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ALABAMA AT BIRMINGHAM.

# Exercise as Medicine: A Prescription for Health in Primary Care

September 27, 2024

**Irfan Asif, M.D.**

Professor and Chair, Department of Family and Community Medicine  
Associate Dean for Primary Care and Rural Health  
UAB Heersink School of Medicine

# Disclosure Information

Asif

## Associate Editor

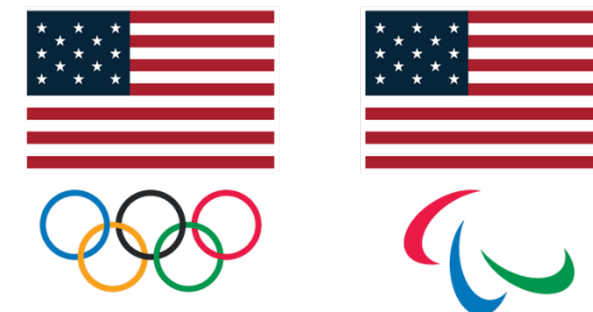
- Sports Health: A Multi-Disciplinary Approach

## Other Positions

- Coach Safely Foundation – Board Member
- ADFM – Chair, National Research Strategic Planning Team
- UAB Athletics, Birmingham Legion FC, USA Wheelchair Rugby – Team Physician

## Research Funding

- HRSA– Medical Student Education
- National Institutes of Health
- American Board of Family Medicine





## Outline

Main objective:

By the end of this session, participants will be able to explain the importance and benefits of prescribing physical activity to their patients





# UCLA Grand Rounds 9-27-24

Win up to 1,000 points per answer

# Today is Friday

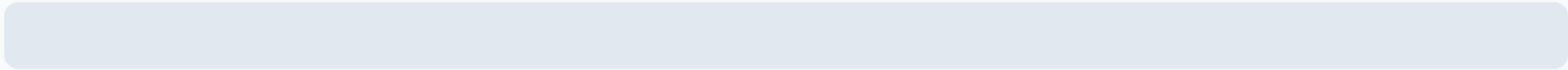
Today is Friday

True

False

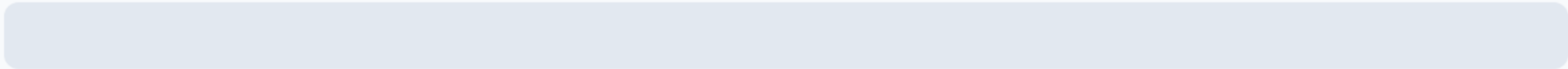
# Today is Friday

True



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False



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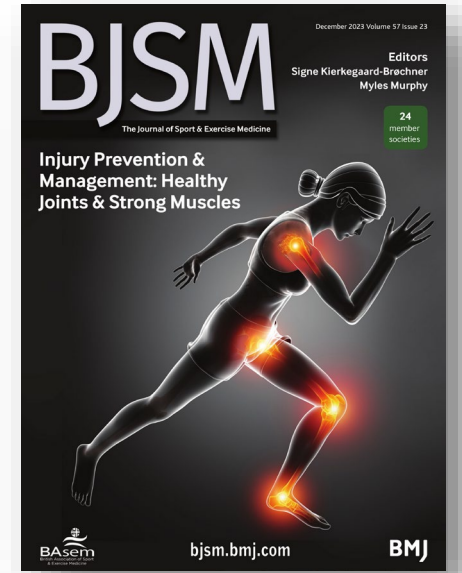
# Leaderboard

Nobody has responded yet.





**Irfan Asif, MD**  
 Heersink Endowed Professor of Sports and Exercise Medicine  
 Chair, Department of Family and Community Medicine  
 Associate Dean for Primary Care and Rural Health  
 University of Alabama at Birmingham  
 Heersink School of Medicine



**UW Medicine**



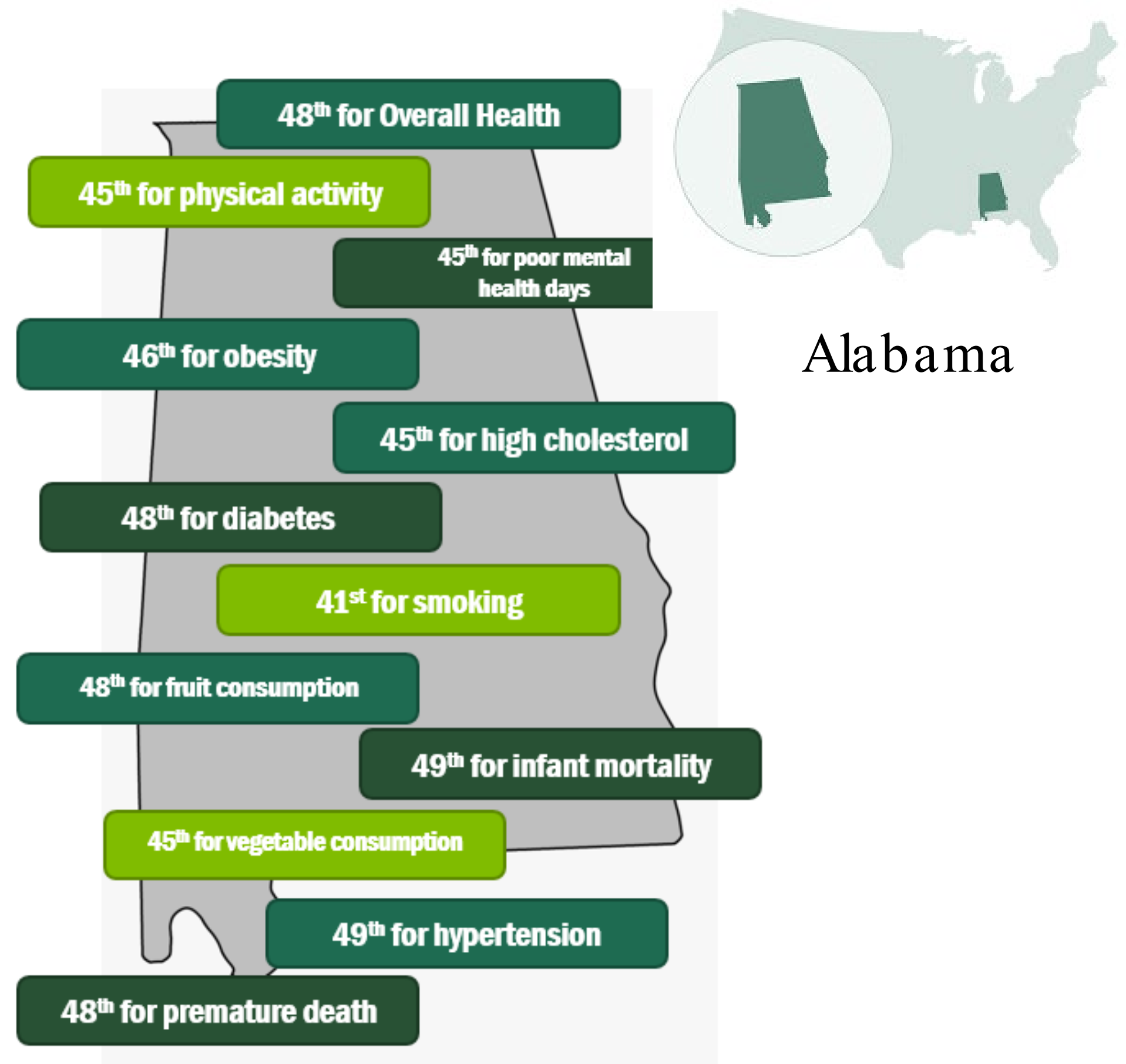
# Statistics in Alabama

- Alabama is ranked **49<sup>th</sup>** out of 50 states for **primary care providers**
- Alabama ranks **48<sup>th</sup>** among all states for **overall health**

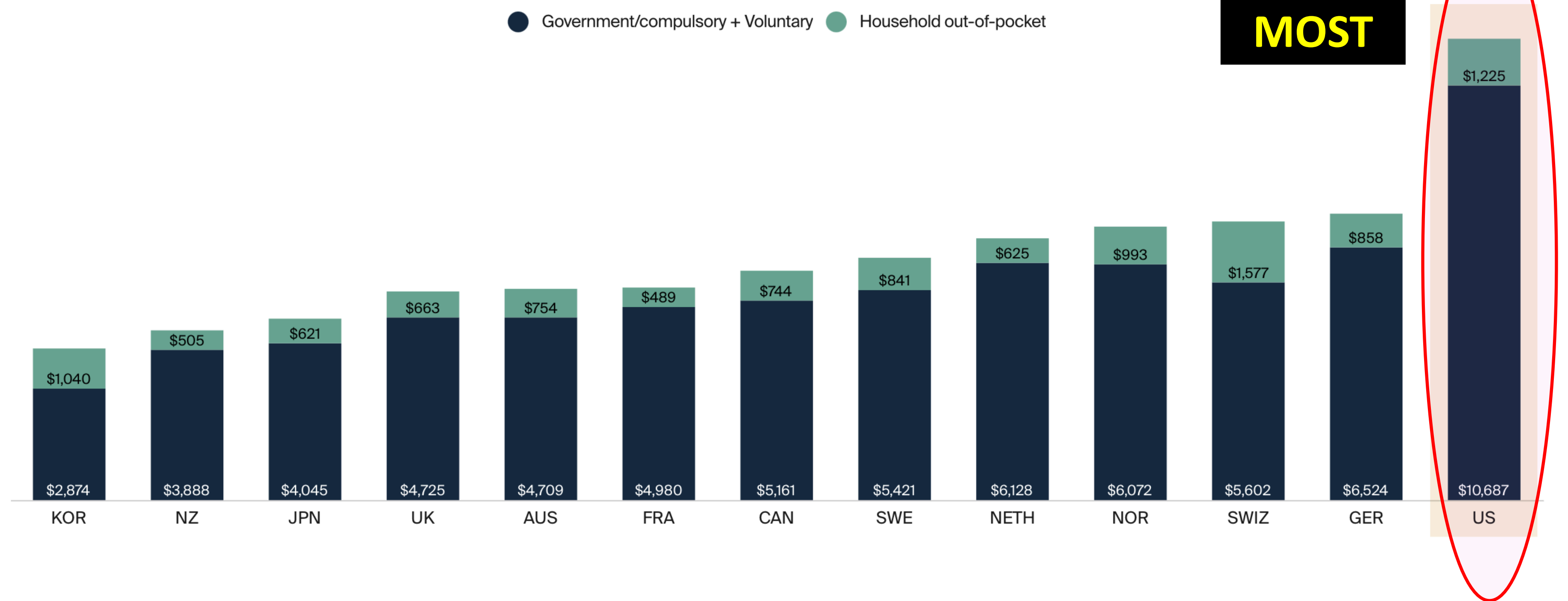
Poor access

+ High burden of social determinants

= Health INEquity (outcomes, cost)



Dollars (USD) per capita spend on health expenditures

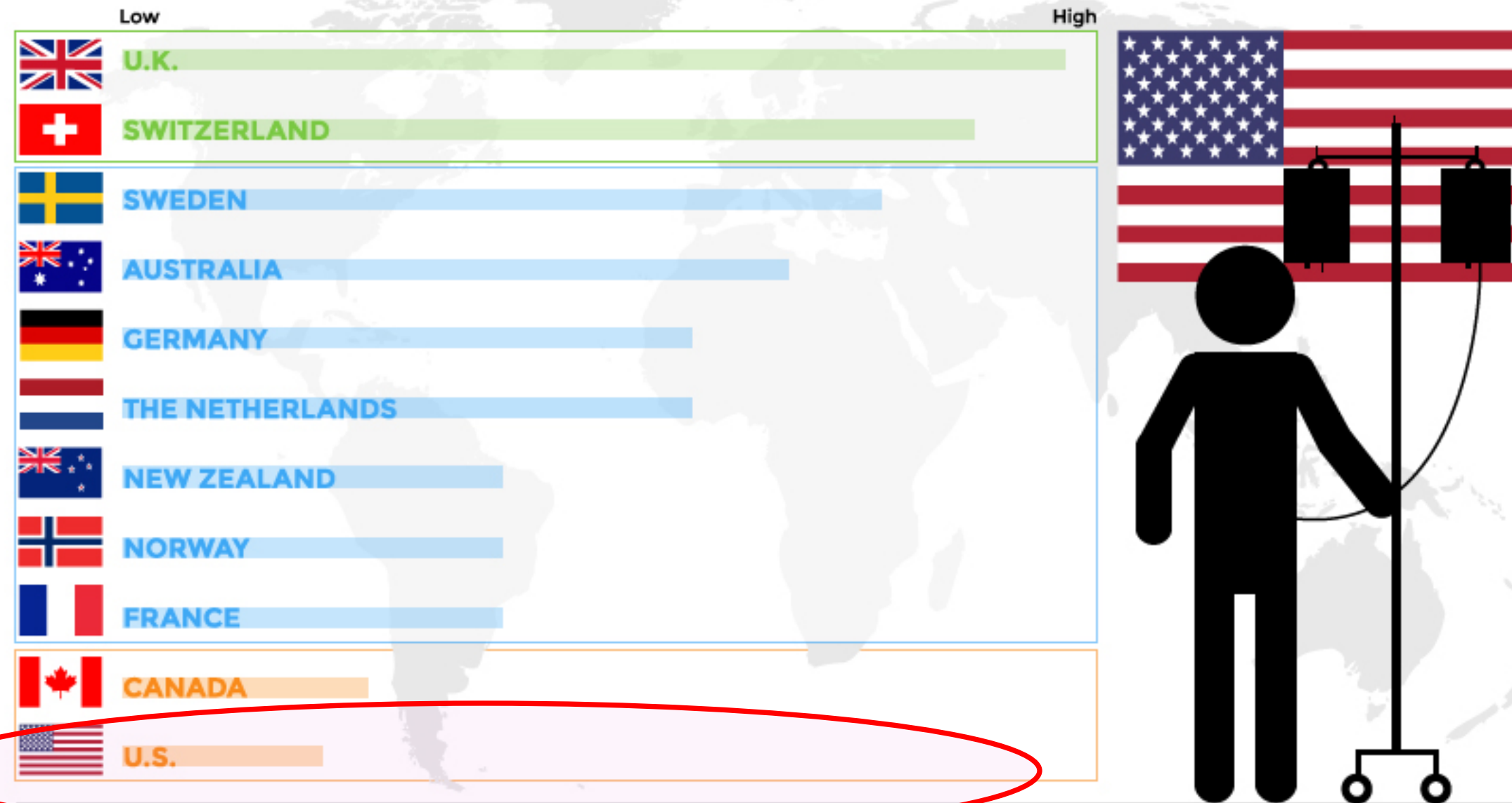


Notes: Data reflects all financing schemes on all functions of current expenditures on health by all providers. The OECD considers the vast majority of ACA marketplace plans in US to be “government/compulsory spending” because of the individual mandate, despite its repeal in 2018. See here for more information: <https://www.oecd.org/health/Spending-on-private-health-insurance-Brief-March-2022.pdf>. Government/compulsory spending data: 2021 data for CAN, GER, KOR, NETH, NOR, SWE, and UK; 2020 data for AUS, FRA, JPN, NZ, SWIZ, and US. Voluntary spending data: 2021 data for CAN, GER, KOR, NETH, NOR, SWE, and UK. 2020 data for FRA, JPN, SWIZ, and US; 2019 data for AUS; 2018 data for NZ. Household out-of-pocket spending data: 2021 data for CAN, GER, KOR, NETH, NOR, SWE, UK, and US; 2020 data for FRA, JPN, and SWIZ; 2019 data for AUS; 2018 data for NZ.

# U.S. HEALTH CARE RANKS LAST AMONG WEALTHY COUNTRIES

A recent international study compared 11 nations on health care quality, access, efficiency, and equity, as well as indicators of healthy lives such as infant mortality.

