



Real Food Wins

America is the greatest country on Earth. And the sickest. Highly processed food has hollowed out our health, driving obesity, diabetes, heart disease, and early death. The truth is simple: real food restores health.

Real Food can
solve this crisis.

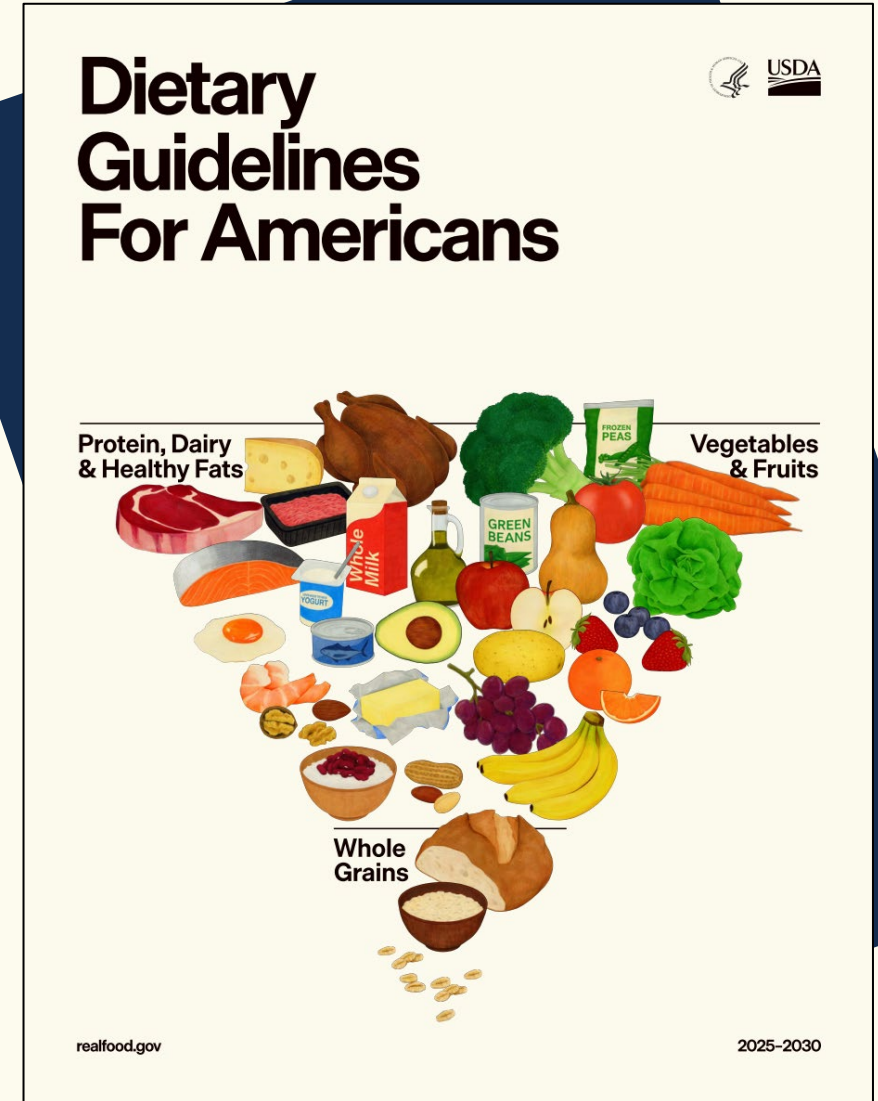
Eat Real Food



<https://realfood.gov>

Dietary Guidelines for Americans, 2025-2030

Released January 7, 2026
realfood.gov



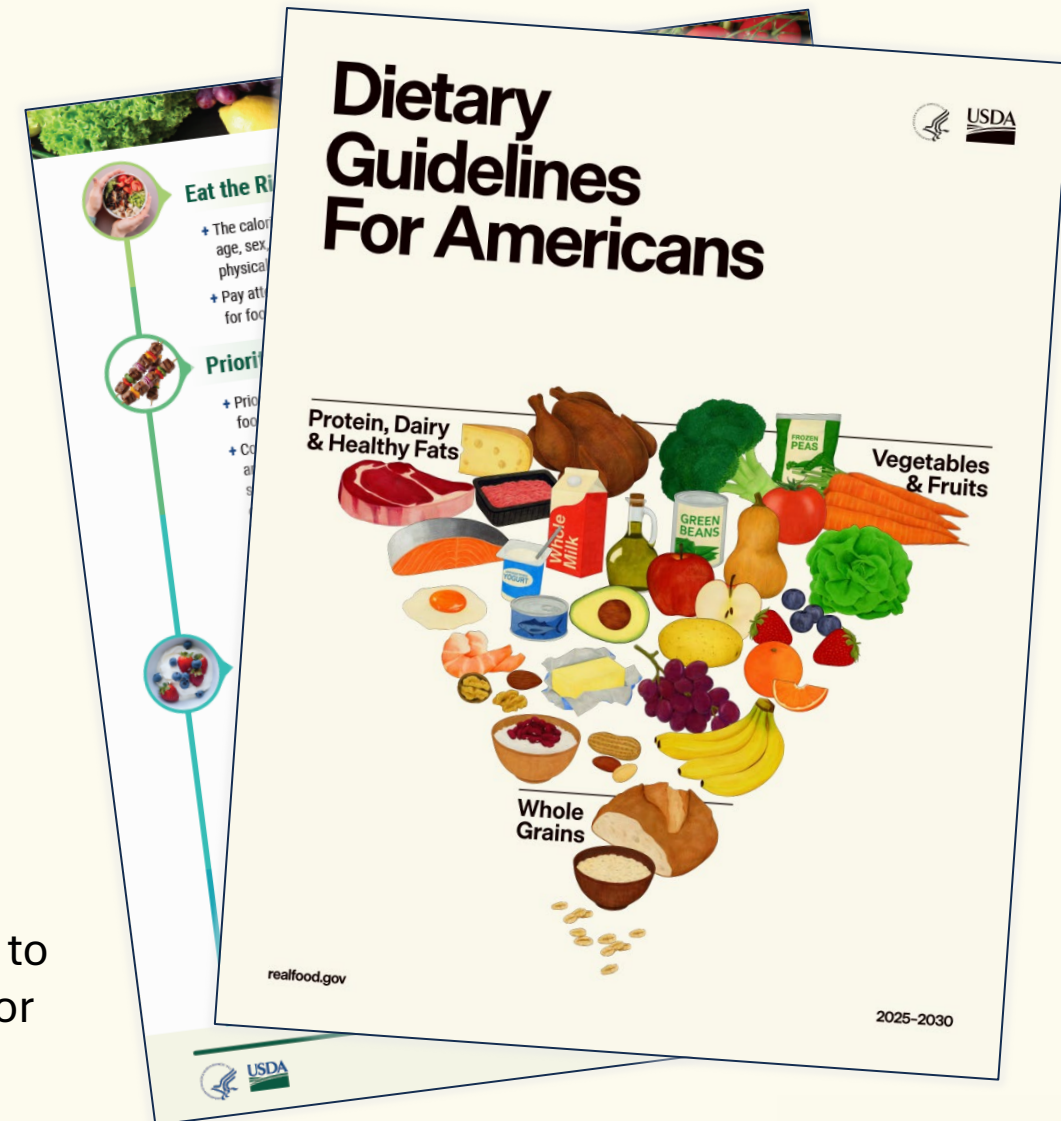
The *Dietary Guidelines for Americans* prioritizes whole, healthy, and nutritious foods, and limits highly processed foods, added sugars, and refined carbohydrates



The *Dietary Guidelines For Americans*, 2025-2030 At-A-Glance

- Eat the Right Amount for You
- Prioritize Protein Foods at Every Meal
- Consume Dairy
- Eat Vegetables and Fruit Throughout the Day
- Incorporate Healthy Fats
- Focus on Whole Grains
- Limit Highly Processed Foods, Added Sugars and Refined Carbohydrates

Additional advice provided for each stage of life – from infancy to older adulthood – including those living with chronic disease or following a vegetarian or vegan diet.



