Barriers and Opportunities in the Promotion of Physical Activity and Nutrition

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AGENDA

I. Food and Exercise: Medicine that We Don't Take

II. Two Major Barriers in Physical Activity and Nutrition Promotion

III. Reframing Health Behaviors to Unlock New Opportunities

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I. Food and Exercise: Medicine that We Don't Take

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Exercise is Medicine

1. **Lower risk of all-cause mortality**
2. **Lower risk of cardiovascular disease mortality**
3. **Lower risk of cardiovascular disease (including heart disease and stroke)**
4. **Lower risk of hypertension**
5. **Lower risk of type 2 diabetes**
6. **Lower risk of adverse blood lipid profile**
7. **Lower risk of cancers of the bladder,* breast, colon, endometrium,* esophagus,* kidney,* lung,* and stomach***
8. **Improved cognition***
9. **Reduced risk of dementia (including Alzheimer's disease)***
10. **Improved quality of life**
11. **Reduced anxiety**
12. **Reduced risk of depression**
13. **Improved sleep**
14. **Slowed or reduced weight gain**
15. **Weight loss, particularly when combined with reduced calorie intake**
16. **Prevention of weight regain following initial weight loss**
17. **Improved bone health**
18. **Improved physical function**
19. **Lower risk of falls (older adults)**
20. **Lower risk of fall-related injuries (older adults)***

* = New for 2018

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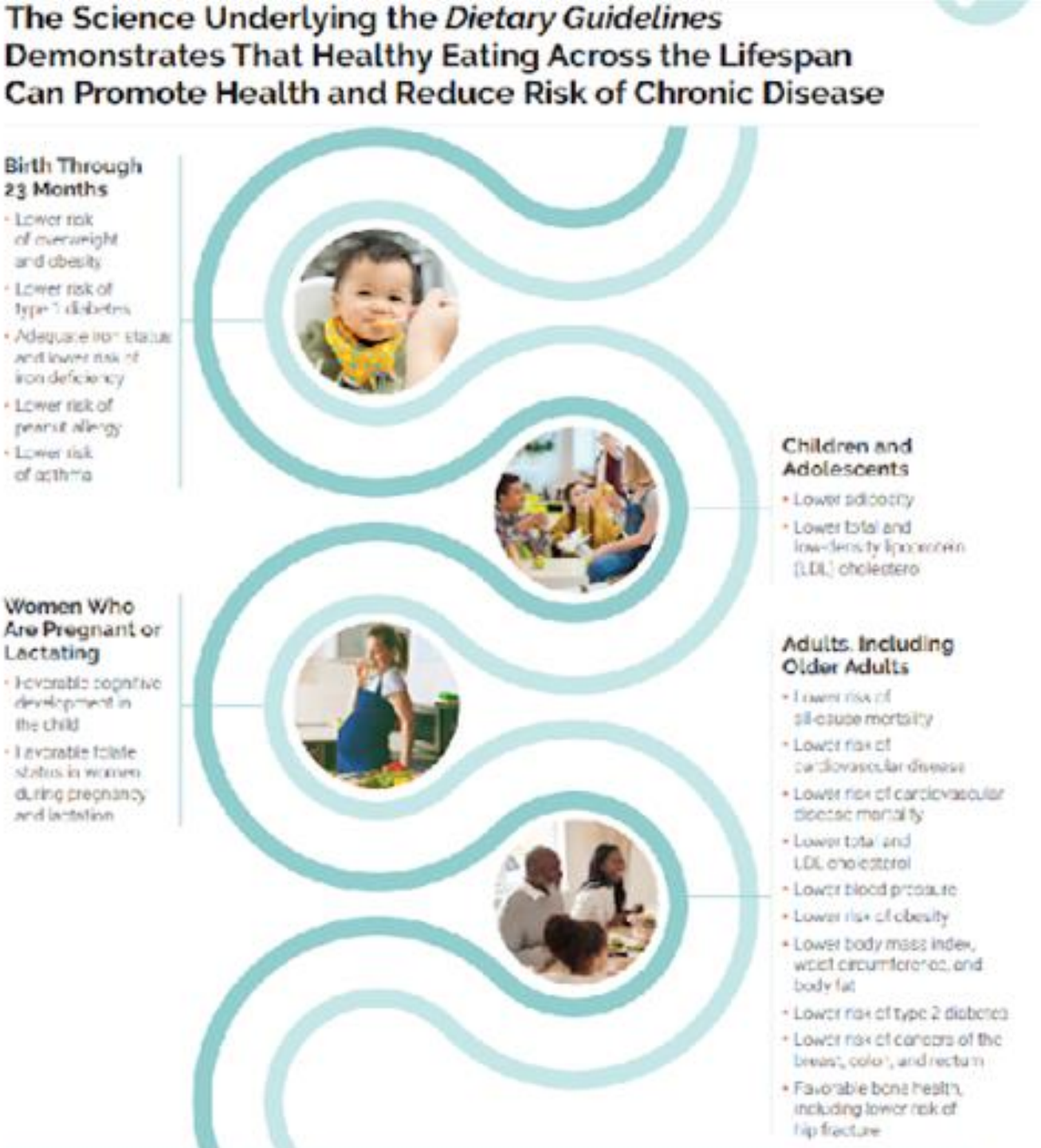
Physical Activity Guidelines for Americans, 2nd Edition