## Overall Health Care Ranking

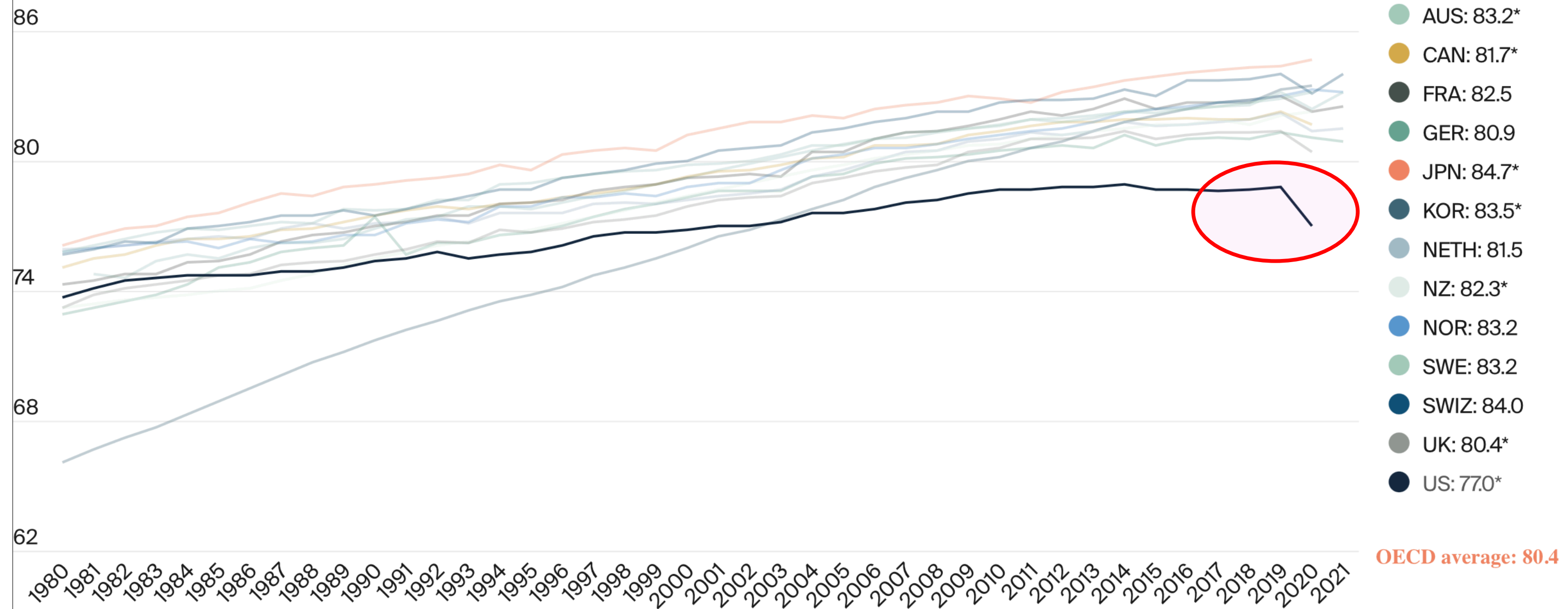


**WORST**

Source: K. Davis, K. Stremikis, D. Squires, and C. Schoen, *Mirror, Mirror on the Wall: How the Performance of the U.S. Health Care System Compares Internationally*, 2014 Update, The Commonwealth Fund, June 2014.

# U.S. life expectancy at birth is three years lower than the OECD average.

Years expected to live, 1980–2021\*



Download data

Note: \* 2020 data. Total population at birth. OECD average reflects the average of 38 OECD member countries, including ones not shown here. Because of methodological differences, JPN and UK data points are estimates.

Data: OECD Health Statistics 2022.

Source: Munira Z. Gunja, Evan D. Gumas, and Reginald D. Williams II, *U.S. Health Care from a Global Perspective, 2022: Accelerating Spending, Worsening Outcomes* (Commonwealth Fund, Jan. 2023). <https://doi.org/10.26099/8ejy-yc74>

# Modern Healthcare In Depth

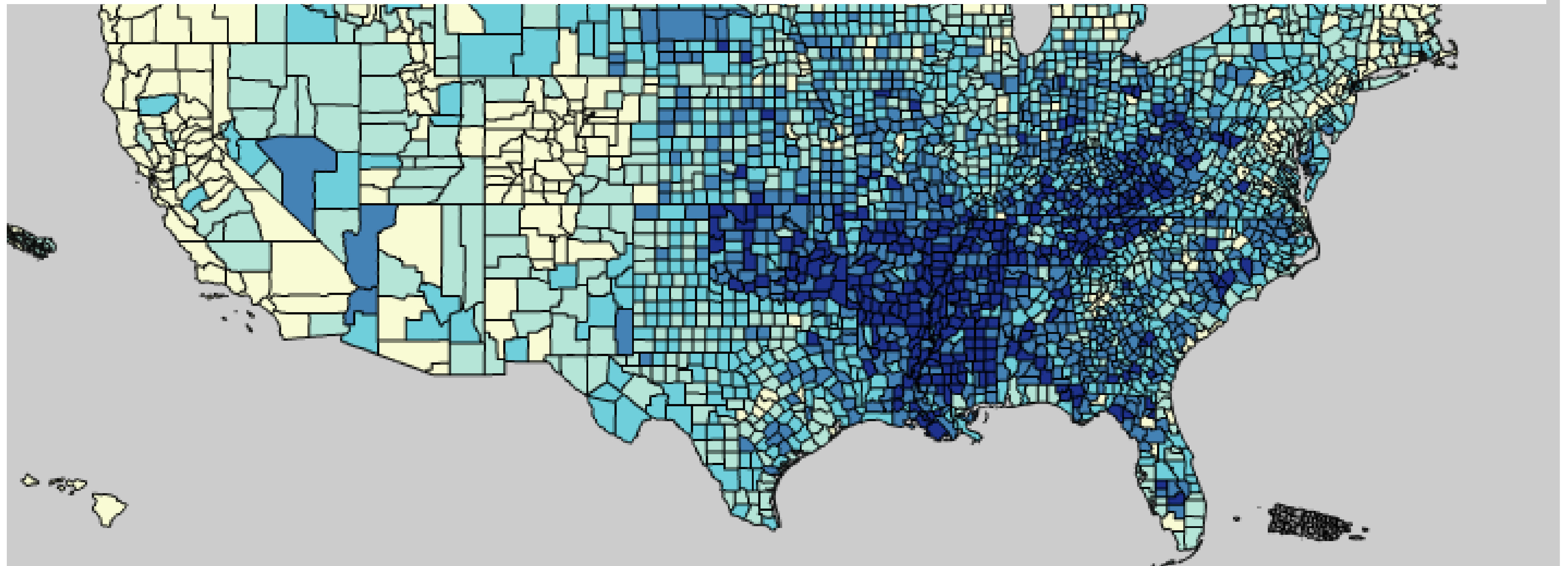
FROM **sick care**  
TO **well care**







# Burden of Chronic Diseases and Cancers Parallel the Distribution of Physical Inactivity in our Country



\*Age adjusted to the 2000 US standard population.  
Source: National Center for Health Statistics, 2022.

## Physically active people have lower health risks

Cognitive decline

↓40%

Type 2 diabetes

↓35%

Hypertension

↓33%

Depression

↓48%



All-cause mortality

↓30%

Bone fractures

↓66%

Breast cancer

↓20%

Coronary heart disease and stroke

↓25%

Colorectal cancer

↓19%

Source: Physical Activity Guidelines Advisory Committee Scientific report (2018); Department of Health & Human Services – USA

We Know This, But There is a Gap Between Knowledge and Implementation...

# Thought Exercise

What is Your Framework for Writing an Exercise Prescription?

**In a study titled, "Effectiveness of Physical Activity Advice and Prescription by Physicians in Routine Primary Care", how many minutes per week did older patients who received a physical activity prescription increase their activity levels?**

In a study titled, "Effectiveness of Physical Activity Advice and Prescription by Physicians in Routine Primary Care", how many minutes per week did older patients who received a physical activity prescription increase their activity levels?

A. 0

B. 13

C. 30

D. 130

In a study titled, "Effectiveness of Physical Activity Advice and Prescription by Physicians in Routine Primary Care", how many minutes per week did older patients who received a physical activity prescription increase their activity levels?

A. 0

0%

B. 13

0%

C. 30

0%

D. 130

0%

# Leaderboard

Nobody has responded yet.



**According to the National Physical Activity Guidelines, what is the recommended amount of moderate to vigorous physical activity per week for adults?**



According to the National Physical Activity Guidelines, what is the recommended amount of moderate to vigorous physical activity per week for adults?

A. 30-60 minutes of physical activity per week.

B. 60-90 minutes of physical activity per week.

C. 90-120 minutes of physical activity per week.

D. 150-300 minutes of moderate to vigorous physical activity per week.

E. 400-500 minutes of moderate to vigorous physical activity per week.

## According to the National Physical Activity Guidelines, what is the recommended amount of moderate to vigorous physical activity per week for adults?

A. 30-60 minutes of physical activity per week.

0%

B. 60-90 minutes of physical activity per week.

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C. 90-120 minutes of physical activity per week.

0%

D. 150-300 minutes of moderate to vigorous physical activity per week.

0%

E. 400-500 minutes of moderate to vigorous physical activity per week.

0%

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Nobody has responded yet.



# What does FITT-VP stand for?

## What does FITT-VP stand for?

Frequency, Intensity, Time, Type, Volume, and Progression

Fitness, Intake, Timing, Technique, Vitality, Performance

Flexibility, Interval, Track, Target, Variance, Program

Frequency, Intensity, Technique, Testing, Variation, Progress

Form, Intensity, Training, Time, Variation, Planning

## What does FITT-VP stand for?

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0%

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0%

Frequency, Intensity, Technique, Testing, Variation, Progress

0%

Form, Intensity, Training, Time, Variation, Planning

0%

# Leaderboard

Nobody has responded yet.



**What does the Borg Rating of Perceived Exertion (RPE) measure in the context of exercise and physical activity?**



## What does the Borg Rating of Perceived Exertion (RPE) measure in the context of exercise and physical activity?

A. Heart rate during exercise.

B. Duration of exercise sessions.

C. Muscle strength and endurance.

D. The individual's perception of their exertion or effort during exercise.

E. Oxygen consumption during exercise.

## What does the Borg Rating of Perceived Exertion (RPE) measure in the context of exercise and physical activity?

A. Heart rate during exercise.

0%

B. Duration of exercise sessions.

0%

C. Muscle strength and endurance.

0%

D. The individual's perception of their exertion or effort during exercise.

0%

E. Oxygen consumption during exercise.

0%

# Leaderboard

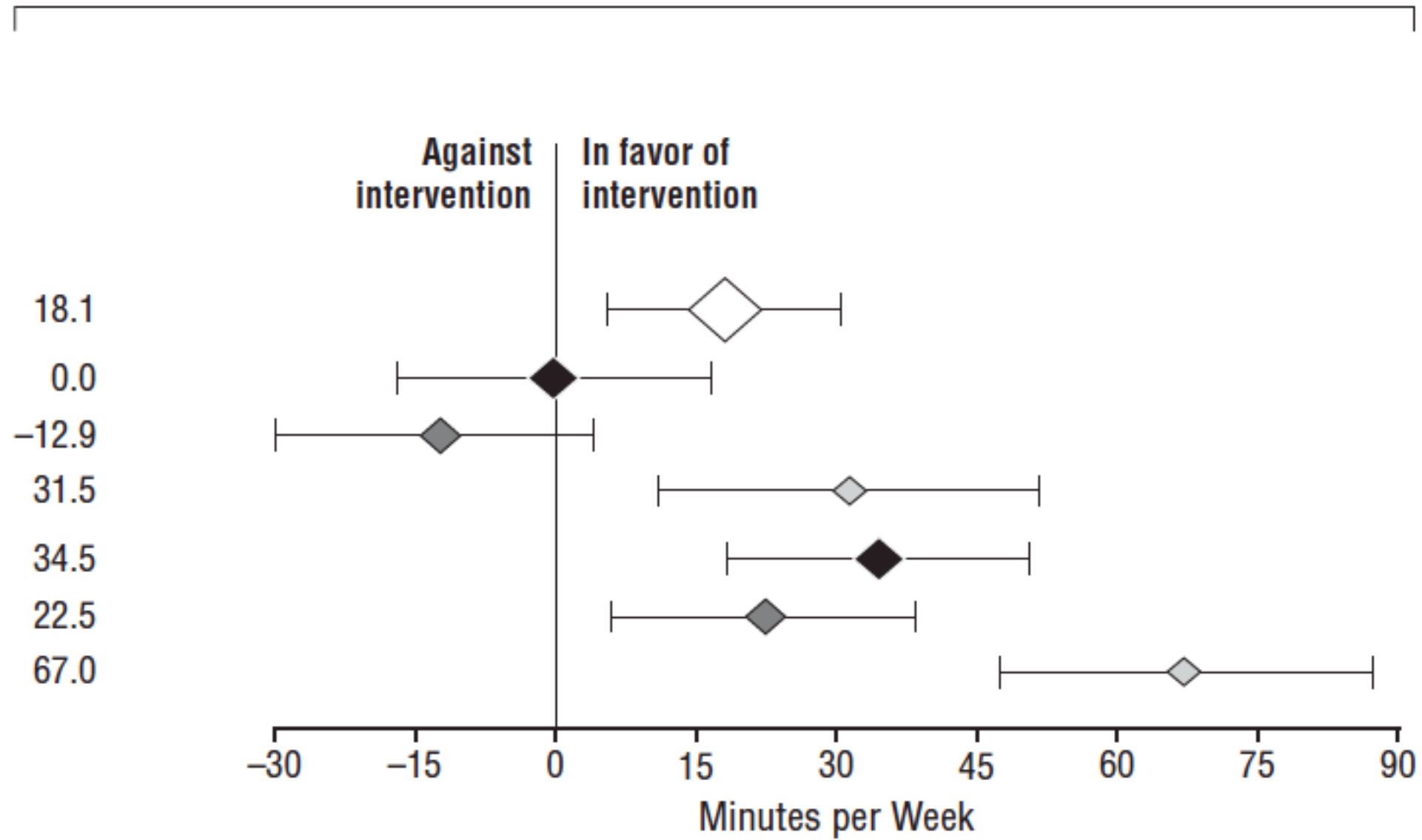
Nobody has responded yet.



# Effectiveness of Physical Activity Advice and Prescription by Physicians in Routine Primary Care

	No.	Baseline-adjusted change		
		PEPAF	Control	
<b>Moderate and vigorous activity, min/wk</b>				
Overall	4317	82.6	65.1	18.1
Age <50 y	2050	64.4	63.4	0.0
Advise	771	51.0		-12.9
Prescription	339	94.4		31.5
Age ≥50 y	2267	100.8	67.1	34.5
Advise	794	87.7		22.5
Prescription	344	131.1		67.0

Multivariate-adjusted differences (95% confidence interval) between groups and subgroups



**Prescription in addition to advice:**

- 15-min Educational session in which physicians accomplished the following:
- Reinforced patients' reasons and intention to change
  - Negotiated a goal for patient's physical activity change
  - Addressed potential barriers and anticipated solutions for change using Web-based tools for lack of time (review of patients' timetable and identification of free time), community resources (database with community resources' contact information), and health problems (evidence-based information for physical activity benefits related to a variety of health problems)
  - Cooperatively designed a 3-mo physical plan
  - Standardized a printed prescription of the frequency, duration, intensity, and a progression of a selected activity or exercise, including the keeping of a self-monitoring log
  - Provided a folder containing a brief guide for increasing physical activity in which the printed prescription was attached

Older patients who received a physical activity prescription increased their activity by 131 min/wk and, compared with control patients, they doubled the minutes per week devoted to moderate or vigorous physical activity



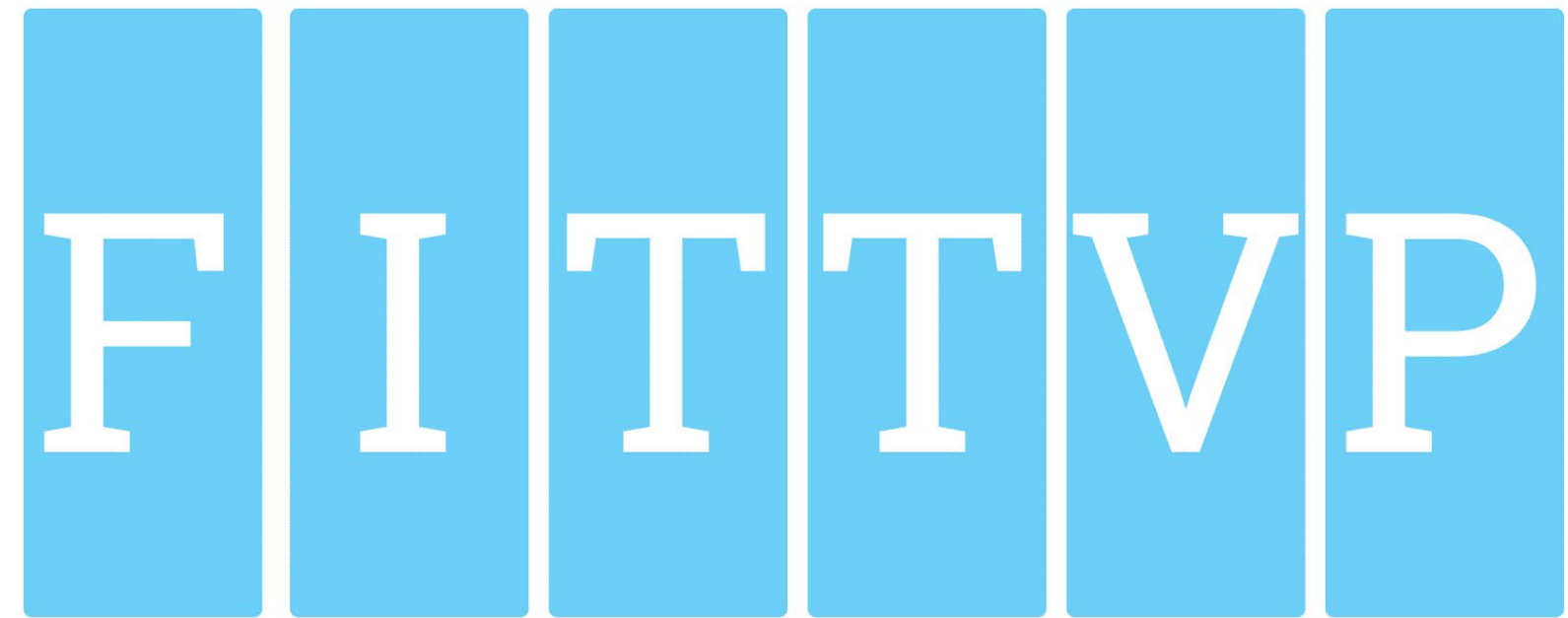
## Determining Functional Capacity

Two simple questions to estimate a patient's functional capacity:

1. Can you walk approximately 10 minutes at a 2.5 to 3 miles per hour (4 to 5 km per hour) pace (~3.0 - 3.5 METs) without experiencing limiting symptoms (e.g. shortness of breath)?
2. Can you climb 2 standard flights of stairs without stopping because of limiting symptoms?