Middle Childhood (5–10 Years)

- + Focus on whole, nutrient-dense foods such as protein foods, dairy, vegetables, fruits, healthy fats, and whole grains.
- + Full-fat dairy products are important for children to help meet energy needs and support brain development.
- + Avoid caffeinated beverages.
- + No amount of added sugars is recommended.
- + Make cooking meals fun and a regular part of the household's routine.

Adolescence (11–18 Years)

- + Adolescence is a rapid growth period with increased needs for energy, protein, calcium, and iron—especially for girls due to menstruation. Adequate calcium and vitamin D are vital for peak bone mass.
- + Adolescents should eat nutrient-dense foods such as dairy, leafy greens, and iron-rich animal foods, while significantly limiting sugary drinks and energy drinks and avoiding highly processed foods. When access to nutrient-rich foods is limited, fortified foods or supplements may be needed under medical guidance.
- + Encourage adolescents to become active participants in food shopping and cooking so they learn how to make healthy food choices for life.

1. Less ultra-processed foods is a move in the right direction.
2. Avoiding added sugars is very important—but might be tricky to do.
 - The new guidelines recommend kids consume no added sugars until age 10, whereas the prior guidelines suggested kids not eat anything with added sugar until age 2.
3. Eating more protein from meat and animal products may have unintended consequences. Americans generally have sufficient protein intake — and that's true for most children, too.
4. The advice on full-fat dairy is contradictory.
5. Health care professionals can help with individualized advice.
 - Does this make sense for them personally, based on family history and their current growth trajectory?
 - Kids' food needs and preferences change a lot as they grow.

Dietary Guidance for Cardiovascular Health



Maintain a healthy body weight

CHOOSE

Plenty of vegetables and fruits



Healthy proteins



Whole grains



Unsaturated fats



MINIMIZE

Added sugars



Sodium



Ultraprocessed foods



Alcohol*



*If you don't drink, don't start

Lichtenstein, A. H., et al. (2026), "2026 Dietary Guidance to Improve Cardiovascular Health: A Scientific Statement From the American Heart Association," published in Circulation (Volume 153, Issue 13 / online March 31, 2026,

- **Food is more than nutrition**
- **Health is more than weight**
- **Diet is more than individual choice**







National School Lunch Program Meal Pattern

	Grades K-5	Grades 6-8	Grades 9-12
Meal Components	Amount of Food ¹ per Week		
	(minimum per day)		
Fruits (cups) ²	2 ½ (½)	2 ½ (½)	5 (1)
Vegetables (cups) ²	3 ¾ (¾)	3 ¾ (¾)	5 (1)
Dark Green Subgroup ³	½	½	½
Red/Orange Subgroup ³	¾	¾	1 ¼
Beans, Peas, and Lentils Subgroup ³	½	½	½
Starchy Subgroup ³	½	½	½
Other Vegetables Subgroup ^{3 4}	½	½	¾
Additional Vegetables from Any Subgroup to Reach Total	1	1	1 ½
Grains (oz. eq.) ⁵	8-9 (1)	8-10 (1)	10-12 (2)
Meats/Meat Alternates (oz. eq.) ⁶	8-10 (1)	9-10 (1)	10-12 (2)
Fluid Milk (cups) ⁷	5 (1)	5 (1)	5 (1)
Dietary Specifications: Daily Amount Based on the Average for a 5-Day Week⁸			
Minimum-Maximum Calories (kcal)	550-650	600-700	750-850
Saturated Fat (% of total calories)	<10	<10	<10
Added Sugars (% of total calories)	<10	<10	<10
Sodium Limit: In place through June 30, 2027	≤1,110 mg	≤1,225 mg	≤1,280 mg
Sodium Limit: Must be implemented by July 1, 2027	≤935 mg	≤1,035 mg	≤1,080 mg

	Monday
MEAL COMPONENTS	Mac & Cheese Fruit Salad Baby Carrots with Hummus Green Beans Milk
Vegetables	1-¼ cups
Dark Green	
Red/Orange	Baby Carrots = ½ cup
Beans/Legumes	Hummus = ¼ cup
Starchy	
Other	Green beans = ½ cup
Fruits	Fruit Salad = ½ cup
Grains	Mac & Cheese = 1 oz-eq
Whole Grain-Rich	
Meat /Meat Alt	Mac & Cheese = 2 oz-eq
Milk	Milk = 1 cup



Veggies and fruits are important for growing bodies!

- In 2025, 30.4 million children relied on the National School Lunch Program (NSLP) for their nutritional needs.
- Unfortunately, recent research shows that children may not have access to healthy fruit and vegetable options outside of school.
- In other words, a child's **best chance** to get enough fruits and veggies is through their schools.

Final Rule

Child Nutrition Programs: Meal Patterns Consistent With the 2020-2025 *Dietary Guidelines for Americans*

Published: April 19, 2024
Effective: July 1, 2024

 Food and Nutrition Service
U.S. DEPARTMENT OF AGRICULTURE

FINAL RULE FOR SCHOOL MEAL STANDARDS

Updated School Meal Standards: working towards a common goal of healthy children and helping them reach their full potential.

School meals are the main source of nutrition for millions of children every school day. USDA is ensuring these meals are even more nourishing, while keeping them appealing to kids.

Key Provisions



Whole Grains

Schools may continue to offer a variety of nutrient-rich whole grains with options for some enriched grains (no changes in standard)





Milk

Continue to allow flavored and unflavored milk (no changes in standard) with new limits on added sugars





Added Sugars

Limit using a phased approach:

- **Phase 1:** Limits on specific high-sugar products (cereals, yogurt, flavored milk)
- **Phase 2:** Overall weekly limits





Sodium

Gradually phase in one reduction of weekly limit



USDA is an equal opportunity provider, employer, and lender.

April 2024



<https://www.fna.usda.gov/cn/school-nutrition-standards-updates>

School Year 2027-2028

Weekly Added Sugars Limits

Lunch and Breakfast:

- < 10% calories from added sugars
- Based on weekly weighted average

Sodium Reduction

Lunch:

- 15% reduction from current sodium limits

Breakfast:

- 10% reduction from current sodium limits

Practical strategies to engage families with school meal programs

1

**Explore menus
together**

2

**Match home
and school
flavors**

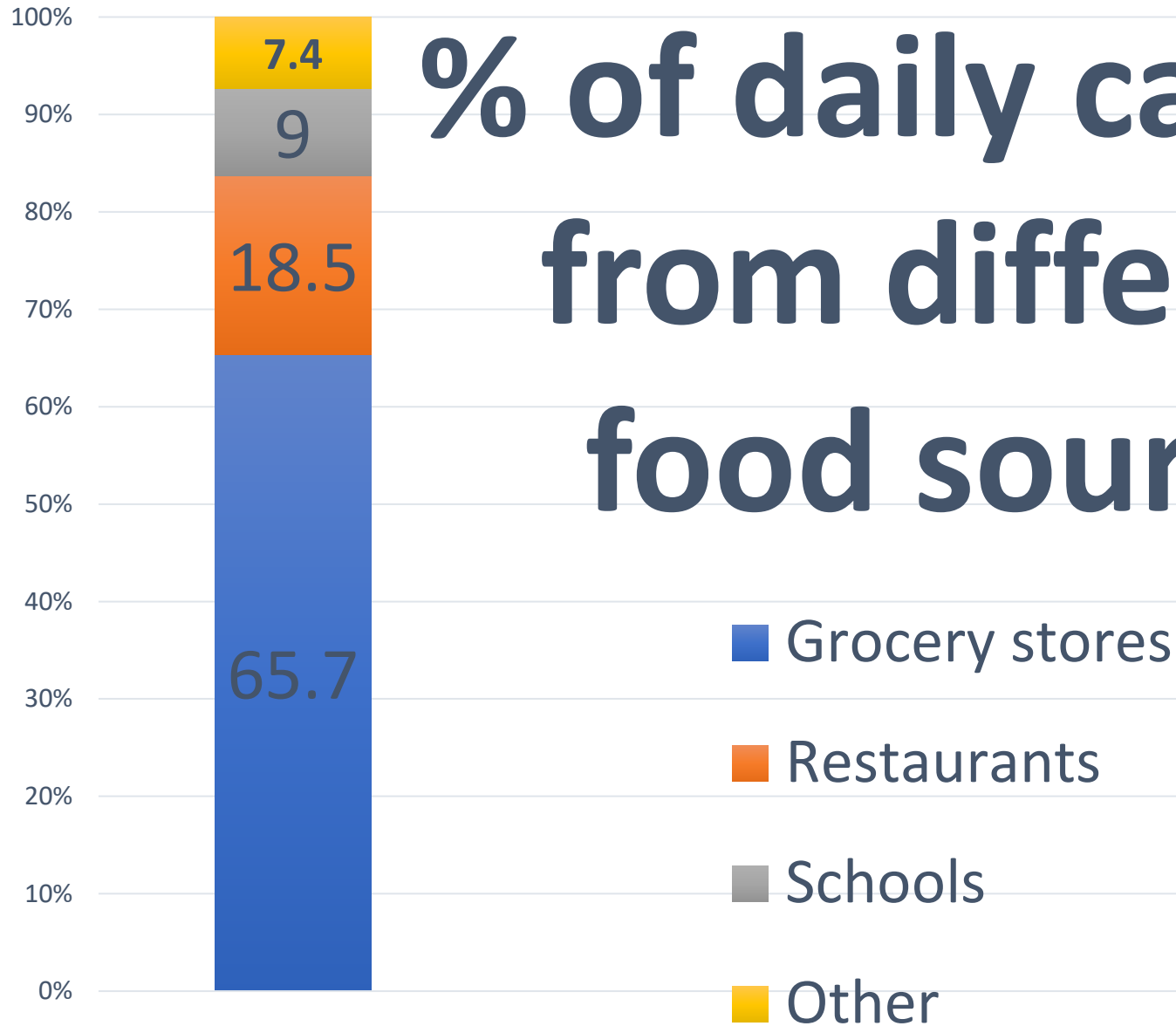
3

**Talk about the
cafeteria**

4

**Support school
initiatives**

% of daily calories from different food sources



Liu Z, Micha R, Li Y, et al.
Trends in Food Sources
and Diet Quality Among
US Children and Adults,
2003-2018.

Data from:
Table 1.
Sociodemographic
Characteristics and
Proportions of Calories of
US Children and Adults
Consuming Food From
Grocery Stores,
Restaurants, Schools,
Worksites, and Other
Sources, NHANES 2003-
2018a

- A change in policy makes a bigger impact than relying on individuals to make changes on their own.
- Encourage families/children to participate in School Meal Programs.
Use the meal pattern as a guide for eating at home.
- Set limits when eating out at restaurants.
Share or split entrees.
Skip the bread/chips/dessert/sugar sweetened beverages.
- Eat more meals at home.
- Eat meals as a family. Encourage kids to participate in meal preparation.
- Focus on fruits and vegetables – fresh, frozen & canned.



Pennington Biomedical
Center for Human
Performance

HELP KIDS MOVE MORE

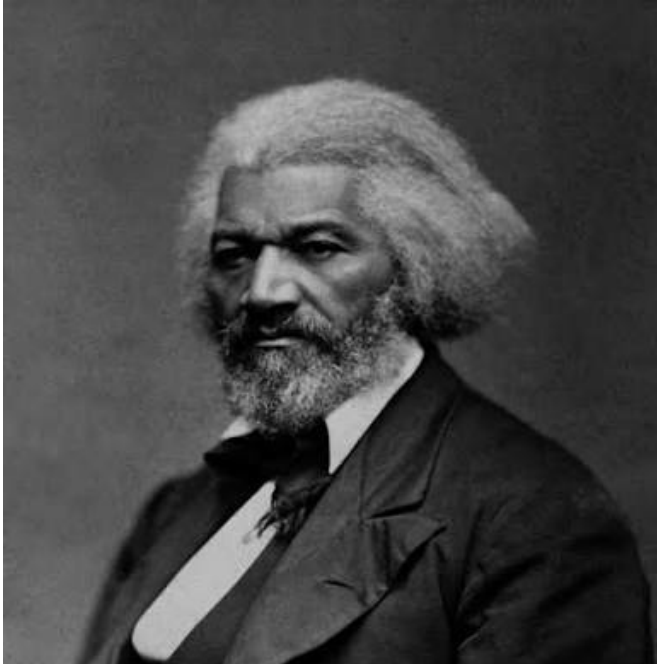
Physical activity, youth health and performance,
and military readiness

Stefan M. Pasiakos, PhD, FACSM, FASN

Professor, Pennington Biomedical Research Center



National defense depends on a fit generation



“It is easier to build strong children than to repair broken men.”

Attributed to Frederick Douglass

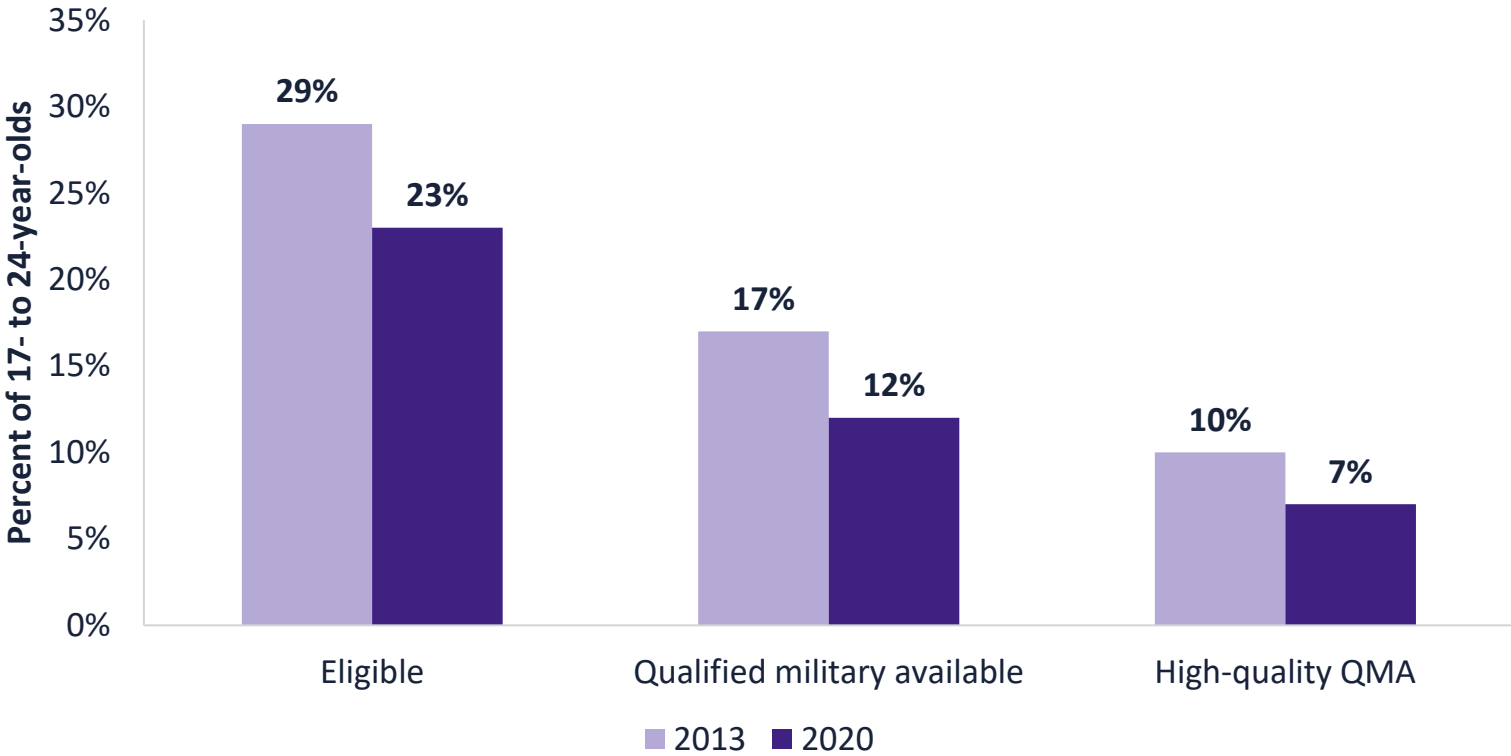
Among recruits with low initial fitness, pretraining conditioning improved entry into and completion of basic combat training.