Food is Medicine



Dietary Guidelines for Americans (2020)

…But We Don't Take the Medicine

Percentage of Americans Meeting Physical Activity Recommendations by Accelerometry and Nutrition Recommendations by Self-Report

Age	Males	Females
6-11	49%	35%
12-15	12%	3%
16-19	7%	4%
20-59	4%	3%
60+	3%	2%

	Adults ≥ 18 years
Fruits	12%
Vegetables	10%

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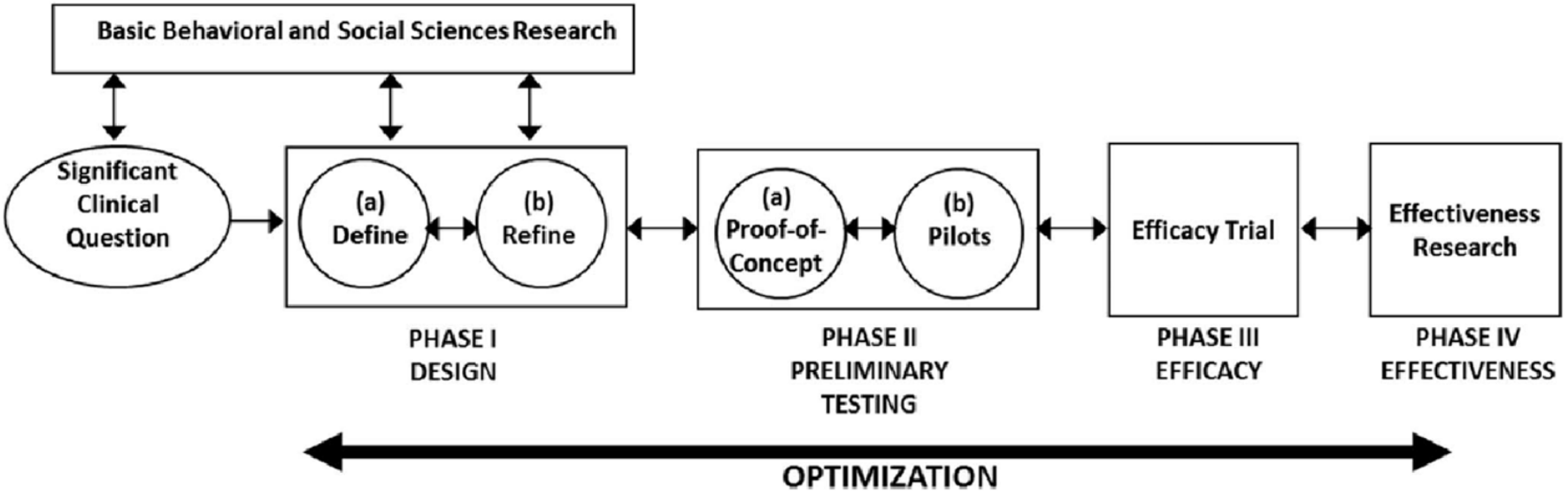
Troiano et al. Medicine & Science in Sports & Exercise (2008); Lee et al., *MMWR* (2022)