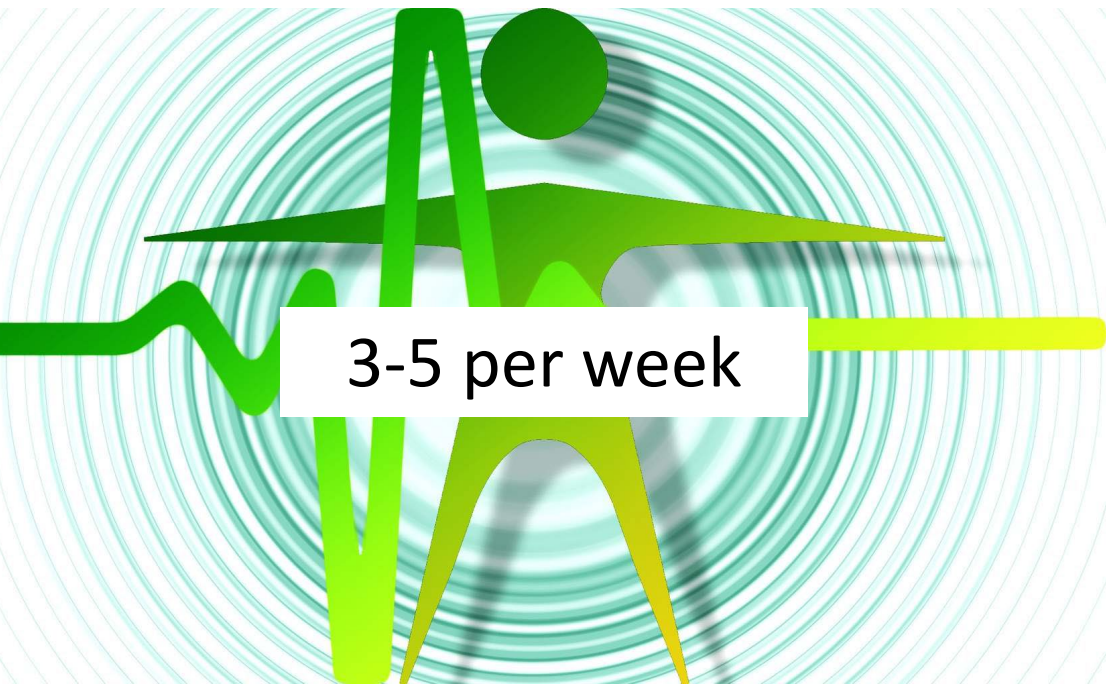
# Exercise Prescription

- Frequency
- Intensity
- Time
- Type
- Volume
- Progression

The acronym 'FITT-VP' is displayed in a stylized font where each letter is contained within its own light blue rectangular block. The blocks are arranged in a single horizontal row, with the letters 'F', 'I', 'T', 'T', 'V', and 'P' from left to right. The letters are white and have a classic, slightly serifed appearance.

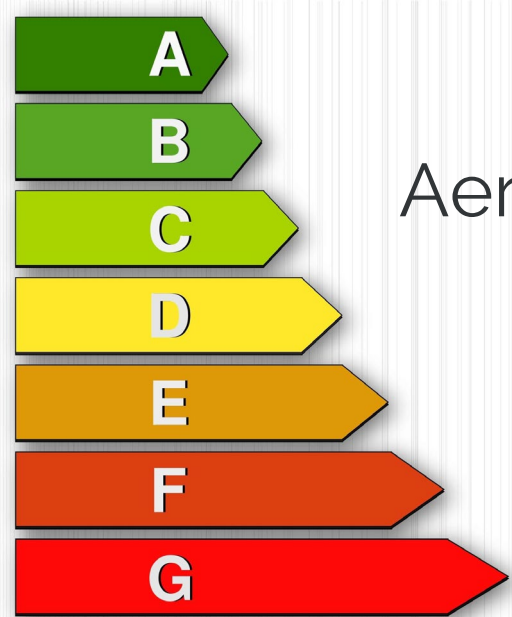
When prescribing physical activity, the FITT-VP model can provide a framework for guidance. The type of activity and the dose (volume) of activity have the greatest effect on the target disease/risk factor.

# Frequency



Number of sessions per week

# Type



Aerobic, strength, etc.

# Intensity

**Absolute Intensity**- Metabolic equivalents (METs- multiples of the metabolism at rest)

**Relative Intensity**- the intensity of a certain activity for a specific individual or strength using the 1 Rep Max method

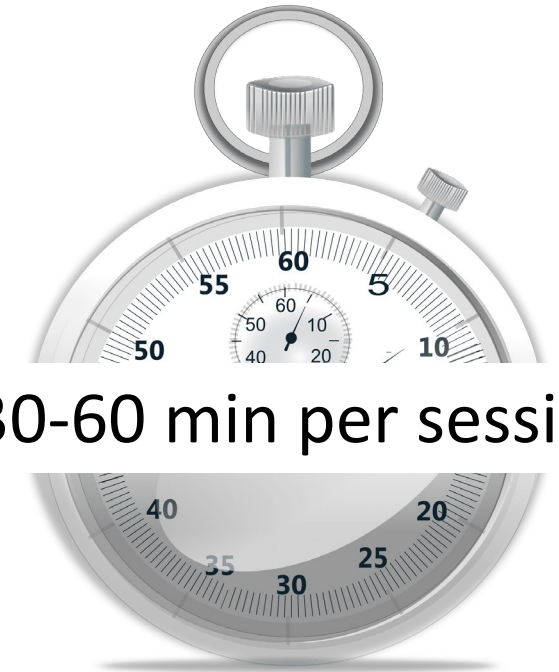
Intensity	% HR Max	RPE
Light	30-39%	<12
Moderate	40-59%	12-14
Vigorous	60-89%	15-18



# Volume

Intensity x Frequency x Duration

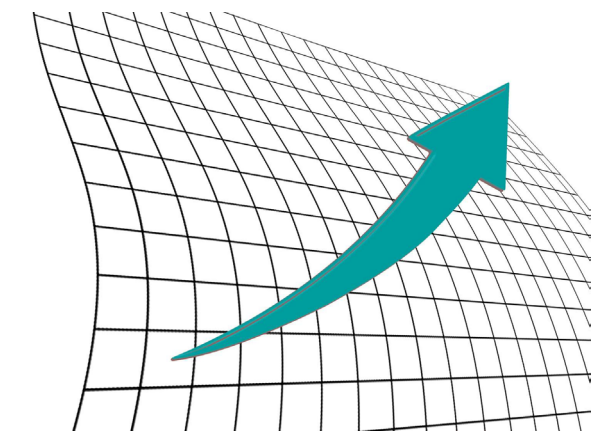
# Time



30-60 min per session

Duration of each activity or a combination of repetitions/sets/frequency per week, (activity dose)

# Progression



Increase duration and frequency before intensity

# Intensity

Based on Heart Rate Reserve (HRR),  $\text{VO}_2\text{R}$  or Threshold measurements

- Light: 30-39%
- \* Moderate: 40-59%
- Vigorous: 60-89%

* $\text{HR}_{\text{max}} = 220 - \text{age}$	Fox et al.
$\text{HR}_{\text{max}} = 216.6 - (0.84 \times \text{age})$	Astrand et al.
$\text{HR}_{\text{max}} = 208 - (0.7 \times \text{age})$	Gellish et al.
$\text{HR}_{\text{max}} = 206 - (0.88 \times \text{age})$	Gulati et al.

\* HRR method      Target Heart Rate =  $[\text{HR}_{\text{max}} - \text{HR}_{\text{rest}}] \times \text{desired intensity} + \text{HR}_{\text{rest}}$

- Exercise intensity can be underestimated or overestimated when using a heart rate-dependent method ( $\% \text{HR}_{\text{max}}$ ) or ( $\% \text{VO}_{2\text{max}}$ )
- Direct measurement of the physiologic responses to exercise through a graded CPET is preferred when possible



# Intensity

**“TALK TEST”:** A final check to avoid overexertion is to use the “talk test”. The exercise intensity is excessive if you cannot carry on a verbal conversation while exercising.

## Borg Rating of Perceived Exertion



Moderate exercise correlates with an RPE of 12 to 13 (somewhat hard), while vigorous exercise correlates with an RPE of 14 to 16 (hard). By adding a zero to the rating on the Borg RPE scale, one can estimate the corresponding HR in healthy young adults when performing activity at that perceived intensity. Thus, moderate exercise would correlate with a HR between 120 and 130 beats per minute.

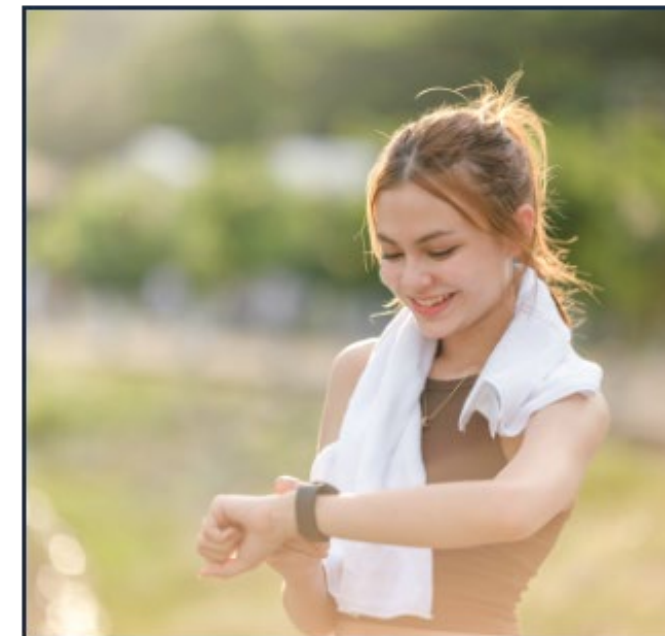
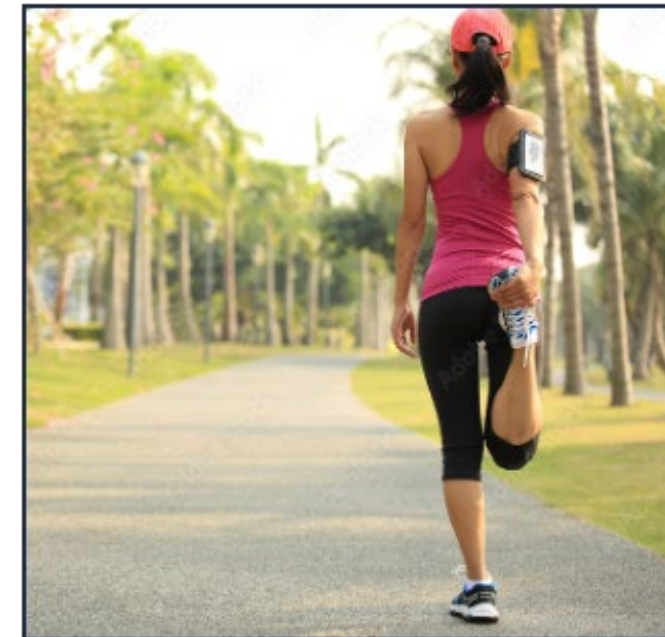
# Components of an Exercise Training Session

**Warm-up:** at least 5-10 minutes of light-moderate intensity cardiorespiratory and muscular endurance activities

**Conditioning:** at least 20-60 minutes of aerobic, resistance, neuromotor, and/or sports activities (10 minutes bouts can be effective)

**Cool-down:** at least 5-10 minutes of light-moderate intensity cardiorespiratory and muscular endurance activities

**Stretching:** at least 10 minutes of stretching exercises after warm-up or cool-down



# EVERY MOVE COUNTS

Being active has significant health benefits for hearts, bodies and minds, whether you're walking, wheeling or cycling, dancing, doing sport or playing with your kids.



On at least  
**2** days  
a week  
muscle  
strengthening  
activities

On at least  
**3** days  
a week  
multicomponent  
activities for  
balance and  
strength

more than  
**300**  
minutes  
PER  
WEEK

**150**  
to **300**  
minutes  
PER WEEK

**60**  
minutes  
PER DAY

PREGNANT &  
POSTPARTUM  
WOMEN

ADULTS &  
OLDER ADULTS

CHILDREN &  
ADOLESCENTS

ADULTS

OLDER ADULTS

EVERYONE WHO CAN



LIMIT  
sedentary time

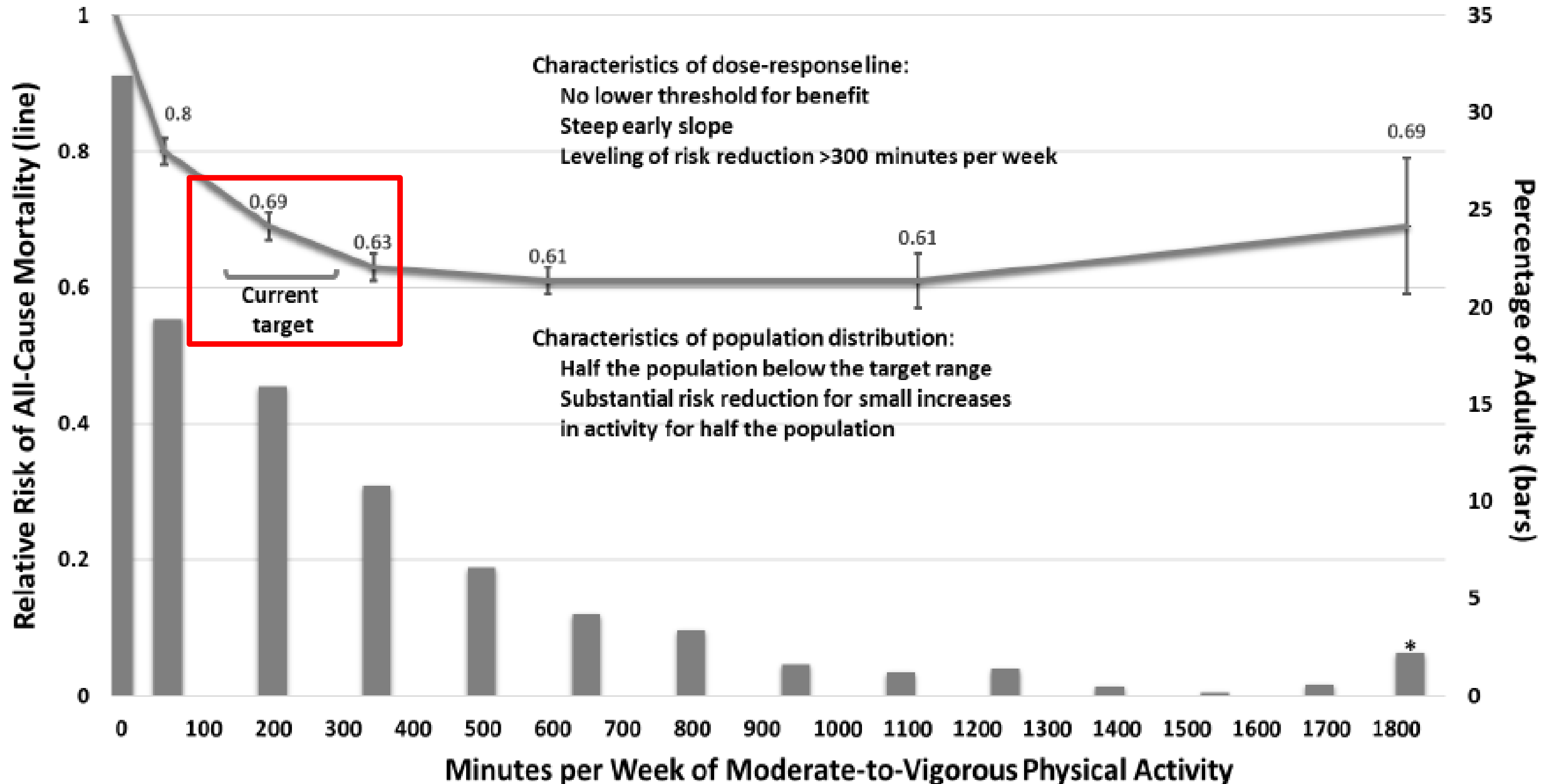


REPLACE  
with some  
physical activity



ANY  
IS BETTER  
THAN NONE

**Figure D-1. Risk of All-Cause Mortality and Self-Reported Physical Activity, by Minutes of Moderate-to-Vigorous Physical Activity per Week**



Note: \*Includes all adults reporting greater than 1800 minutes per week of moderate-to-vigorous physical activity.