Knapik JJ et al. Mil Med. 2006;171:45–54. PMID 16532873.

Fewer young adults qualify for military service without a waiver

77%
would require a waiver

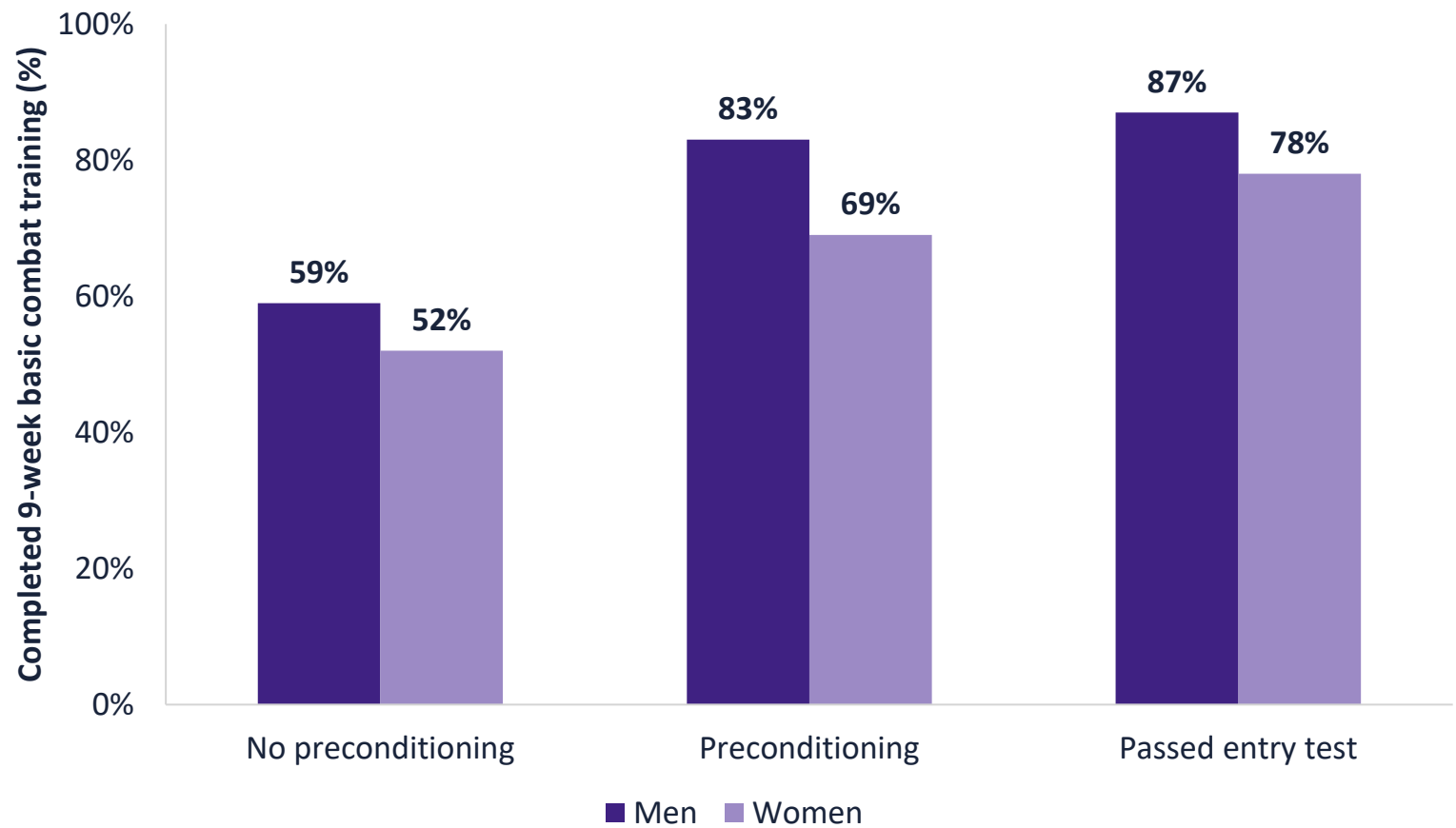
Ages 17 to 24 in 2020



Weight was the sole disqualifier for 11% and appeared among the reasons for 35%

QMA means Qualified Military Available. High-quality QMA also applies aptitude and education criteria.

Preconditioning improved completion among low-fit recruits



Completion improved

Preconditioning increased completion by 24 percentage points in men and 17 percentage points in women.

Injury risk remained

Among preconditioned recruits, injury risk remained 1.5 times higher in men. The estimate in women was not statistically significant.

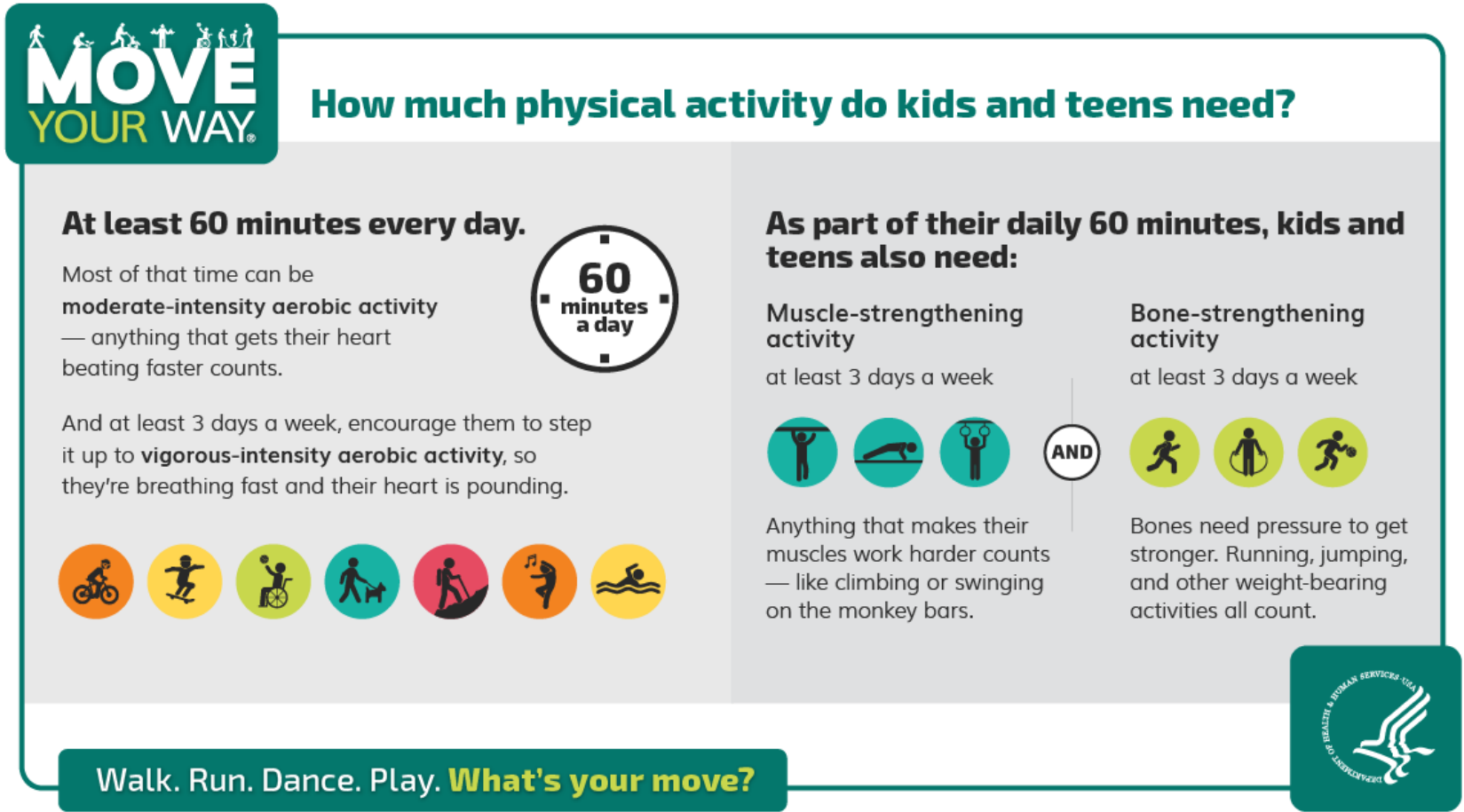
A group of children are in a gymnasium. In the foreground, a boy in a bright green Nike t-shirt and black shorts is running towards the left. Behind him, another boy in a red and black Under Armour t-shirt is also running. Further back, a girl in a blue tank top and purple headband is in a starting block position. Other children are visible in the background, some in starting blocks and others running. The gymnasium has a dark floor and a high ceiling with a large window.