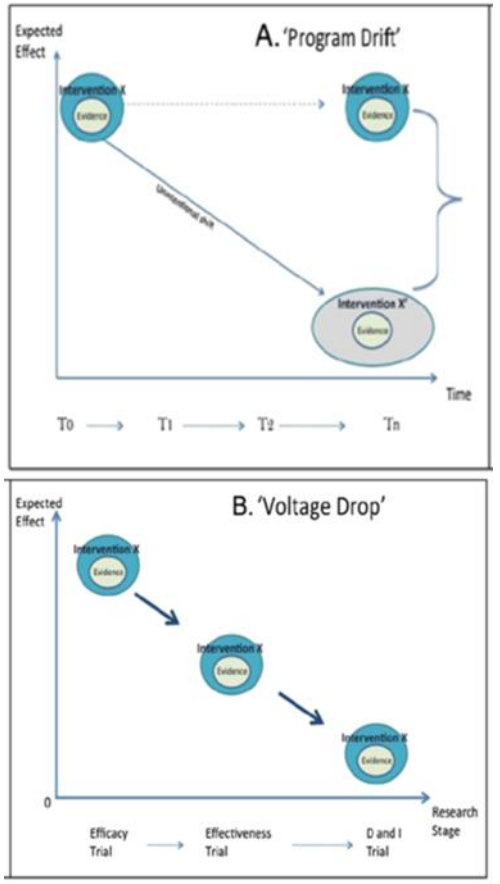
Intervention Science in Kinesiology and Nutrition

- One way that we try to promote physical activity and nutrition is by developing and testing interventions to see which one's work so we can disseminate those (a process borrowed from medicine)



Physical Activity Interventions Are Vastly Underutilized

1. 2018 Federal PA Guidelines Report lists 3,259 published PA and ST intervention studies across 92 systematic reviews.
1. Across evidence-based repositories (e.g., The Community Guide) 238 scientifically tested PA interventions are listed as available.
1. Surveys report that 13-37% of cancer control planners use EBIs, while 20-35% of state health departments [and 0-4% of local departments] use the Community Guide for PA programming



Bustamante et al. (2021). The S.P.A.C.E Hypothesis: Physical Activity as Medium—not Medicine—for Public Health Impact. *Exercise & Sport Science Reviews*, 49(2), 133-145

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New Mechanistic Knowledge ≠ Higher Physical Activity