Source: Adapted from data found in Arem et al., 2015<sup>2</sup> and National Center for Health Statistics, 2015.<sup>3</sup>

# Being Active When You Have Type 2 Diabetes

Exercise  
is Medicine

AMERICAN COLLEGE  
of SPORTS MEDICINE

Do you want to feel better, move better and sleep better? Experts now say that any physical activity counts toward better health – even just a few minutes! Being active is a great way to improve the way your body uses insulin and burn more calories to control your weight. Just one session of aerobic activity improves blood glucose (blood sugar) and insulin action up to 24 hours or longer!

## Getting Started

### Keep It Simple

Just sit less and move around more! Walk to the mailbox. Walk the dog. Dance in the kitchen. Take the stairs. Find opportunities to move throughout your day. It all adds up.



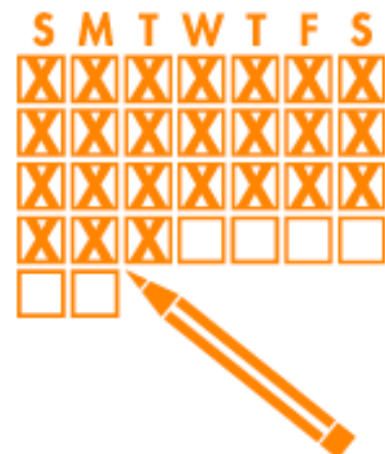
### Talk with Your Doctor

Talk to your health care provider before you start a new exercise program. Ask if you are on a diabetes drug that can cause low blood glucose or makes it hard to lose weight. Are there any exercises you should avoid?



### Build a Plan

Ask to meet with a certified diabetes educator (CDE) or members of the health care team who can go over your diet, exercise and diabetes care plan.



### Blood Glucose

Learn when you should check your blood glucose and what to do if the numbers are too low or too high. Know the signs of low blood glucose and what to do if it happens.



## Aerobic Activity



Aerobic activity increases your heart rate and breathing. Build up to doing at least 150 minutes/week of moderate intensity activity (like a brisk walk, light cycling or water exercise) to vigorous activity (like jogging, singles tennis or hiking hills). You'll improve the way your body stores and uses glucose, as well as your stamina and heart health.

### What?

Any rhythmic, continuous activity



### How often?

3-7 Days/week



### How hard?

Fairly light to somewhat hard



### How much?

Start w/a few minutes. Gradually build up to 30-60 minutes over the day.



**Remember:** Fit in 5 or 10 minutes here and there. Or go for 20-30 minutes. Be active however and wherever you can. To lose weight, do twice as much activity.

## Strength Training



Strength training is important for people with diabetes because it builds muscle. Muscle tissue plays a big role in managing blood glucose, and you don't have to be a body-builder! Plus, strength training can make daily activities like lifting laundry baskets or yardwork easier and safer.

### What?

Hand weights, resistance bands, weight machines, or your own body (for example, kitchen counter push-ups or chair squats)



### How often?

2-3 Days/week  
\*Rest day in between!



### How hard?

Start with light effort. Build up to medium or hard effort.



### How much?

10-15 repetitions to start (for each major muscle group) Build up to 8-10 reps of challenging effort.



**Remember:** If you need it, get help from a certified exercise professional. They can teach you the right way to do exercises and how to breathe properly.

**What is the most effective exercise mode for reducing resting blood pressure?**

## What is the most effective exercise mode for reducing resting blood pressure?

A. Aerobic

B. Resistance

C. High-Intensity Interval Training

D. Combined

E. Isometric

## What is the most effective exercise mode for reducing resting blood pressure?

A. Aerobic

0%

B. Resistance

0%

C. High-Intensity Interval Training

0%

D. Combined

0%

E. Isometric

0%



# Leaderboard

Nobody has responded yet.



# Infographic: Exercise Training and Resting Blood Pressure: A Large-scale Pairwise and Network Meta-analysis

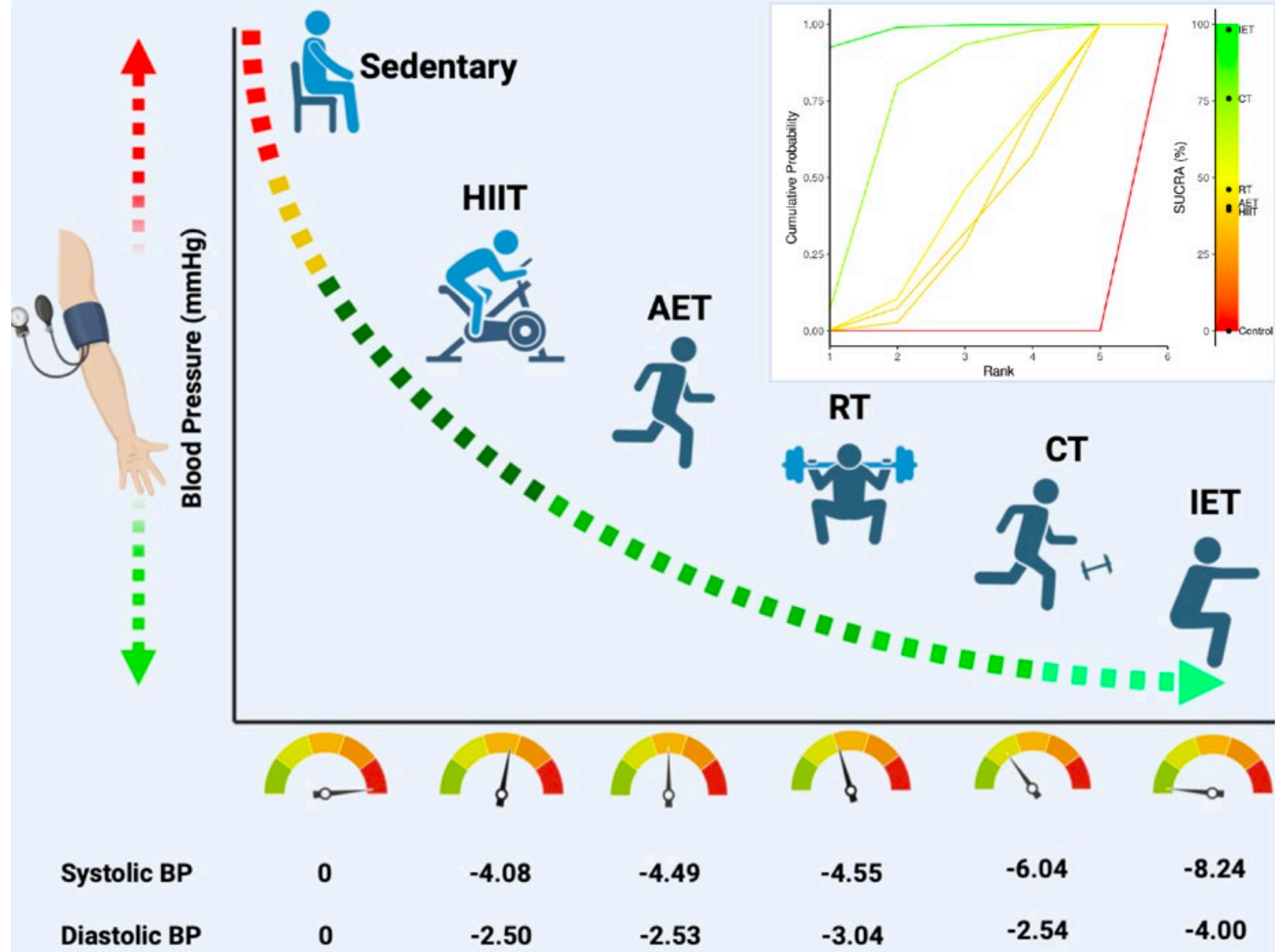


## of Randomised Controlled Trials



Edwards, J.J., Deenmamode, A.H.P., Griffiths, M., Arnold, O., Cooper, N., Wiles, J., & O'Driscoll, J.M.

### Exercise Mode and Blood Pressure Reductions



### Isometric Exercise Training

Hand Grip



Leg Extension



Wall Squat



### Conclusions

- 1 High intensity interval training (HIIT), aerobic exercise training (AET), dynamic resistance training (RT), combined training (CT), and isometric exercise training (IET) are all significantly effective in reducing resting BP.
- 2 Isometric exercise training is the most effective mode for reducing resting BP.
- 3 The findings of this analysis should inform future guideline recommendations.

Edwards, BJSM 2023

**UAB** THE UNIVERSITY OF  
ALABAMA AT BIRMINGHAM.

# Behavior Change

It's not just about the exercise prescription

# What is the Transtheoretical Model of Behavior Change?

## What is the Transtheoretical Model of Behavior Change?

A model that focuses on individual personality traits and their impact on behavior.

A model that highlights the influence of social and environmental factors on beha...

A model that identifies five distinct stages through which individuals progress du...

A model that supports gradual, ongoing adjustments to behavior patterns.

## What is the Transtheoretical Model of Behavior Change?

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A model that supports gradual, ongoing adjustments to behavior patterns.

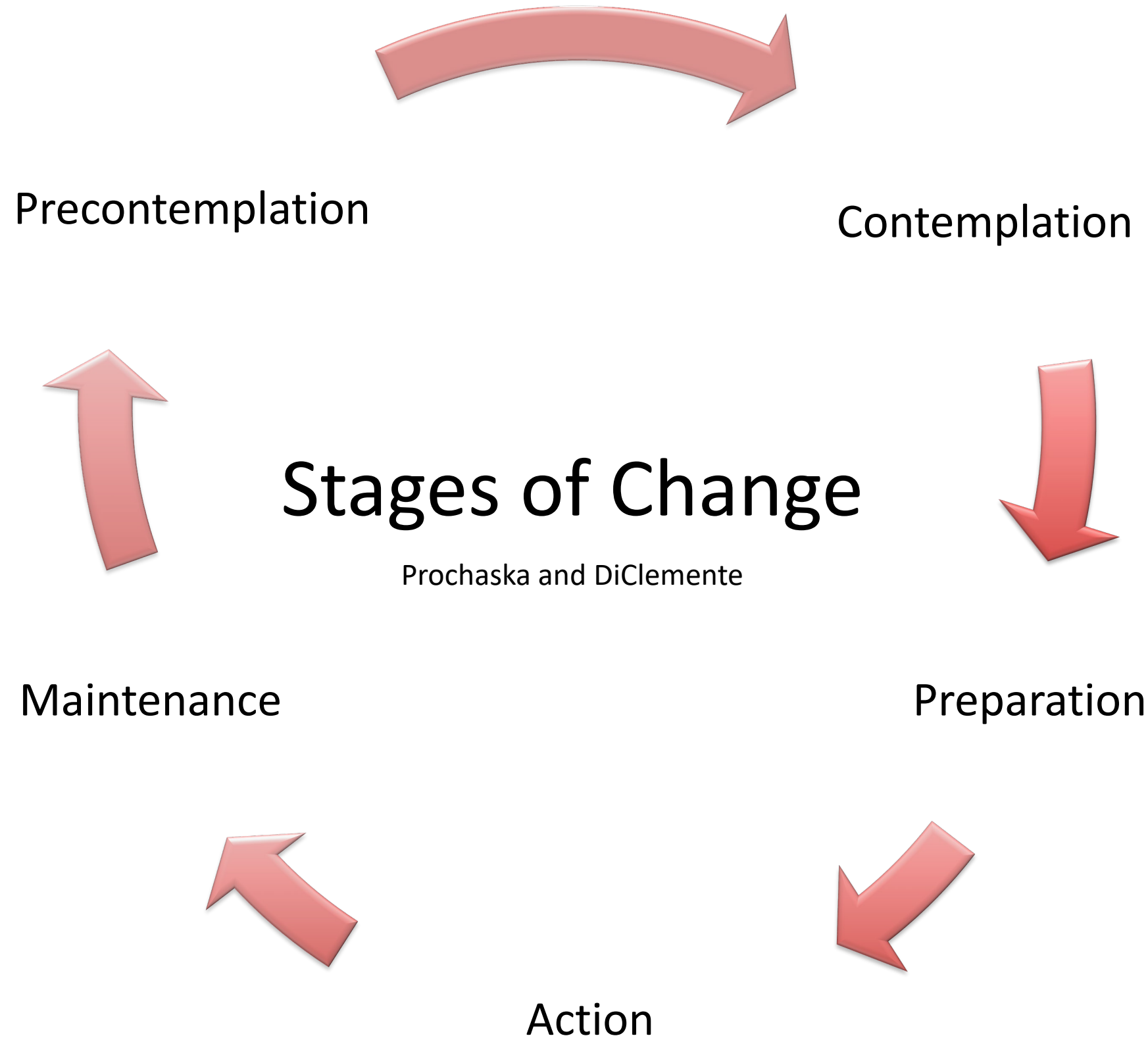
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# Leaderboard

Nobody has responded yet.



# Transtheoretical Model Of Behavior Change



Stage of Change Action Step		
<b>Precontemplation</b> (Patient has no intention to be physically active)	<ul style="list-style-type: none"> <li>• Discuss the health benefits of regular physical activity particularly related to that patient's unique health concerns and needs.</li> <li>• The individual is likely not ready to receive a physical activity prescription at this point.</li> </ul>	
	<b>Independent</b>	<b>Supervision Necessary</b>
<b>Contemplation</b> (Patient knows they should exercise and is thinking about becoming physically active)	Write prescription. Provide info. Refer to exercise professional.	Refer to clinical exercise pro, cardiac rehab or physical therapy as appropriate.
	<ul style="list-style-type: none"> <li>• Emphasize the pros and reducing the cons of being more physically active that are particularly relevant to the patient.</li> <li>• The individual may be receptive to receiving basic guidance on becoming more physically active.</li> </ul>	
<b>Preparation</b> (Patient is planning to become physically active in the near future)	Write prescription; refer to non-clinical exercise professionals.	Refer to clinical exercise pros, cardiac rehab or physical therapy as appropriate
	Applaud efforts. Encourage continued exercise.	Encourage continued supervised exercise training.
<b>Action</b> (Patient is meeting the physical activity guidelines but for less than 6 months)	Discuss relapse prevention strategies: planning ahead for challenges, getting back to activity after a lapse.	
	Applaud efforts. Encourage continued exercise.	Encourage continued supervised exercise.
<b>Maintenance</b> (Patient is meeting the physical activity guidelines for the last 6 months or more)	Encourage them to spend time with people with similar healthy behaviors; continue to engage in healthy activities to cope with stress.	
	Applaud efforts. Encourage continued exercise.	Encourage continued supervised exercise.



# Common Barriers to Exercise/Physical Activity

## Barriers

- Lack of motivation
- Time constraints
- Misconceptions about exercise

## Considerations

- Motivational interviewing
- Setting realistic goals
- Incorporating physical activity into daily routines

1 in 3 Primary Care Doctors Councseled Patients on Physical Activity

9 out of 10 patients say they would listen to advice

# Effectiveness of Physician Counseling



One person to reach PA guidelines through  
brief physician counselling  
1 in 12



Smoker to quit smoking:  
1 in 50–120

Stevens Z, et. Al [Prim Health Care Res Dev](#) 2014;15:190–201.

Orron G, et. Al. [BMJ](#) 2012;344:e1389.

**How does the Confidence Ruler technique, often used by physicians, assist in promoting behavior change in patients?**

## How does the Confidence Ruler technique, often used by physicians, assist in promoting behavior change in patients?

A. By measuring the patient's level of confidence in the physician's expertise.

B. By quantifying the patient's confidence in their ability to make specific behavior...

C. By assessing the physician's confidence in the patient's commitment to change.

E. By gauging the patient's comfort with discussing personal matters with the ph...

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0%

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0%

C. By assessing the physician's confidence in the patient's commitment to change.

0%

E. By gauging the patient's comfort with discussing personal matters with the physician.

0%

# Leaderboard

Nobody has responded yet.



Approach	Description	Examples
Ask evocative questions	Ask questions regarding: Disadvantages of the status quo Advantages of change Optimism of change Intention to change	"What do you think will happen if you don't change anything?" "What are some of the benefits of becoming more physically active?" "What changes would work best for you?" "What do you intend to do?"
The importance ruler	Ask simple questions to assess how important physical activity is to the person and what might make it more important	"On a scale of 1-10, how important is it for you to be physically active?" (After response) "Why do you believe that?" "What would it take for you to increase the importance of exercise?"
The confidence ruler	Ask simple questions to assess the person's confidence and what might increase his/her confidence in change	"How confident are you that you can engage in regular physical activity?" (After response) "What makes you feel that way?" "What would it take for you to feel more confident about this?"
Exploring pros and cons	Encourage the person to discuss the positive and negative aspects of his/her present behavior	"Are there things that you like about being physically inactive?" "Are there disadvantages of being physically inactive?"
Elaborate	When there are arguments for change, encourage the person to elaborate to reinforce change talk	"You said exercise might make you feel better. Can you tell me more about that?"
Query extremes	When there is little desire to change, encourage him/her to consider extreme consequences of not changing and best consequences of changing	"Suppose you continue on as you have, with no physical activity in your life. What do you imagine are the worst things that might happen to you?" "What might be the best results you could imagine if you make a change?"
Look back	Help the person remember a time in his/her life when he/she was physically active	"You mentioned that you used to walk regularly. What was that like?"
Look forward	Help the person envision a changed future	"If you don't like what you see in the future about yourself, how would you like things to be different?"
Explore values and goals	Ask the person to tell you what things are most important in his/her life and then ask if being inactive fits with this picture	"What in life is most important to you?" (After response) "Does being physically active or inactive matter to this?"