Readiness is measured at accession

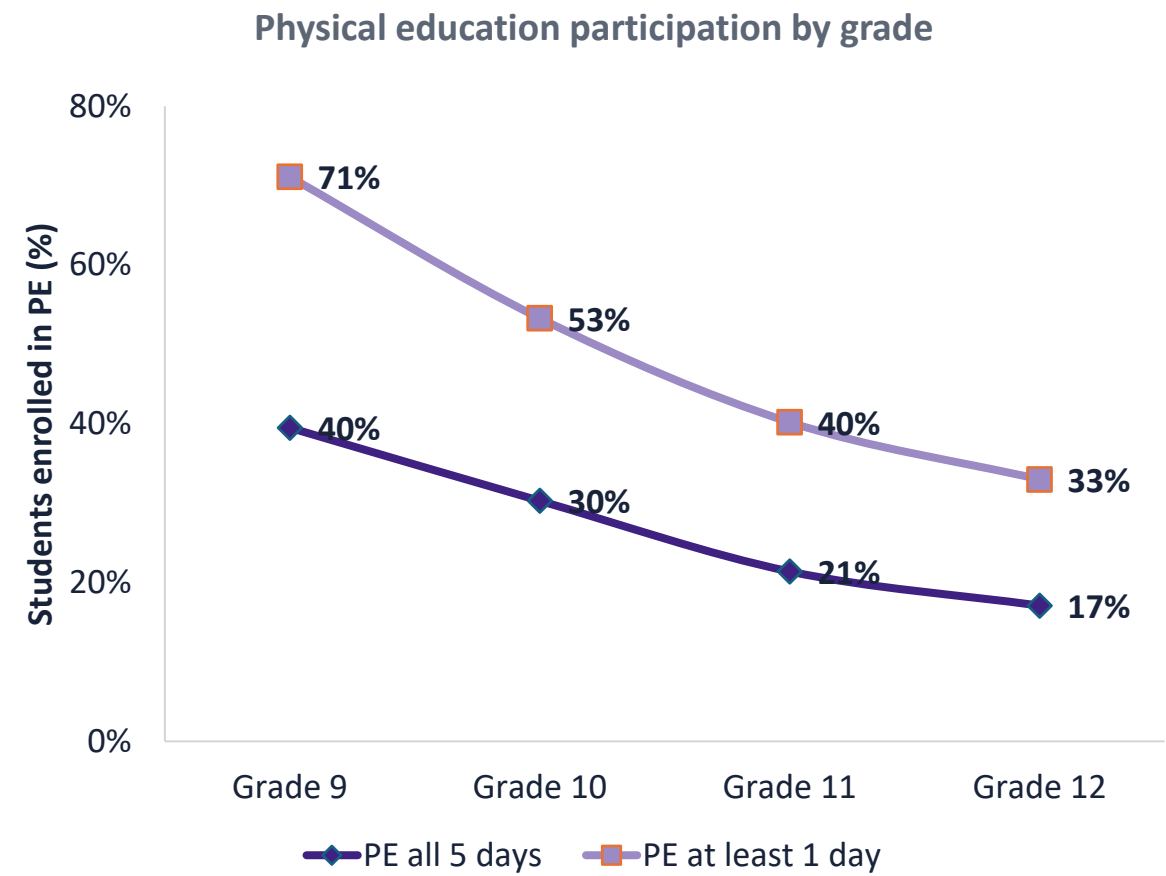
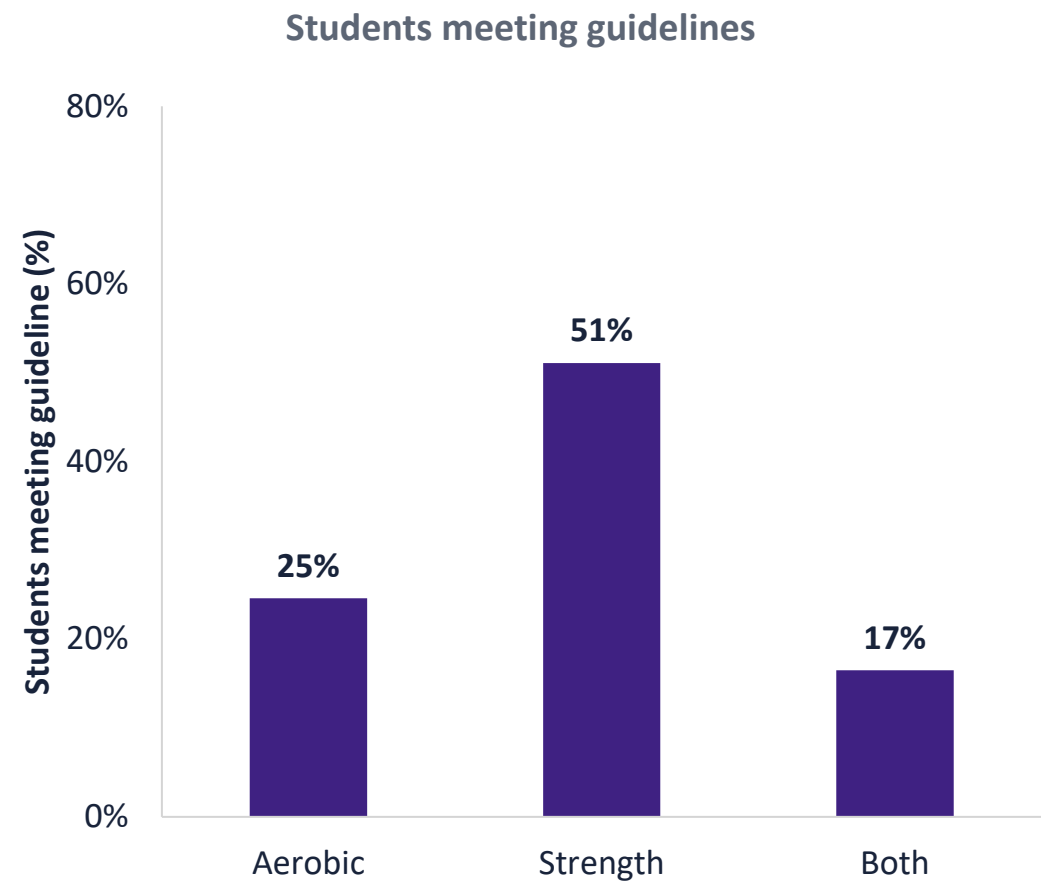
Physical capability develops throughout childhood

What should children do?