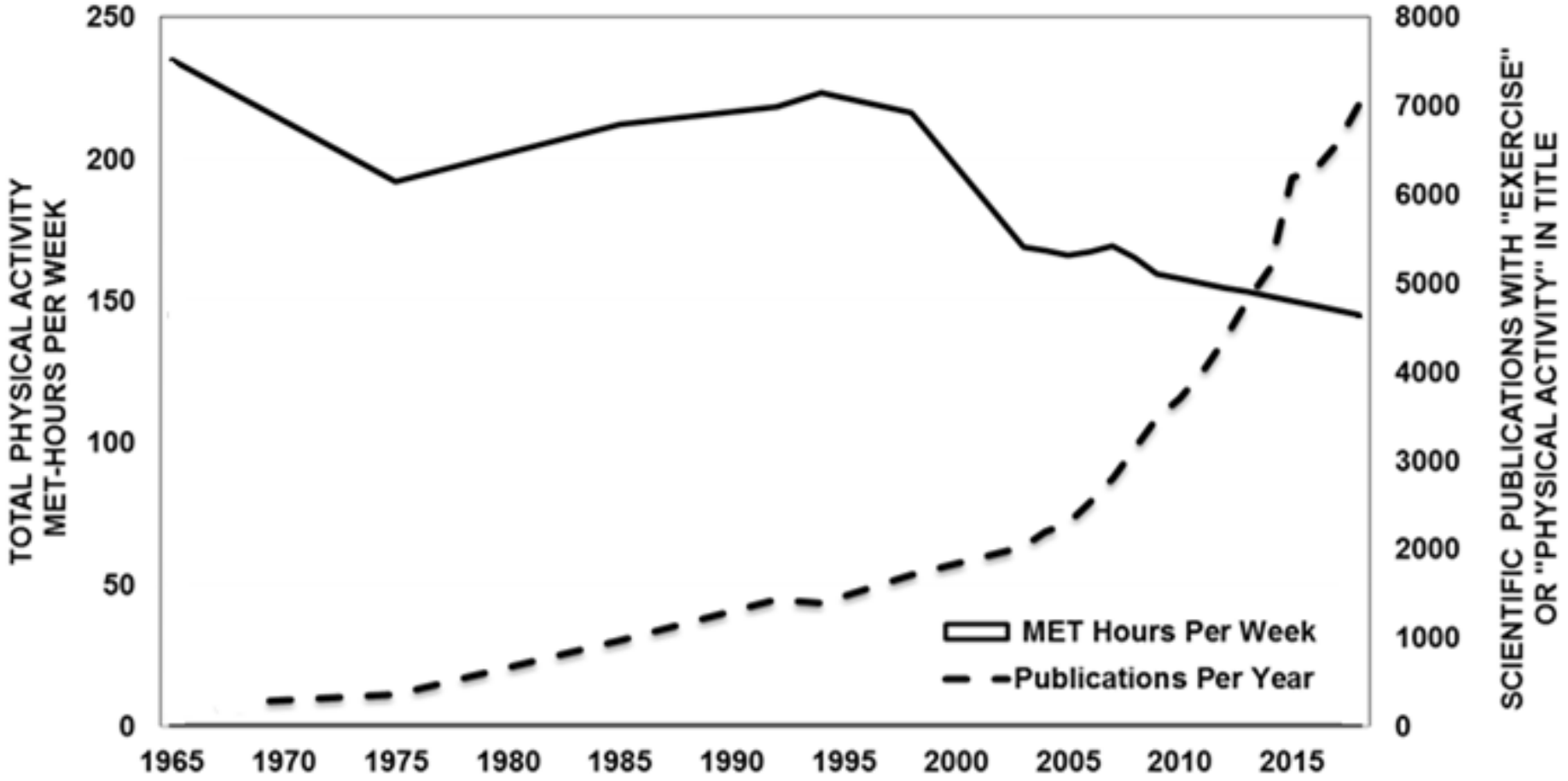

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Figure adapted with permission from Ng S.W. & Popkin B.M. (2012)

II. Two Barriers to Physical Activity and Nutrition Promotion

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Barrier #1: Fit between Programs and Settings

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Atkins et al. (2016). Future directions for dissemination and implementation science: Aligning ecological theory and public health to close the research to practice gap. *JCCAP*, 45(2), 215-226.