# What is the role of Medical Education?

Did you learn about this in medical school?

**The study, "Physical Activity Training in U.S. Medical Schools: Preparing Future Physicians to Engage in Primary Prevention", how many hours of required curriculum did students receive in physical activity counseling?**

The study, "Physical Activity Training in U.S. Medical Schools: Preparing Future Physicians to Engage in Primary Prevention", how many hours of required curriculum did students receive in physical activity counseling?

A. 0

B. 3

C. 8

D. 50

The study, "Physical Activity Training in U.S. Medical Schools: Preparing Future Physicians to Engage in Primary Prevention", how many hours of required curriculum did students receive in physical activity counseling?

A. 0

0%

B. 3

0%

C. 8

0%

D. 50

0%

# Leaderboard

Nobody has responded yet.



# Physical activity training in US medical schools: Preparing future physicians to engage in primary prevention

Mark Stoutenberg<sup>1</sup>, Selina Stasi<sup>2</sup>, Emmanuel Stamatakis<sup>3,4,5</sup>, Dagmara Danek<sup>6</sup>, Taylor Dufour<sup>7</sup>, Jennifer L. Trilk<sup>8</sup> and Steven N. Blair<sup>9</sup>

Table 2. Number of programs offering physical activity training as a required, elective or parallel component of their curriculum.

	Required (n)	Elective (n)	Parallel <sup>a</sup> (n)	Elective & parallel (n)	Required + elective/parallel (n)	Average # of hours/year <sup>b</sup>
Year 1	33	2	3	1	13	5.4
Year 2	23	3	3	3	8	4.5
Year 3	22	6	4	4	4	5.9
Year 4	7	15	4	4	1	1.8

<sup>a</sup>Includes all activities available to the students outside of their formal medical education, including lunch seminars and community programs such as health fairs.

<sup>b</sup>Refers to the sum of all required, elective and parallel training offered during each year of medical school.

8 hours  
required curriculum

# Analysis of American Medical Students' Knowledge of Physical Activity Recommendations

Candace A. Adedokun, BS | Wesley G. Curles, BS | Emily L. DeMaio, BSN | Irfan M. Asif, MD

PRIMER. 1;5:31.

**Table 2: Characteristics of PA Instruction by Respondent Class Year**

	First Year (N=480)	Second Year (N=368)	Third Year (N=268)	Fourth Year (N=107)
Total Hours (Average±SD)	4.31±7.02	3.54±8.04	2.96±9.28	1.01±3.27
<b>Mode of Instruction (%)</b>				
Didactics	71.7	42.5	14.0	4.8
Small group	35.8	25.0	8.10	2.1
Clinical experiences	18.3	12.1	24.6	8.8
OSCE/clinical examination	20.4	18.3	11.5	2.9
Case-based instruction	27.1	20	9.80	2.7
Motivational techniques	35.8	20	13.1	2.7

Abbreviations: PA, physical activity; OSCE, objective structured clinical examination.

~12 hours of medical student education devoted to physical activity instruction

# *Primary Care Resident Training for Obesity, Nutrition, and Physical Activity Counseling: A Mixed-Methods Study*

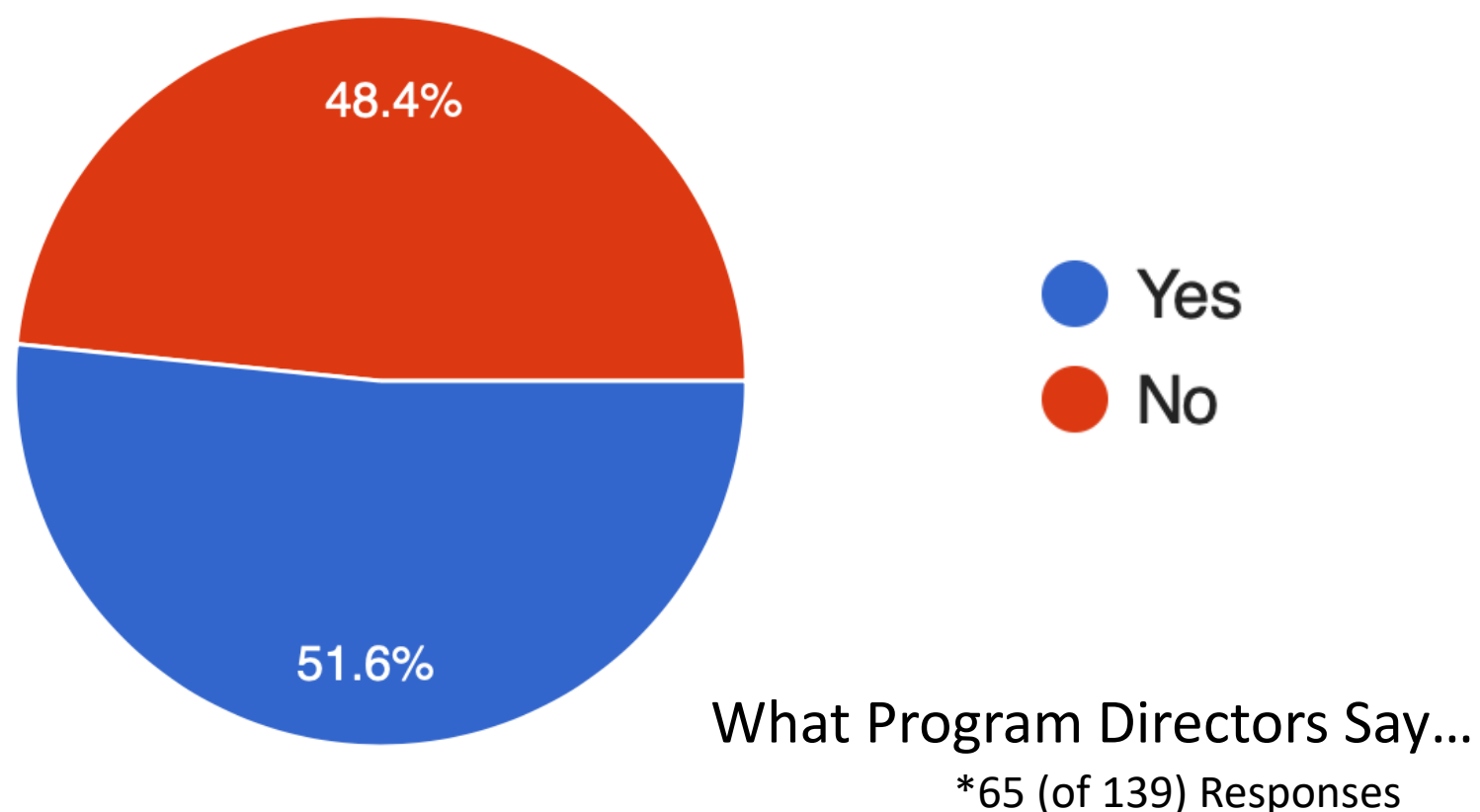
Training in obesity, nutrition, and physical activity guidelines, recommendations and counseling are limited

**3 hours of didactics per year**

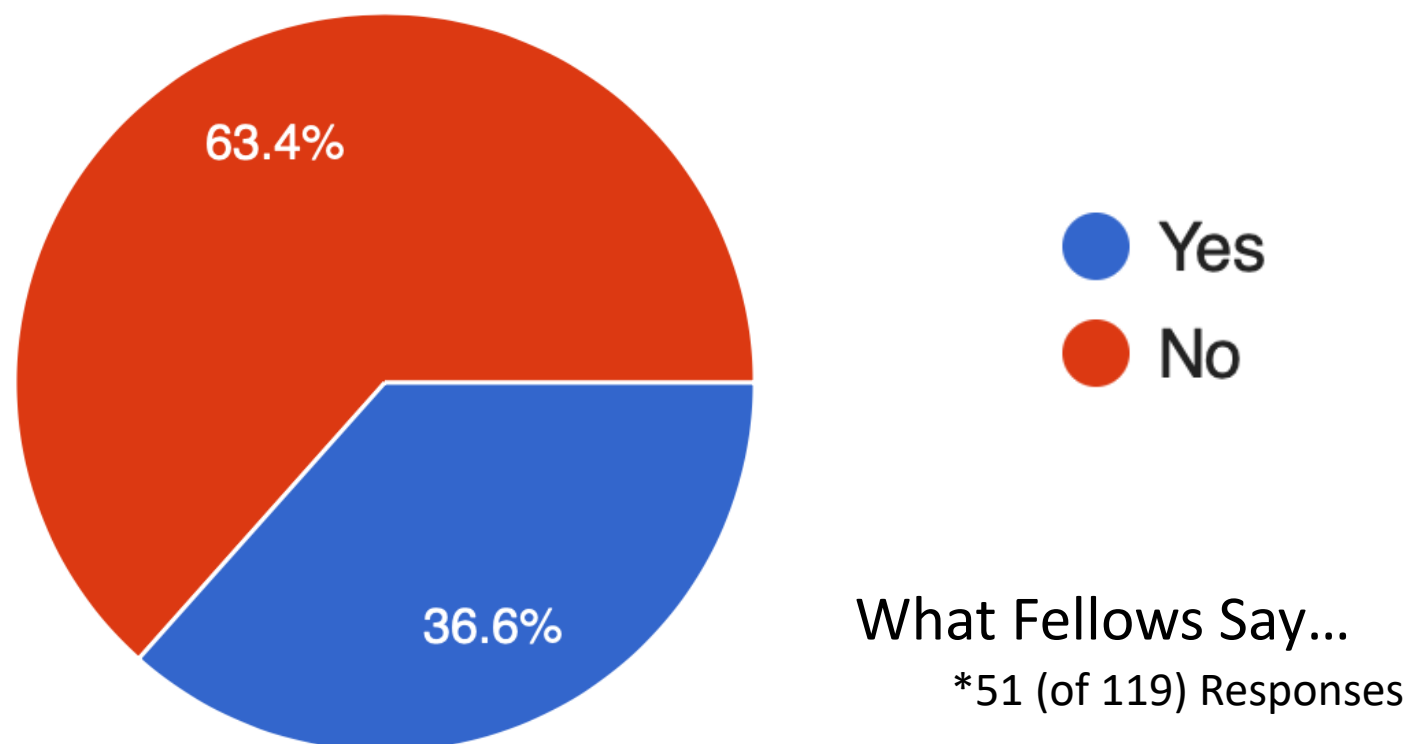
Common barriers: Time, Faculty Expertise, Insufficient Educational Material



# Do Your Fellows Write Exercise Prescriptions?



# Were You Taught How to Write Exercise Prescriptions During Your Fellowship Education?



## Sports and exercise medicine education in the USA: call to action

Irfan M Asif<sup>1</sup>, Jonathan A Drezner<sup>2</sup>

### WHERE IS PHYSICAL ACTIVITY IN THE US HEALTHCARE SYSTEM?

US healthcare has been ranked as both the costliest and the poorest quality<sup>1</sup> among high-income countries. Our traditional fee-for-service model clearly incentivises treatment of sickness and disease ahead of disease prevention. One of us (IA) works in Alabama, a prime example of a US state with poor health outcomes. Alabama is ranked 48th out of 50 states for overall health, 45th in the proportion of people who meet physical activity guidelines, 49th in cardiovascular health and 44th in mental health, and is among the five worst states for obesity and in the top three for increasing prevalence of diabetes.<sup>2</sup>

To address the challenge of poor health outcomes, the US healthcare system has begun moving towards a value-based reimbursement system with the passage of the Affordable Care Act, which aims to lower costs and improve quality. Since 80% of diseases (eg, hypertension, heart disease, type 2 diabetes, obesity, multiple cancers and osteoporosis) in the USA are related to poor lifestyles,<sup>3</sup> the promotion of physical activity and healthy eating are low-cost measures that could significantly impact quality outcomes. Given the unquestionable health benefits of regular physical activity, sports medicine physicians are well positioned to lead healthcare systems during a transformation towards healthier lifestyles and disease prevention. However, have we as sports medicine physicians been adequately prepared?

### PHYSICAL ACTIVITY TRAINING WITHIN THE US MEDICAL SYSTEM: A GLARING DEFICIENCY

We argue that the current US medical educational system woefully underprepares clinicians to adequately prescribe or motivate patients to exercise. The average US medical school spends only 8 hours of required curriculum on physical activity during the 4 years of training.<sup>4</sup> Similarly, the average

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primary care residency programme offers only 3 hours/year of didactic training on physical activity, nutrition and obesity.<sup>5</sup>

Does fellowship offer learners advanced education in exercise medicine? Unfortunately, no. Despite the term 'exercise' being used 22 times in the most recent American sports medicine fellowship accreditation (ACGME) document, the majority of fellowships offer no training in exercise prescriptions.<sup>6</sup> In preparation for the 2019 American Medical Society for Sports Medicine (AMSSM) Annual Meeting, US sports medicine fellowship directors and sports medicine fellows were surveyed to understand exercise curricula within fellowship education (unpublished). Forty-eight percent (65/139) of responding directors stated that their fellows did not write exercise prescriptions, and 41% indicated that their fellows were not trained on how to motivate their patients to exercise. Similarly, 63% (51/119) of responding sports medicine fellows reported that they were not taught how to write exercise prescriptions, and 44% were not taught the principles of behaviour change to motivate patients to exercise. We recognise that some physicians may receive training in exercise medicine after fellowship, and thus, a study of practising physicians would further inform the need for curricular changes. Nevertheless, there appears to be a scarcity of formal training devoted to exercise medicine in our current educational system.

Research within the field of exercise medicine in the USA also suffers. For instance, there have been 40 grant awards given by the AMSSM Foundation within the past 10 years, but only 1 (2.5%) has been related to exercise (Exercise in Pregnancy). Additionally, 190 research projects were presented at the 2019 AMSSM Annual Meeting, and only 2 (1%) were related to exercise. Without meaningful education, research and innovation in the field, US sports medicine will remain deficient in exercise medicine.

### EDUCATION AND RESEARCH IN SPORTS AND EXERCISE MEDICINE: CALL TO ACTION

An initial step toward implementation of exercise medicine into everyday clinical practice occurred with the development of the physical activity vital sign. The goal of this tool is to recognise inadequate levels

of physical activity, encourage patients to adopt a healthy lifestyle for improved health outcomes and refer patients to programmes that can augment behaviour change. The underlying premise, however, is that providers comprehend the therapeutic value of physical activity, understand current guidelines, can motivate patients who may be willing and can competently discuss physical activity prescriptions within different disease states. Presently, clinical models for practising exercise medicine are limited, which minimises the opportunity for fellows (and other learners) to acquire appropriate exercise medicine skills beyond the minimal didactic education currently provided.

We propose the following three-point call to action to create meaningful change in sports and exercise medicine in the USA:

1. Develop and implement physical activity/exercise medicine education curricula in medical school, residency training and sports medicine fellowships.
2. Foster and conduct research to identify clinical models that promote physical activity in practice and positively impact health outcomes in patients.
3. Define and expand local, regional and national partnerships that cultivate community resources to promote physical activity/exercise medicine, especially for under-represented minority and medically underserved populations.

The WHO aims to reduce global physical inactivity by 10% by 2025. However, efforts to achieve this goal face many challenges. One major consideration is the lack of a healthcare discipline that fully embraces the charge to promote physical activity in both individual patients and the population at large. With the three-point call to action, we can and should be a leading discipline that tackles larger healthcare issues in the USA through the promotion of physical activity. With this accomplished, the foundation may be in place to finally call ourselves sports and exercise medicine physicians.