Children need at least 60 minutes of activity each day

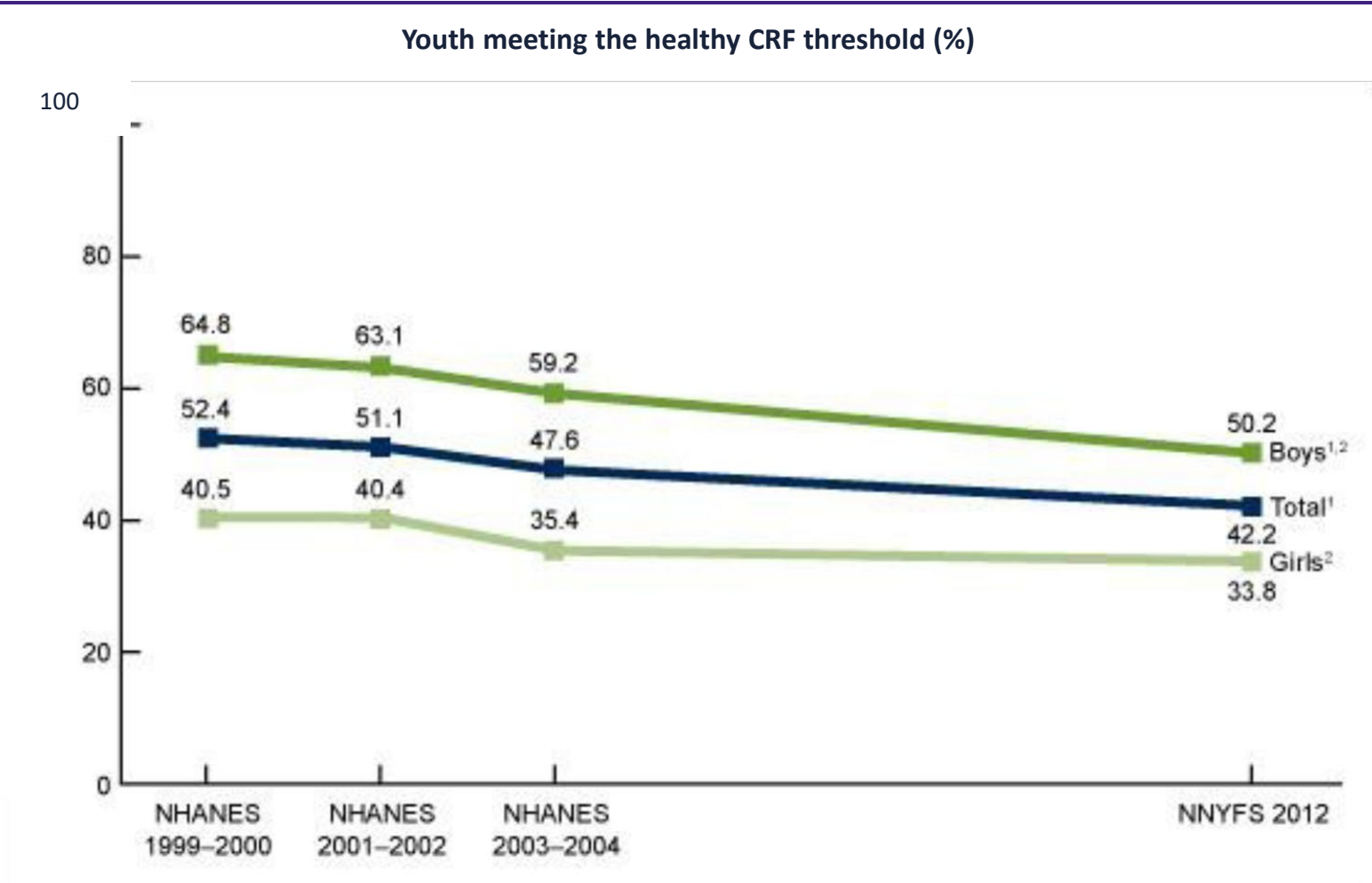


Activity is low and school opportunities fall in later grades



Nationally representative survey of 20,103 students in grades 9 to 12

Healthy cardiorespiratory fitness declined in U.S. youth



Healthy fitness in 2012

42.2%

Boys, 1999–2000 to 2012

64.8% to 50.2%

Girls, 1999–2000 to 2012

40.5% to 33.8%

Fitness in youth predicts health decades later

55 studies

37,563 participants

Systematic review and meta-analysis

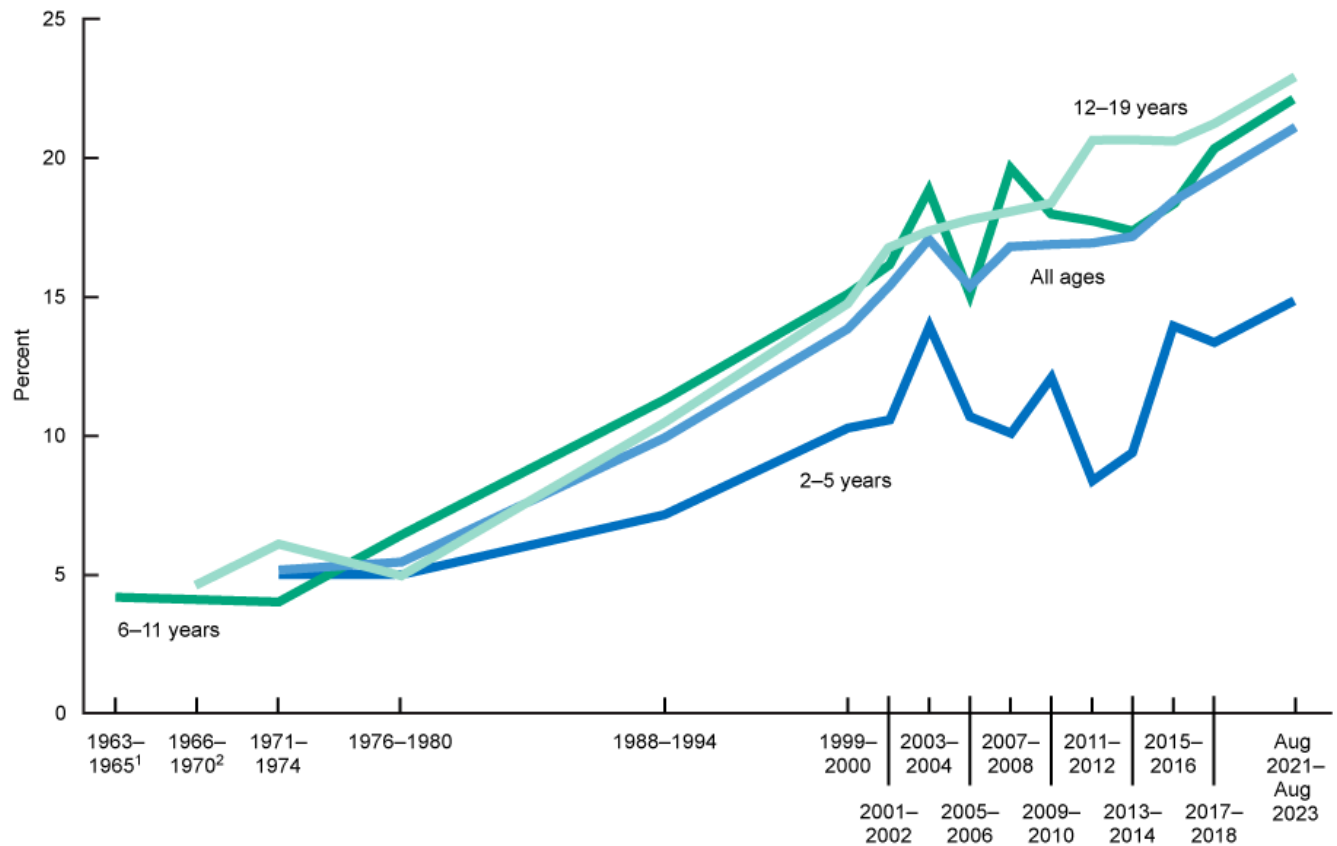
Higher fitness in youth predicted

Lower body mass index and waist circumference at follow-up

A more favorable cardiometabolic profile later in life

Benefits associated with both baseline fitness and improvement over time

Body composition and fitness describe different risks



U.S. children and adolescents ages 2–19

August 2021–August 2023

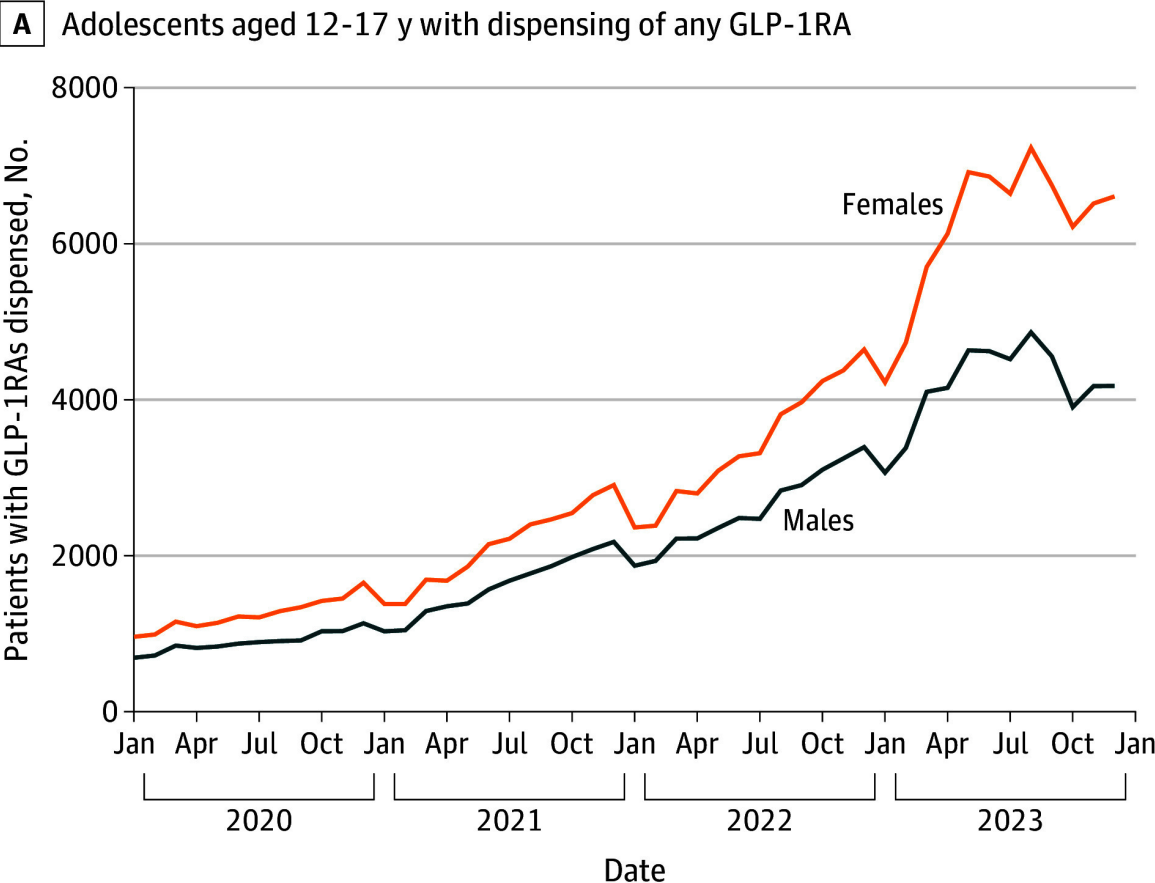