Barrier #2: Goal Alignment

The priorities of a school principal:

1. Standardized test scores
2. Student grades
3. Parent Connection
4. Social & Emotional Learning
5. Art & Music
6. Childhood Obesity
7. Physical Activity
8. Nutrition

III. Reframing Health Behaviors to Unlock New Opportunities

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Physical Activity and Nutrition are not Just Medicine, They are also Mediums

- What is a "Medium"? According to Merriam-Webster:
  - "Something in middle position"
  - "A means of effecting or conveying something"
  - "A particular form or system of communication"
  - "The materials or methods used by an artist"

- Physical activity and nutrition as mediums refers to the surrounding contextual features that can be intentionally and systematically manipulated to achieve an outcome that is not already fully realized innately by the PA or nutrition itself. It includes every feature of the *experience* other than the physical movement itself or the type and amount of food consumed.

Bustamante et al. (2021). The S.P.A.C.E Hypothesis: Physical Activity as Medium—not Medicine—for Public Health Impact. *Exercise & Sport Science Reviews*, 49(2), 133-145

Example #1. Physical Activity as Medium for Math Learning: Fraction Ball

- Fraction ball explicitly and intentionally teaches fractions and decimals through basketball.

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Bustamante, AS et al. (2021). Fraction Ball: Playful and Physically Active Fraction and Decimal Learning. Journal of Educational Psychology.

Example #2. Physical Activity as Medium for Early Job Skills: Leaders @ Play

Leaders @ Play is designed to intentionally and systematically harness opportunities inherent within sports and recreation to instill early job skills among at-risk youth (i.e., communication, problem solving, emotion reg.)

Teaching Early Job Skills through Physical Activity		
Skill	**Description**	**Sample Activity**
EMOTION REGULATION	Affect identification; relationship between feelings and physiology; relaxation; cognitive restructuring	**Bad Ref**: Make strategic calls to generate pressure and frustration
EFFECTIVE COMMUNICATION	Introduction to verbal and non-verbal communication; strategies for avoiding misunderstandings	**Rule Change Sports**: Teams must effectively communicate in order to overcome shifting rules.
PROBLEM SOLVING	Define the problem; generate potential solutions; evaluate the feasibility and likely outcome for each alternative; select, implement, and evaluate success	**Amazing Race**: Adolescents are in teams and must coordinate to complete specific fitness task faster than others

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Frazier et al. (2015); Bustamante et al. (2018, 2019, 2022), Mehta et al. (in review)

Example #3. Physical Activity, Nutrition, and Sleep as Mediums for ADHD: BUILT Family Lifestyle Program

- **Physical activity, nutrition, and sleep combine to provide a structured home routine for children with ADHD.**
- 6-week family lifestyle program co-facilitated by UIC students and Chicago Park District staff
- Ongoing pilot utilizing single-group pre-post design with N=40 children and parents
- Health behaviors, cognition, home environment, and mental health measured pre-post
- Parent and staff semi-structured interviews and focus groups at baseline and posttest