**Twitter** Jonathan A Drezner @DreznerJon

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# Summit Goals

1. Clinical models that best promote exercise medicine and physical activity promotion
2. Medical education related to exercise medicine and physical activity promotion



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## Exercise medicine and physical activity promotion: core curricula for US medical schools, residencies and sports medicine fellowships: developed by the American Medical Society for Sports Medicine and endorsed by the Canadian Academy of Sport and Exercise Medicine

Irfan Asif <sup>1</sup>, Jane S Thornton <sup>2</sup>, Stephen Carek <sup>3</sup>, Christopher Miles <sup>4</sup>, Melissa Nayak <sup>5</sup>, Melissa Novak <sup>6</sup>, Mark Stovak <sup>7</sup>, Jason L Zaremski <sup>8</sup>, Jonathan Drezner <sup>9</sup>

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### ABSTRACT

Regular physical activity provides a variety of health benefits and is proven to treat and prevent several non-communicable diseases. Specifically, physical activity enhances muscular and osseous strength, improves cardiorespiratory fitness, and reduces the risk of hypertension, coronary heart disease, stroke, type 2 diabetes, mental health disorders, cognitive decline and several cancers. Despite these well-known benefits, physical activity promotion in clinical practice is underused due to insufficient training during medical education. Medical trainees in the USA receive relatively few hours of instruction in sports and exercise medicine (SEM). One reason for this shortage of instruction is a lack of curricular resources at each level of medical education. To address this need, the American Medical Society for Sports Medicine (AMSSM) assembled a group of SEM experts to develop curricular guidance for exercise medicine and physical activity promotion at the medical school, residency and sports medicine fellowship levels of training. After an evidence review of existing curricular examples, we performed a modified Delphi process to create curricula for medical students, residents and sports medicine fellows. Three training level-specific curricula emerged, each containing Domains, General Learning Areas, and Specific Learning Areas: options for

interventions for the treatment and prevention of non-communicable diseases is physical activity and exercise. Despite the proven benefits of regular physical activity on cardiometabolic parameters, mental health and cognition, many medical professionals feel ill equipped to counsel patients on appropriate lifestyle behaviours centred on physical activity.<sup>2</sup> This is partly due to training deficiencies during medical education.<sup>3-6</sup> For instance, the average that American medical schools require is only 8 hours of curriculum on physical activity over the 4 years of training.<sup>7</sup> Similarly, the average offered by primary care residency programmes was only 3 hours per year of didactic training on physical activity, nutrition and obesity, while a survey of American sports medicine fellowship directors found that 63% of fellows were not taught how to write an exercise prescription.<sup>2,8</sup> Without fundamental knowledge in exercise medicine and proper training on how to promote physical activity in clinical practice, use of this low-cost, evidence-based intervention for the prevention and treatment of chronic diseases will remain limited. Additionally, because physical inactivity and several associated non-communicable diseases disproportionately affect marginalised communities including

### Modified Delphi Process Followed by Intensive Review

- EM-PAP Educational Team
- EM-PAP Clinical Team
- Fellowship Directors
- Diversity, Equity, Inclusion Team
- AMSSM Board of Directors



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# Curricula for Medical Student, Resident, and Fellowship Education

Medical Knowledge

Practical Elements

Optional Content

Assessment of Performance

3. Exercise Medicine and Physical Activity Promotion in Clinical Practice	3.1 Experience writing exercise prescriptions during patient encounters	3.1.1 Assess physical activity levels during ambulatory patient encounters 3.1.2 Write exercise prescriptions as part of ambulatory clinical rotations
	3.2 Promote community engagement	3.2.1 Learn social and economic barriers to physical activity 3.2.2 Identify community resources available for patients to engage in physical activity
<b>Practical Elements</b> <ul style="list-style-type: none"> <li>Assess physical activity levels and write exercise prescriptions for 5 patients as part of an ambulatory clinical rotation (e.g., Family Medicine Clerkship)</li> <li>Assess physical activity levels and write exercise prescriptions for 10 patients as part of an ambulatory acting internship/sub-internship</li> <li>Identify community and home-based resources available for patients to engage in physical activity</li> <li>Participate in a local fitness event (charity run/walk, group fitness class, etc.)</li> </ul>		
<b>Optional Content for Fellow Training Enhancement in EM-PAP</b> For fellows who desire more education in EM-PAP: <ul style="list-style-type: none"> <li>Participate in a scholarly project related to EM-PAP</li> <li>Create a Quality Improvement (QI) Initiative related to EM-PAP</li> <li>Participate in journal clubs related to EM-PAP</li> <li>Present and discuss the benefits of exercise and physical activity with a community group</li> <li>Serve as a longitudinal health coach, with a focus on exercise and physical activity, for a core panel of patients with chronic disease while tracking their physical activity and disease outcomes</li> </ul>		
<b>Assessment and Evaluation of Student Performance in EM-PAP</b> Examples of student assessment: <ul style="list-style-type: none"> <li>Using a standardized checklist, (possibly in an Observed Structured Clinical Examination - OSCE) observe a student counselling a patient on exercise/physical activity</li> <li>Using a standardized checklist, (possibly in an OSCE) review a written exercise prescription from a patient encounter</li> <li>Administer a short answer or essay exam to assess student learning of curriculum content</li> <li>Review a written description of what the student would do in response to a presented case to assess student learning</li> </ul>		

## Consensus statement

Exercise medicine and physical activity promotion: core curricula for US medical schools, residencies and sports medicine fellowships: developed by the American Medical Society for Sports Medicine and endorsed by the Canadian Academy of Sport and Exercise Medicine

Irfan Asif <sup>1</sup>, Jane S Thornton <sup>2</sup>, Stephen Carek <sup>3</sup>, Christopher Miles <sup>4</sup>, Melissa Nayak <sup>5</sup>, Melissa Novak <sup>6</sup>, Mark Stovak <sup>7</sup>, Jason L Zaremski <sup>8</sup>, Jonathan Drezner <sup>9</sup>

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### ABSTRACT

Regular physical activity provides a variety of health benefits and is proven to treat and prevent several non-communicable diseases. Specifically, physical activity enhances muscular and osseous strength, improves cardiorespiratory fitness, and reduces the risk of hypertension, coronary heart disease, stroke, type 2 diabetes, mental health disorders, cognitive decline and several cancers. Despite these well-known benefits, physical activity promotion in clinical practice is underused due to insufficient training during medical education. Medical trainees in the USA receive relatively few hours of instruction in sports and exercise medicine (SEM). One reason for this shortage of instruction is a lack of curricular resources at each level of medical education. To address this need, the American Medical Society for Sports Medicine (AMSSM) assembled a group of SEM experts to develop curricular guidance for exercise medicine and physical activity promotion at the medical school, residency and sports medicine fellowship levels of training. After an evidence review of existing curricular examples, we performed a modified Delphi process to create curricula for medical students, residents and sports medicine fellows. Three training level-specific curricula emerged, each containing Domains, General Learning Areas, and Specific Learning Areas; options for additional training and suggestions for assessment and evaluation were also provided. Review and comment on the initial curricula were conducted by three groups: a second set of experts in exercise medicine and physical activity promotion, sports medicine fellowship directors representing a variety of fellowship settings and the AMSSM Board of Directors. The final curricula for each training level were prepared based on input from the review groups. We believe enhanced medical education will enable clinicians to better integrate exercise medicine and physical activity promotion in their clinical practice and result in healthier, more physically active patients.

interventions for the treatment and prevention of non-communicable diseases is physical activity and exercise. Despite the proven benefits of regular physical activity on cardiometabolic parameters, mental health and cognition, many medical professionals feel ill equipped to counsel patients on appropriate lifestyle behaviours centred on physical activity.<sup>1</sup> This is partly due to training deficiencies during medical education.<sup>2-6</sup> For instance, the average that American medical schools require is only 8 hours of curriculum on physical activity over the 4 years of training.<sup>7</sup> Similarly, the average offered by primary care residency programmes was only 3 hours per year of didactic training on physical activity, nutrition and obesity, while a survey of American sports medicine fellowship directors found that 63% of fellows were not taught how to write an exercise prescription.<sup>2, 8</sup> Without fundamental knowledge in exercise medicine and proper training on how to promote physical activity in clinical practice, use of this low-cost, evidence-based intervention for the prevention and treatment of chronic diseases will remain limited. Additionally, because physical inactivity and several associated non-communicable diseases disproportionately affect marginalised communities including under-represented minorities and persons of colour, there is an urgent need for broader education and implementation of physical activity promotion to foster equitable healthcare delivery.<sup>9-11</sup>

To address this training deficiency in medical education, the American Medical Society for Sports Medicine (AMSSM) assembled a group of experts in sports and exercise medicine (SEM) education to design a series of curricula in exercise medicine and physical activity promotion (EM-PAP) to be implemented at the medical school, residency and sports medicine fellowship levels. The curricula have a particular focus on the promotion of physical activity in clinical practice and include components related to medical knowledge and experiential training. By developing this resource, we hope to enable medical schools and specialty training programmes to deliver high-quality education in the field of EM-PAP.

Check for updates

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### INTRODUCTION

Up to 80% of diseases in the USA are due to lifestyle behaviours.<sup>1</sup> One of the most effective

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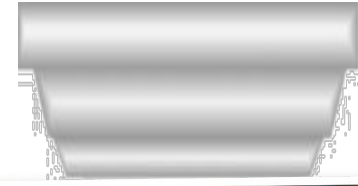
Asif I, et al. *Br J Sports Med* 2022;0:1-7. doi:10.1136/bjsports-2021-104819

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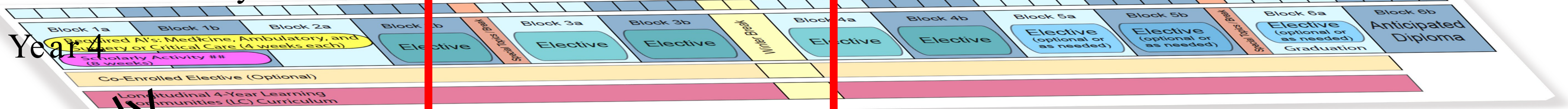
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# Medical School Curriculum Schematic

Exercise Medicine and Physical Activity Promotion

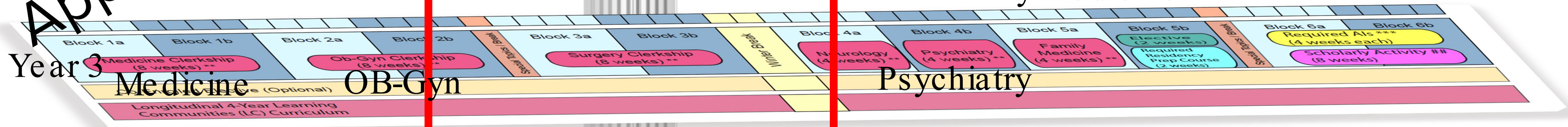


Ambulatory AI



Apply

Family Medicine



Year 3

Reproductive



Year 2

Learn

Pulmonary

Renal



Year 1

# Residency Training: Part of a Broader Lifestyle Medicine Curriculum



PHYSICAL ACTIVITY



NUTRITION



MINDFULNESS



SLEEP

# Residency Training: Part of a Broader Lifestyle Medicine Curriculum

**Table 2** Residency education curriculum

Domain	General learning areas	Specific learning areas
1. Healthy Behaviours	1.1 Identify the role of physical activity, nutrition, mental health, sleep, and reduction of substance use in health promotion and disease prevention.	1.1.1 Examine how physical activity—as part of a broader curriculum focused on healthy behaviours—can be used to prevent/treat common diseases encountered within a residency, across disciplines/specialties. 1.1.2 Demonstrate motivational interviewing techniques that could be used to promote healthy behaviours. 1.1.3 Demonstrate ways to work with patients who disagree or cannot complete recommendations.
<b>Practical elements</b> Use motivational interviewing techniques to promote healthy behaviours with 10 patients		
2. Exercise Medicine and Physical Activity Promotion in Clinical Practice	2.1 Practice physical activity promotion and exercise counselling during patient encounters.  2.2 Promote individual and community engagement.	2.1.1 If needed, review the Medical School Curriculum in Exercise Medicine and Physical Activity Promotion, including disease-specific exercise recommendations and motivational interviewing best practices in the clinical setting. 2.1.2 Implement routine assessment of physical activity levels of patients during ambulatory clinical patient encounters. 2.1.3 Implement routinely writing exercise prescriptions during ambulatory clinical patient encounters. 2.1.4 Classify the billing and coding mechanisms for physical activity promotion and exercise counselling. 2.2.1 Interpret general barriers (including social and economic) to physical activity that are specific to an individual. 2.2.2 Describe general barriers (including the built environment, traffic, pollution, and climate) to physical activity that are specific to a community. 2.2.3 Organise community resources available for patients to engage in physical activity. 2.2.4 Examine the bias (implicit or explicit) that can affect one's ability to counsel patients.
<b>Practical elements</b> <ul style="list-style-type: none"> <li>▶ As part of a longitudinal experience in residency, write 30 exercise prescriptions (adults and/or children), including both aerobic exercise, resistance training, balance and flexibility, with disease-specific recommendations when indicated.</li> <li>▶ Over the course of residency education, record and then view five clinical encounters of physical activity promotion in 1-to-1 and/or group sessions and examine opportunities for improving content delivery and patient comprehension.</li> <li>▶ Examine physical activity log for 30 patients (approximately 10 per year).</li> <li>▶ Perform 10 chart audits with a medical coding specialist of patients receiving exercise counselling.</li> <li>▶ As part of a quality improvement initiative, examine the effect of physical activity on one prioritised quality measure (eg, blood pressure, blood sugar, body mass index, depression) within the home institution.</li> <li>▶ Locate at least five different types of accessible resources (eg, community partners, online videos) that can be used to assist physical activity promotion for patients or a community.</li> <li>▶ Identify at least one funding source to assist patients in need of financial assistance to undertake a physical activity programme.</li> <li>▶ Serve as a medical volunteer for a community event focused on physical activity (eg, 5 k run).</li> </ul>		
3. Self-care with physical activity	3.1 Understand that self-care can enhance well-being, minimise burnout, and improve effectiveness of patient counselling	3.1.1 Demonstrate how to develop a personal wellness plan
<b>Practical elements</b> <ul style="list-style-type: none"> <li>▶ Create a personal wellness plan with Specific, Measurable, Attainable, Relevant and Time-Based goals that are adopted for at least 1 month, with reviews and modifications every 7 days as needed</li> <li>▶ Participate in local fitness event (eg, charity run/walk, group fitness class).</li> </ul>		

1. Promotion of healthy behaviors
2. Clinical and community settings
3. Self-care

# Exercise Medicine and Physical Activity Promotion Online Modules



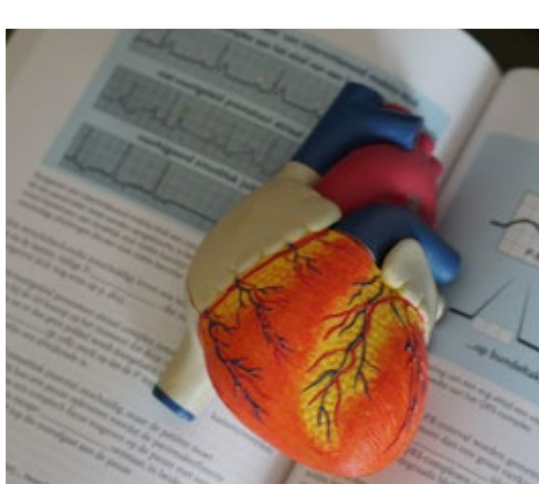
**Exercise & Behavior Change**



**Exercise in Clinical Practice**



**Exercise Nutrition**



**Exercise Physiology**



**Exercise Prescription**



**Exercise Testing**



**Exercise Training**



**Population Health**

[Tinyurl.com/ExerciseModules](https://Tinyurl.com/ExerciseModules)

Free Modules







**Exercise & Behavior Change**



**Exercise in Clinical Practice**



**Exercise Nutrition**



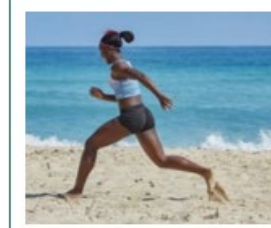
**Exercise Physiology**



**Exercise Prescription**



**Exercise Testing**



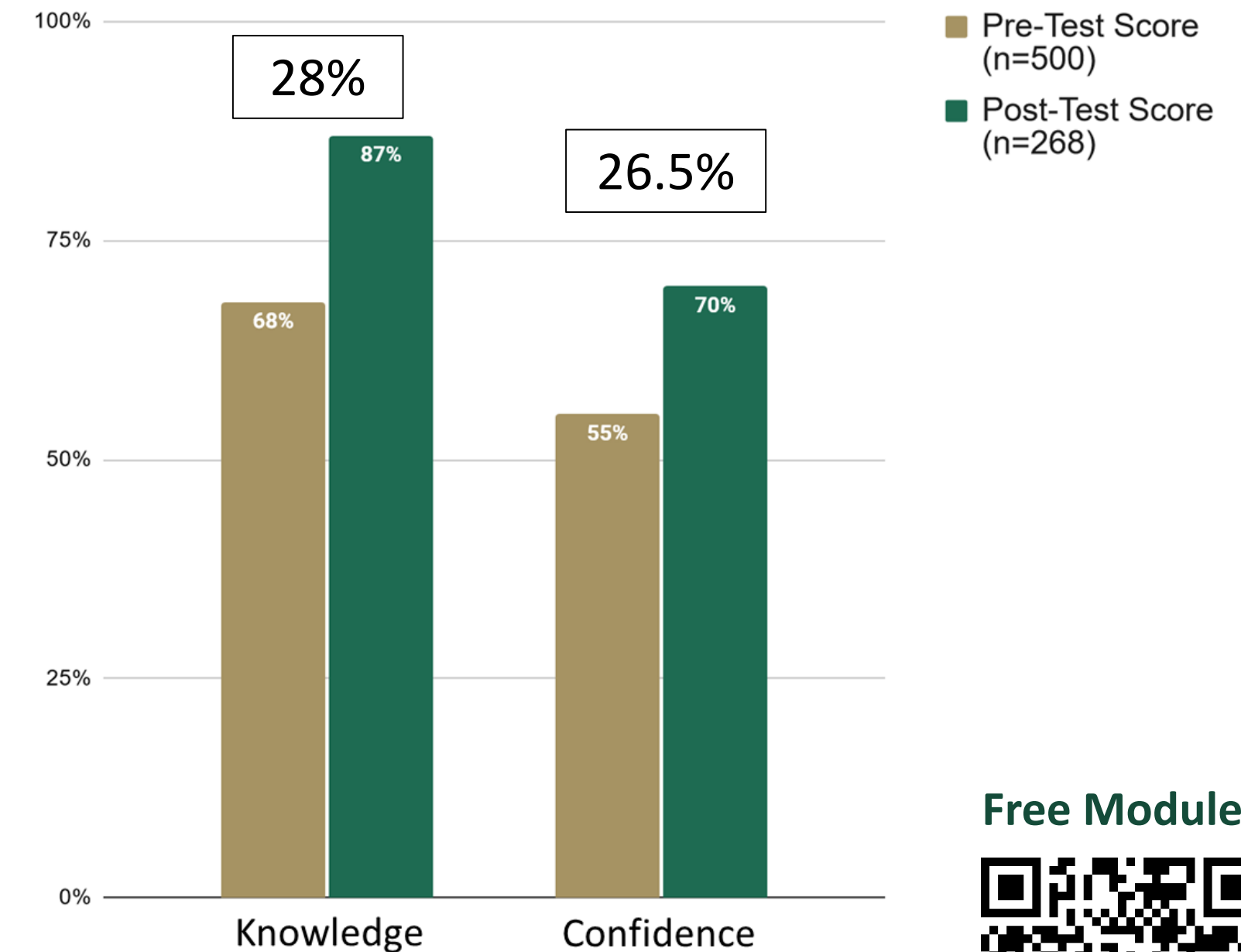
**Exercise Training**



**Population Health**



## Average Change in Knowledge and Confidence



[Tinyurl.com/exercisemodules](https://Tinyurl.com/exercisemodules)