21.1% obesity

7.0% severe obesity

At the same body weight, activity and fitness can differ markedly

BMI identifies weight-related risk. It does not directly measure aerobic capacity, strength, bone health, or movement skill.

GLP-1 receptor agonist use is increasing among adolescents



30,947

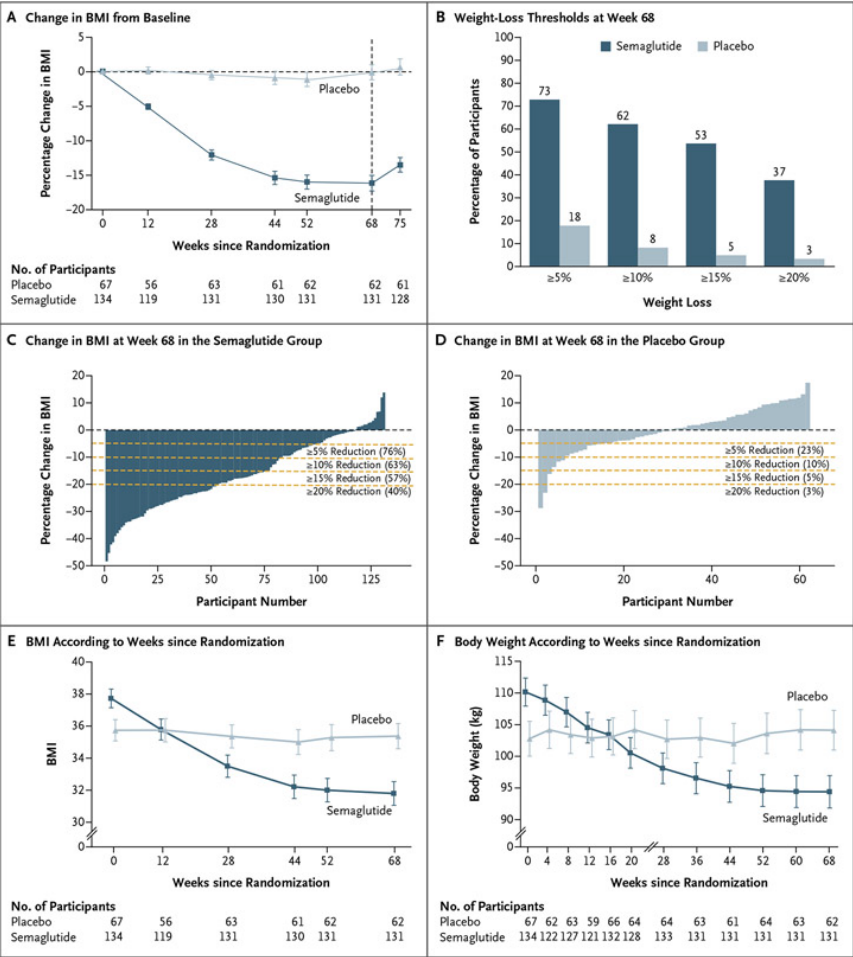
adolescents received at least one GLP-1RA prescription in 2023

The data include prescriptions for obesity and type 2 diabetes

The database captured 93.6% of U.S. retail pharmacies

Semaglutide produces substantial weight loss in adolescents

Published STEP TEENS Figure 1



STEP TEENS

201 adolescents · 68 weeks · both groups received lifestyle intervention

Panel A: mean BMI change at week 68

-16.1% semaglutide

+0.6% placebo

Panel B: lost at least 5% of body weight

73% semaglutide

18% placebo

The trial did not measure aerobic fitness, strength, or bone development.