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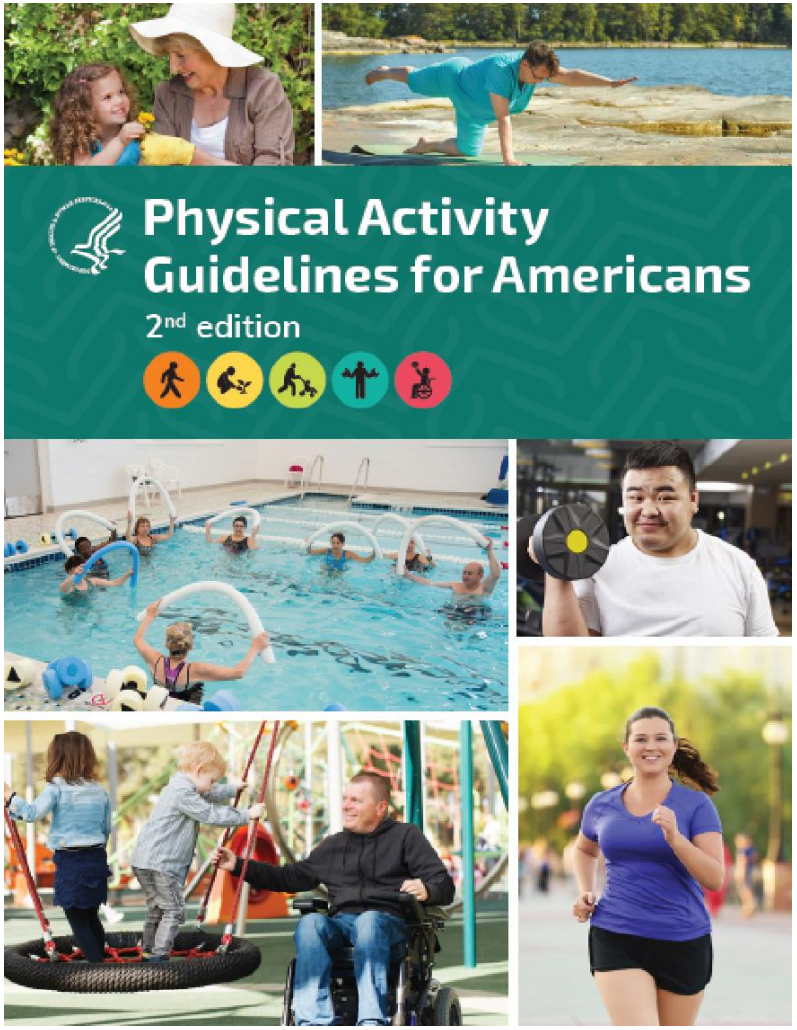
https://built.ahs.uic.edu/

What Could Goal Alignment Do for Physical Activity Program Adoption Rates?



Physical Activity Guidelines for School Administrators:

1. Employee Retention
2. Employee Engagement
3. Classroom Focus

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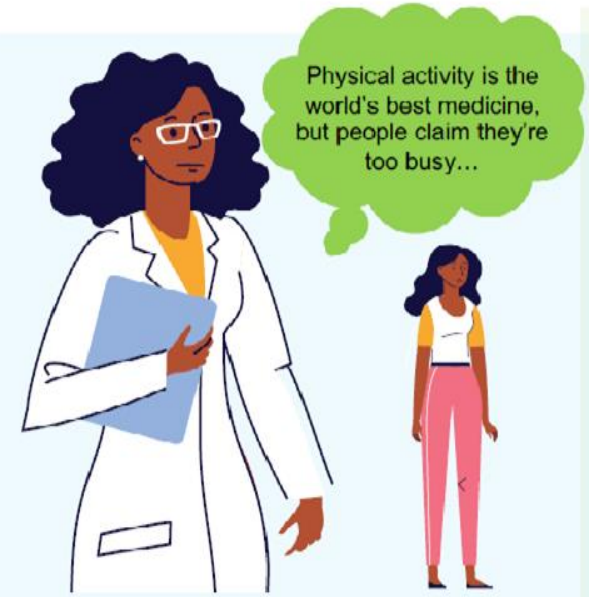
What About on an Individual Level?



Recognize Physical Activity as a Medium to Improve Versatility
Physical activity is accepted as *medicine*, but its impact could be broader by considering physical activity as a *medium*.

Day 1: Decision to Adopt a Physical Activity (PA) Program
Instead of asking participants to change their goals, we should ask them to consider how physical activity can help them achieve their goals.

1 Year Later: Decision to Continue a PA Program
When physical activity has a positive impact on primary goals, it is more likely to be sustained.

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Bustamante et al. (2021). The S.P.A.C.E Hypothesis: Physical Activity as Medium—not Medicine—for Public Health Impact. *Exercise & Sport Science Reviews*, 49(2), 133-145

FAPESP Select Opportunities and Challenges

- Interdisciplinary Collaboration
- Engaged Community Partners
- Proof of Concept in Adults
- Identification of non-health outcomes that can be achieved through and/or supported by health behaviors
- Need for a better understanding of contextual decision and influence on outcomes

THANK YOU!!!

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