Free Modules



# What does SBIRT in healthcare stand for?

## What does SBIRT in healthcare stand for?

A. Standardized Behavioral Interventions for Recovery and Treatment

B. Substance-Based Information and Reporting Tool

C. Screening, Brief Intervention, and Referral to Treatment

D. Structured Behavioral Insights and Rehabilitation Techniques

E. Systematic Behavioral Integration for Rehabilitation and Therapy

## What does SBIRT in healthcare stand for?

- A. Standardized Behavioral Interventions for Recovery and Treatment  
0%
- B. Substance-Based Information and Reporting Tool  
0%
- C. Screening, Brief Intervention, and Referral to Treatment  
0%
- D. Structured Behavioral Insights and Rehabilitation Techniques  
0%
- E. Systematic Behavioral Integration for Rehabilitation and Therapy  
0%

# Leaderboard

Nobody has responded yet.



- Increasing physical activity levels can prevent or treat chronic diseases
- Knowing a patient's physical activity level may lead to better behavioral interventions to improve outcomes

**Exercise  
is Medicine**<sup>®</sup>  
Alabama

**AMERICAN COLLEGE  
of SPORTS MEDICINE**<sup>®</sup>

**UAB MEDICINE**  
Knowledge that will change your world



**Memorandum of Understanding  
between YMCA of Greater Birmingham  
and the American College of Sports Medicine**

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This Memorandum of Understanding (the "Agreement") is entered into this 8th day of March, 2019 (the "Effective Date"), by and between the American College of Sports Medicine ("ACSM"), an Indiana (USA) nonprofit corporation with its principle place of business at 401 W. Michigan Street, Indianapolis, IN 46202 (USA) and YMCA of Greater Birmingham ("Community Fitness Partner"), with its principle place of business at 2101 4<sup>th</sup> Avenue North, Birmingham, AL 35203.

# Screening, Brief Intervention, and Referral to Treatment (SBIRT)

## A 3-Step Framework for Increasing Physical Activity

**Exercise Is Medicine - Community Referral, AMB**

Referral Date/Time: 04/13/2022 1622 CDT

**Patient Information**

Patient Name: BLUE MARK ONE HSISTEST

Patient Phone And Email: Segoe UI 9  
Primary: (205) 887-8888  
Work: (205) 841-9200  
Other:  
e-mail: BLUEHSISTEST@YAHOO.COM

**Community Referral For Exercise Program**

**Reason For Referral**

- Diabetes
- Elevated cholesterol
- Hypertension
- Improve flexibility
- Mobility issues
- Weight reduction
- Other:

Referral Comments: [Text Area]

Referring Provider: [Text Field]

**Current Physical Activity Level**

How many days a week of moderate to strenuous exercise (like a brisk walk)?

<input type="radio"/> 0	<input type="radio"/> 4
<input type="radio"/> 1	<input type="radio"/> 5
<input type="radio"/> 2	<input type="radio"/> 6
<input type="radio"/> 3	<input type="radio"/> 7

On average, how many minutes do you exercise per day?

<input type="radio"/> 0	<input type="radio"/> 40	<input type="radio"/> 80
<input type="radio"/> 10	<input type="radio"/> 50	<input type="radio"/> 90
<input type="radio"/> 20	<input type="radio"/> 60	<input type="radio"/> 120
<input type="radio"/> 30	<input type="radio"/> 70	<input type="radio"/> 150

Total Minutes Of Exercise Per Week: [Text Field]

- 1. Screening**
  - Physical Activity Vital Sign
- 2. Brief Intervention**
  - Provider Counseling
- 3. Referral to Treatment**
  - Community fitness facilities

# Exercise is Medicine Referral: Communication

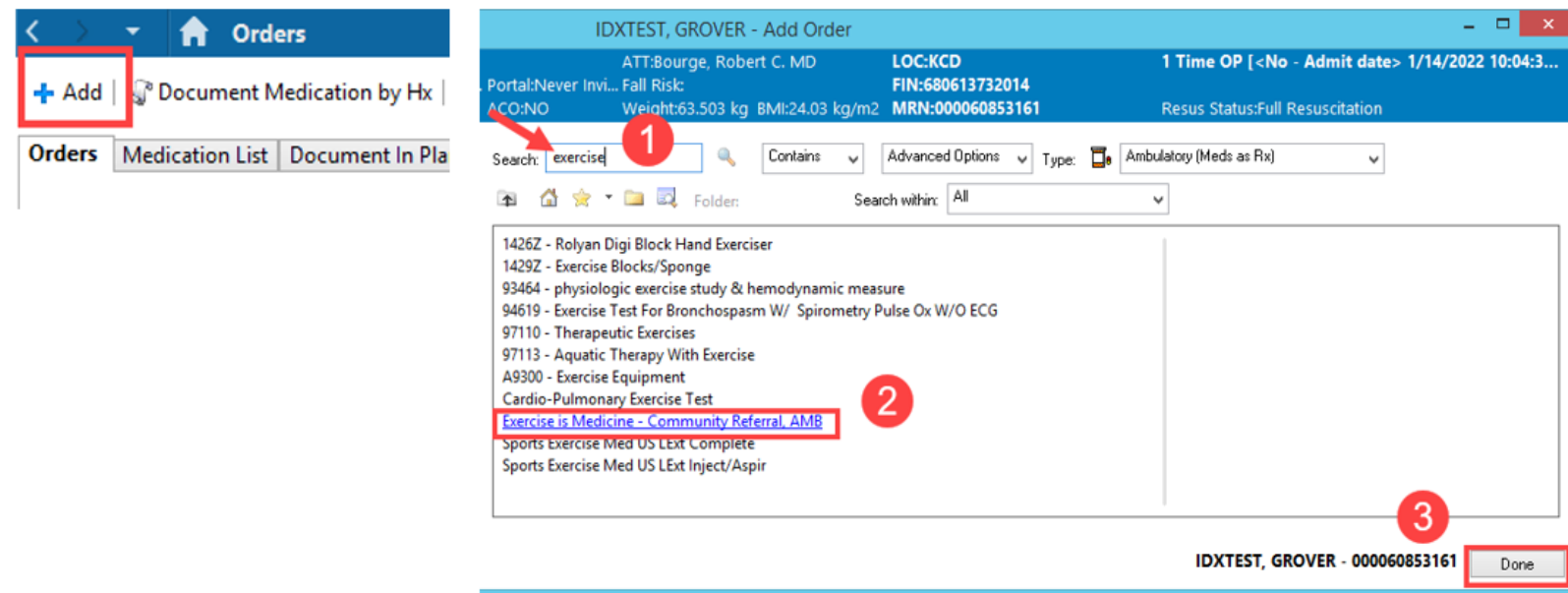
## Exercise is Medicine Order/Referral

What? Custom order for Exercise is Medicine - Community Referrals

Why? Customize data fields to provide more meaningful information to Community Partners  
Improve reporting capabilities

How? Place the new "Exercise is Medicine - Community Referral, AMB" order. Staff then attach the completed form, which is generated from the order, to the direct message sent to the Community Partner.

### PROVIDER WORKFLOW: Place order



Complete form: automatically launches, select green checkmark when done.

- **Community partners receive referral (electronically)**
  - Community partner contacts patient directly
  - Intake process for program, expectations or limitations
  - Membership and locations reviewed
- **Direct/Secure messaging:**
  - Establish HIPAA compliant email with each community partner
- **Reconciliation reports weekly & monthly**
  - Internal reports: Reconcile orders and secure email communications
  - External reports: Reconcile with community partner in summary reports

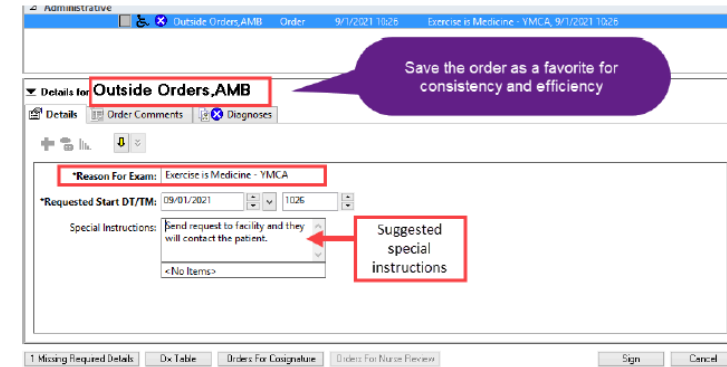


# Education on Clinical Workflow

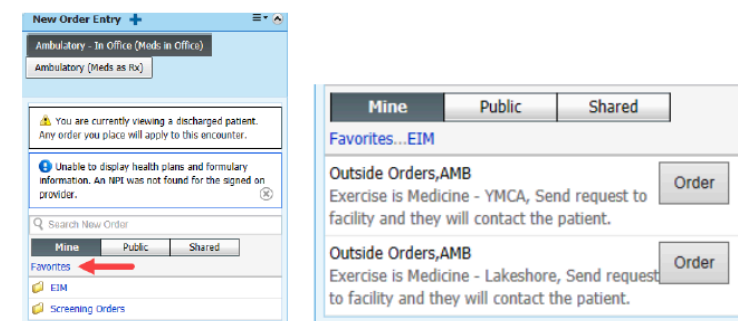
## Exercise is Medicine (EIM) Referral Workflow

Provider places **Outside Order**, staff pick it up from the multi-patient task list, staff send secure message via Message Center to community partner - ([eimreferral@ymcabham.dsm.phimailbox.com](mailto:eimreferral@ymcabham.dsm.phimailbox.com)).

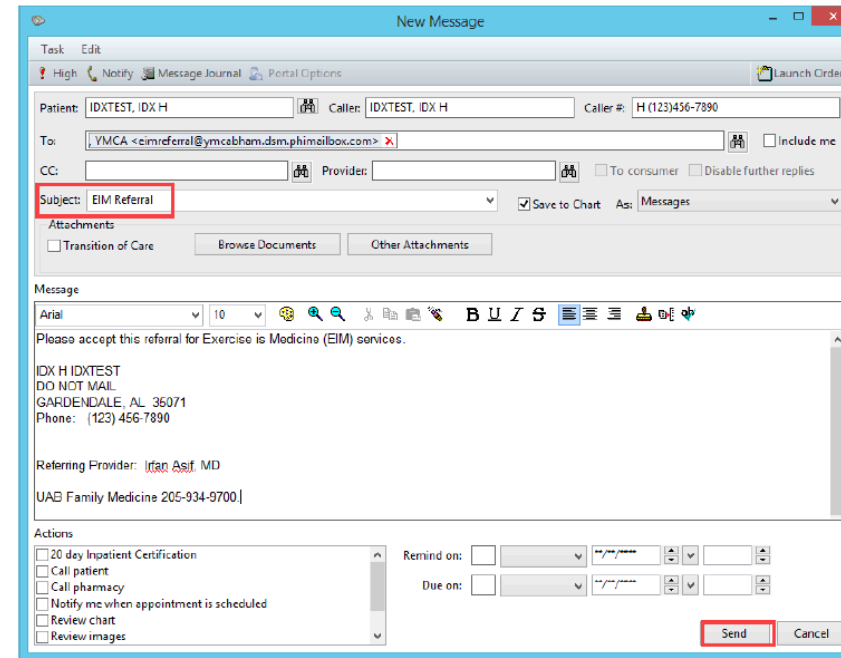
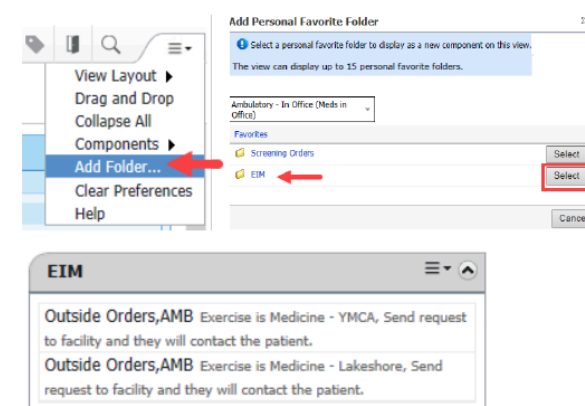
**PROVIDER:** Save this order as a favorite (in a folder) with the 'Reason for Exam' already completed



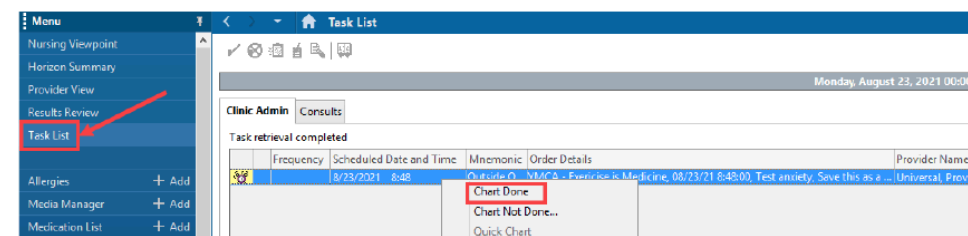
Favorites can be accessed from New Order Entry or added as its own folder/component.



Adding favorites as a component:



4. After the message has been sent, select the single patient task list within the chart, right click then select 'Chart Done' to complete the task.



Provider and Staff educational material and training sessions

# What does the future look like?

Doing the work in a different way

# Drivers of Change and Trends in Healthcare

1

## The Next-Gen Professionals

**SUMMARY:** Millennials are now the largest generational cohort in the workforce, and generation Z is right behind them. These next-gen professionals are the future of associations and, as gen Z begins to move into adulthood, the two generations are showing significant differences in their outlooks and priorities. Organizations will need to provide the kinds of training, mentoring, content, and other services that each of these upcoming generations value most, encouraging engagement that leads to loyalty.

Next-Gen Professionals will motivate more organizations to step up their training and education in formats that younger generations prefer—just in time microlearning, multi-screen events, co-mentoring, and smaller, more focused meetings

2

## Diversity Equity and Inclusion

**SUMMARY:** American society and workplaces will continue to grow more diverse, equitable, and inclusive as values evolve and younger generations increase their share in the demographic mix. This will occur against a backdrop of social and political polarization—with the workplace as a primary arena in which contending views collide and issues are worked out. To meet these challenges, inclusion and equity efforts should be treated as a systemic priority, supported by a new generation of tools and processes.

DEI policies are increasingly being seen as CEO-level strategic priorities

3

## Healthcare Disruption

**SUMMARY:** New players will inject a dose of capitalism into American healthcare, shifting healthcare to a more retail-like experience. Healthcare delivery will be further unbundled and disintermediated as non-traditional actors and businesses move into the space, and as technology enables care anywhere.

The COVID-related boost to telemedicine disrupted healthcare delivery. There is a rise in personal health monitoring via technology shifting more care from treatment to prevention and wellness.