Aerobic exercise improves fitness and metabolic health in children

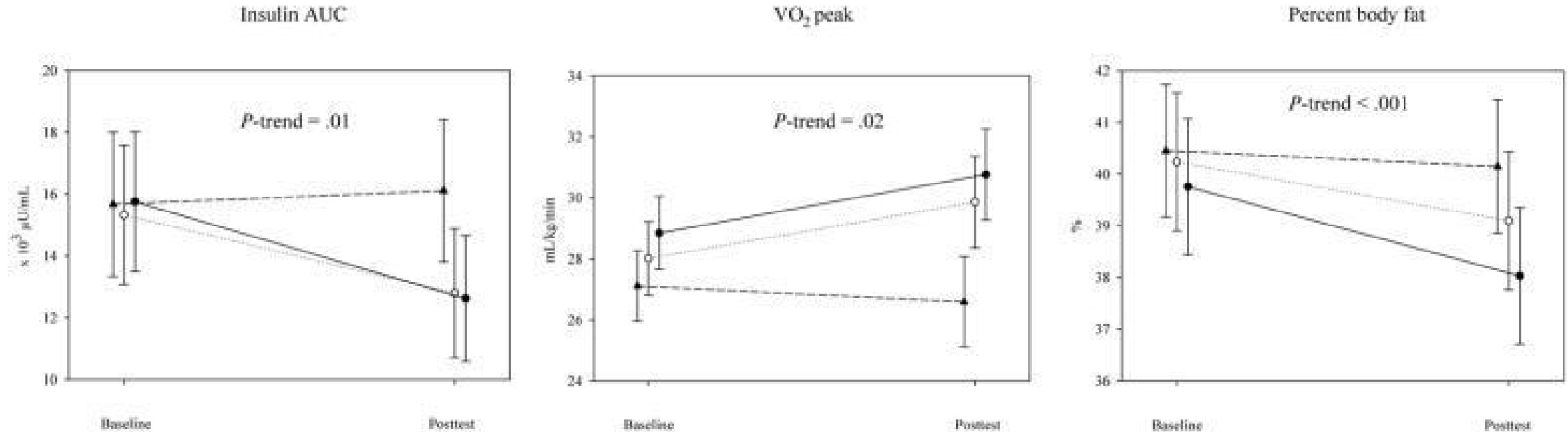


Figure legend

Dashed line: control (usual activity)

Dotted line: 20 min/day

Solid line: 40 min/day

222 sedentary children with overweight or obesity · aerobic exercise 5 days/week for 13 weeks
Both exercise doses increased peak aerobic capacity by 2.4 mL/kg/min versus control.
Insulin resistance and body fat also improved.

A school physical activity program improved fitness and activity

KISS trial

502 children in 15 Swiss elementary schools

One school year

Physical education

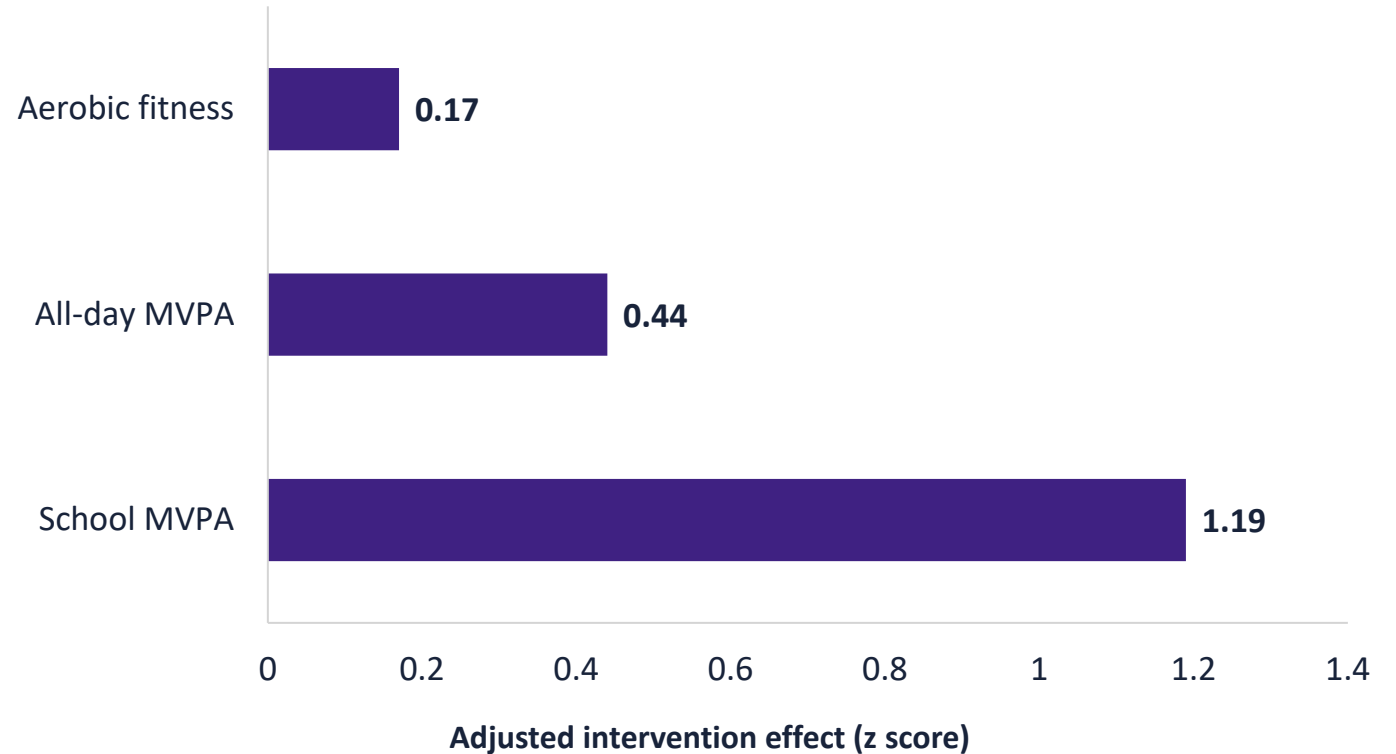
Three existing lessons structured and two additional lessons added each week

Daily activity breaks

Short movement breaks during classroom lessons

Active homework

Physical activity assignments completed at home



Skinfold adiposity also decreased

Effect -0.12 z score, 95% CI -0.21 to -0.03

Take-home messages

1

Nutrition and physical activity are complementary

Diet supports healthy growth and body composition. Activity supplies the training stimulus that develops physical capability.

2

Body weight does not define fitness

Aerobic capacity, strength, bone health, and movement skill require direct attention and years of development.

3

Schools provide the broadest opportunity to help children move more

Routine physical education and activity across the school day can improve fitness, activity, and adiposity.

THANK YOU

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Help kids move more

References

1. DoD Office of People Analytics. FY20 Qualified Military Available Key Findings. April 2022.
2. U.S. Department of Health and Human Services. Physical Activity Guidelines for Americans. 2nd ed. 2018.
3. Cornett K et al. Physical Activity Behaviors and Negative Safety and Violence Experiences. MMWR. 2024;73(Suppl 4). doi:10.15585/mmwr.su7304a11.
4. Knapik JJ et al. Increasing the physical fitness of low-fit recruits before basic combat training. Mil Med. 2006;171(1):45–54. PMID 16532873.
5. Raghuveer G et al. Cardiorespiratory fitness in youth: an AHA scientific statement. Circulation. 2020;142:e101–e118. PMID 32896293.
6. Tomkinson GR et al. Temporal trends in the cardiorespiratory fitness of children and adolescents. Br J Sports Med. 2019;53:478–486. PMID 29084727.
7. Ortega FB et al. Fitness in youth and subsequent health outcomes. JAMA Pediatr. 2020;174:952–960. PMID 32955537.
8. Noiman A et al. Prevalence of overweight, obesity, and severe obesity among children and adolescents ages 2–19 years. NCHS Health E-Stat 112. 2026.
9. Weghuber D et al. Once-weekly semaglutide in adolescents with obesity. N Engl J Med. 2022;387:2245–2257. PMID 36322838.
10. Lee JM et al. Dispensing of GLP-1 receptor agonists to adolescents and young adults. JAMA. 2024;331:2041–2043. PMID 38776113.
11. Davis CL et al. Exercise dose and diabetes risk in overweight and obese children. JAMA. 2012;308:1103–1112. PMID 22990269.
12. Kriemler S et al. Effect of a school based physical activity programme on fitness and adiposity. BMJ. 2010;340:c785. PMID 20179126.
13. CDC. Comprehensive School Physical Activity Program. Community Preventive Services Task Force. Enhanced school-based physical education.

Q&A

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Thank you for investing in our children's future!