# Novel Techniques and Trends



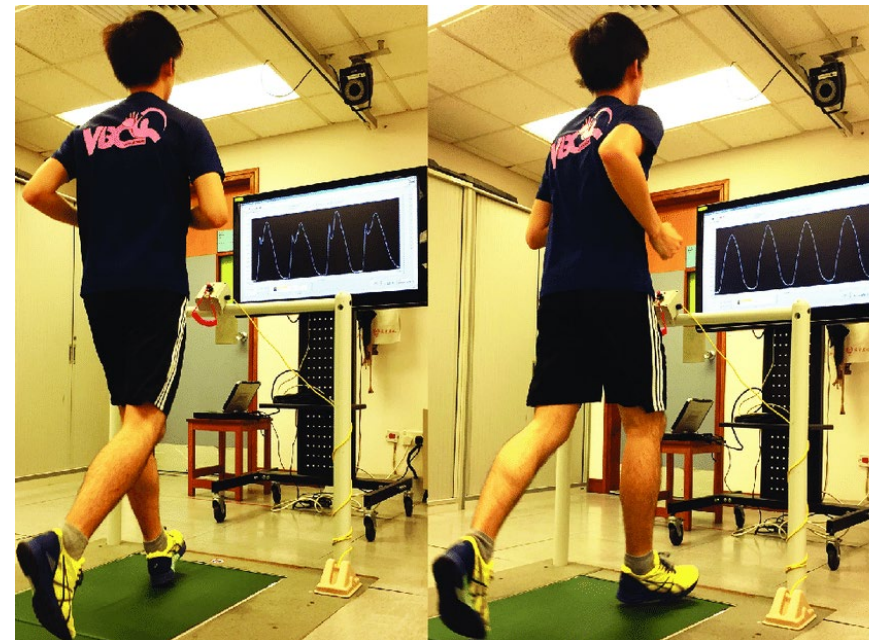
Exergaming: Video games to engage in physical activity



Virtual coaching from fitness professionals



Virtual reality fitness technology



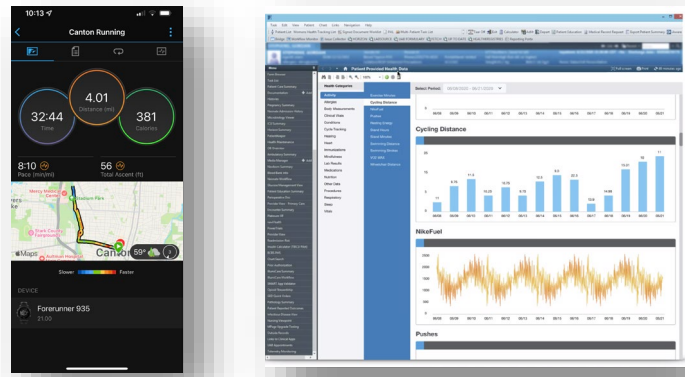
Biofeedback devices for real-time performance monitoring

- Gamification
- Personalization
- Artificial Intelligence and Machine Learning



## Lifestyle Medicine Assessment

- Health, Diet, Exercise, Sleep, Substance Use
- Body Composition
- Blood Biomarkers
- Genomics
- Coronary Calcium Scoring
- Personality & Behavioral Assessment
- Resting Metabolic Assessment
- Active Metabolic Assessment



## Digital Monitoring Care Management Telehealth

### Unique Expertise only at UAB:

- Sports, Wellness, Elite Exercise, and Performance (SWEEP)
- Fitness, Lifestyle and Optimum Wellness (FLOW)

Multi-Disciplinary Team      Patient



## Personalized Plan with Appropriate Counseling



## Genius Bar



## Community Fitness Partner



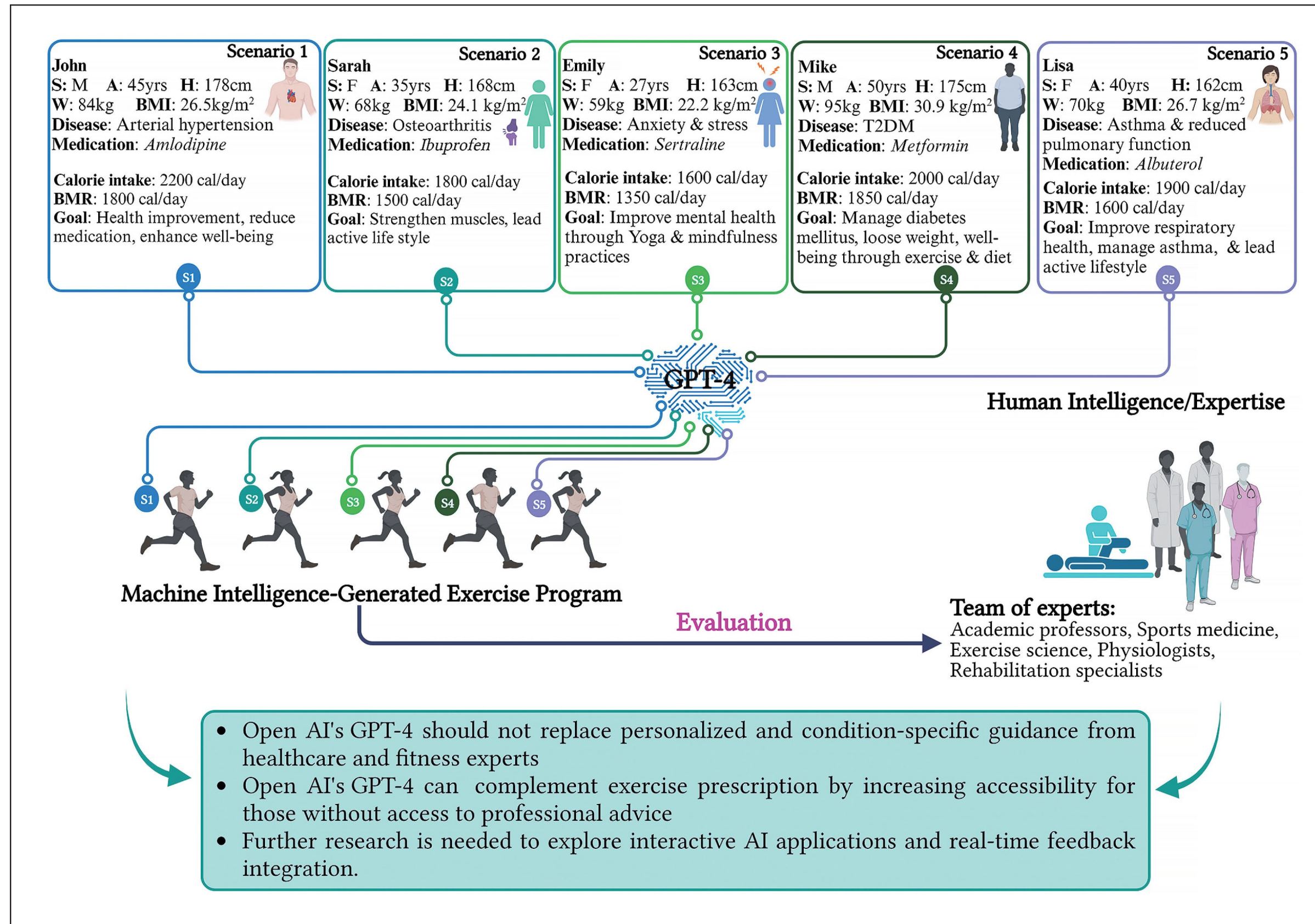
## Health Coach



YMCA OF GREATER BIRMINGHAM



# Using artificial intelligence for exercise prescription in personalised health promotion: A critical evaluation of OpenAI's GPT-4 model



Ismail Dergaa



# AMSSM 2023 Research Summit

2023 AMSSM CRN Research Summit  
Sports Medicine for All: A CRN Research Summit on Justice, Equity and Inclusion Summit | Friday, April 28, 2023



AMSSM CRN  
**2023 RESEARCH SUMMIT**  
on **JUSTICE**, **EQUITY** and **INCLUSION**

Health Disparities in Sports  
& Exercise Medicine Summit  
(#SportsMed4ALL)



**Drs. Nailah Coleman, Megan Burleson, Caitlin Nicholson, James Smith, Cheri Blauwet, Jeffrey Tanji, Yetsa Tuakli-Wosornu, Katie Rizzone**

AMSSM CRN  
**2023 RESEARCH SUMMIT**  
on **JUSTICE**, **EQUITY** and **INCLUSION**

# Why Sports and Exercise Medicine?

Sport and exercise medicine:

- Treats people with sport and physical activity-related conditions
- Conquers orthopedic conditions
- Improves the health of people through increased exercise

*“Everyone is an athlete, some just may not know it yet”*





# Learning from 'lived expertise': engaging athletes and patients in sport and exercise medicine research and policy

Jane S Thornton ,<sup>1</sup> Dawn Richards<sup>2</sup>



Jane Thornton MD, PhD



## TIPS ON ENGAGING ATHLETES AND PATIENTS IN SPORT AND EXERCISE MEDICINE RESEARCH AND POLICY

# Fitness advice ignores realities of life on the margins





## Para Athlete Research for Wellness, Injury Prevention, and Sports Medicine Excellence (PARA-WISE)

- Study creates a registry of para-athlete injury and illness data for use in future research.
- Weekly online questionnaires for three months to report on any injury or illness that prevents you from participating in sport.



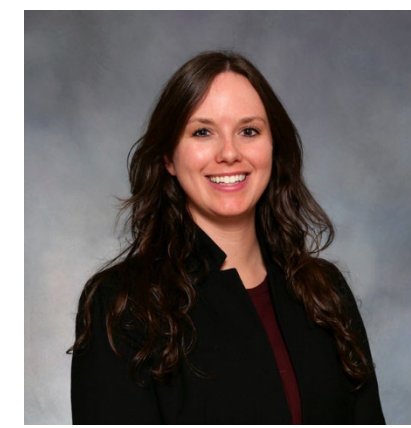
**Study enrolling soon!**  
**Visit [go.uab.edu/parawise](https://go.uab.edu/parawise)**



Irfan Asif, MD



Mary Dubon, MD



Victoria Heasley, MD



William Adams, PhD, ATC, FACSM



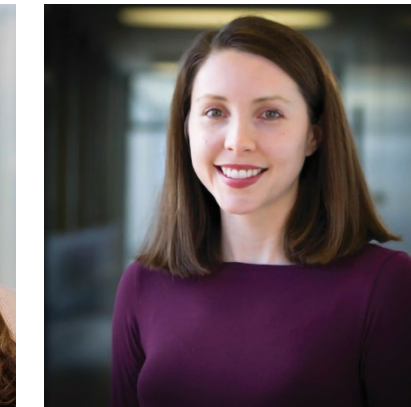
Megan Agnew, PhD, MPH



Navneet Baidwan, PhD



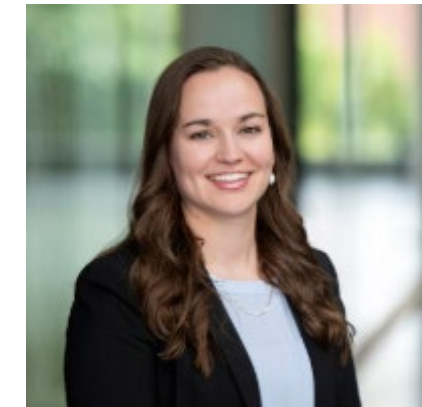
Taylor Buchanan, PhD



Caroline Cohen, PhD, LD, RD



Laronica Conway



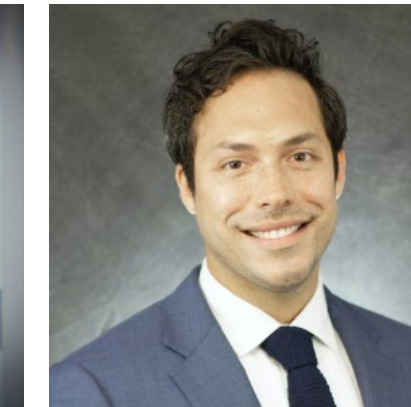
Melinda Earnest-Stanley, DPT, ATC



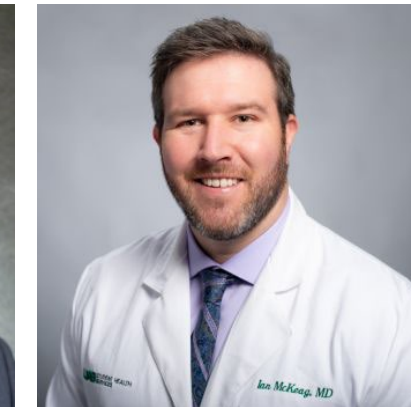
Emily Harley



Rebekah Kummer



Johan Latorre, MD, MS



Ian McKeag, MD

## Athlete Advisory Board

**Sarah Adam**, USA Wheelchair Rugby

**Chuck Aoki**, USA Wheelchair Rugby

**Caiden Baxter**, University of Michigan Wheelchair Tennis

**Jamie Benassi**, USA Sled Hockey

**Jeff Butler**, USA Wheelchair Rugby

**Nico Calabria**, US Amputee Soccer

**Sam Grewe**, High Jump

**Eric Newby**, USA Wheelchair Rugby

**Gabe Puthoff**, Auburn University Wheelchair Basketball & Wheelchair Tennis

**Laura Stark**, University of Michigan Wheelchair Basketball

# Tele-Exercise and Multiple Sclerosis (TEAMS)

- Multiple sclerosis (MS)
  - Most common immune-mediated CNS demyelinating disease
  - Greatest cause of permanent disability in young adults, aside from trauma
  - ~U.S. prevalence: 100 - 150 per 100,000
- Secondary conditions worse in patients with poor access
  - Rural
  - Low-income
- Exercise is the most sought-after information by patients from their providers



Highest rates of secondary conditions (e.g. falls, deconditioning, depression) associated with low rates of physical activity

# UAB becomes first Health Promoting University in the United States

by Shannon Thomason

The University of Alabama at Birmingham is the first university in the United States to adopt the Okanagan Charter and become an internationally recognized Health Promoting University.

Health Promoting Universities are an international

**The Goal:**  
Move Alabama out of the bottom 10 in national health rankings by 2030.

UAB already has many active initiatives and programs that fit within the ideological framework of the charter, including:

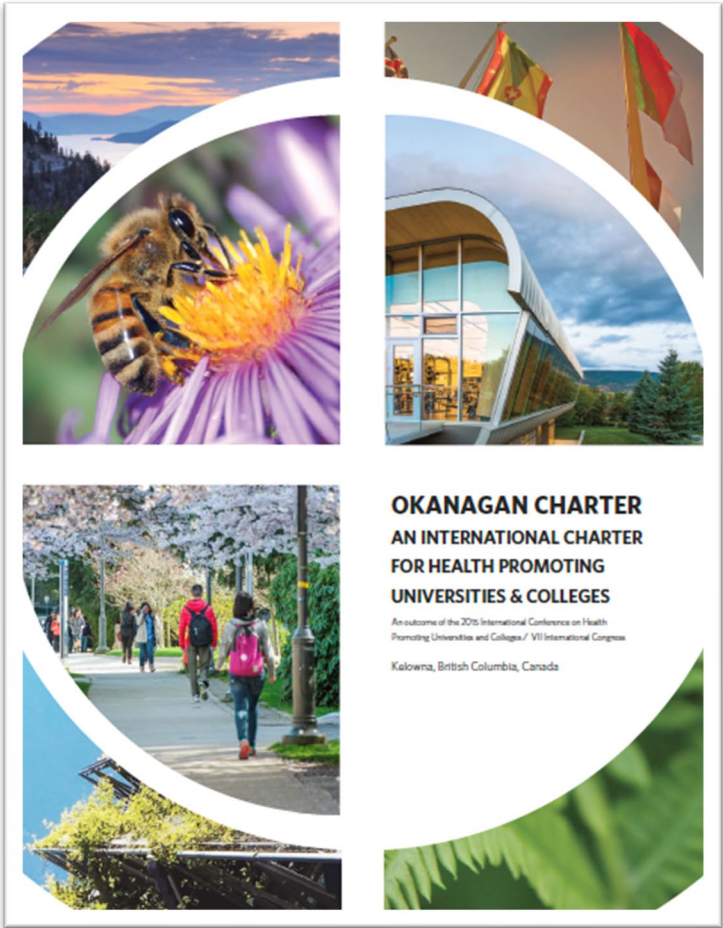
- Live HealthSmart Alabama and the Grand Challenge
- Exercise is Medicine
- Signature Core Curriculum
- Birmingham Health District and Tobacco Free Campus
- Diversity Education and other Diversity, Equity and Inclusion programming
- Sustainability
- UAB Cares Suicide Prevention and Intervention Initiative

## • Exercise is Medicine

According to the charter, higher education plays a central role in all aspects of the development of individuals, communities, societies and cultures — locally and globally.



President Ray L. Watts signs the Okanagan Charter, making UAB the first university in the United States to adopt it and become an internationally recognized Health Promoting University.



# Live HealthSmart Alabama



- Working closely with LHSA to deliver programming: Physical Activity, Nutrition, and Wellness
- Community Health Elective for Medical Students (Course Director: Sumayah Abed)
- Worked with LHSA leaders to obtain \$2.47M to expand efforts into Selma





# FAMILY MEDICINE RESEARCH SUMMIT

SAN FRANCISCO | OCTOBER 2023

FAMILY MEDICINE RESEARCH: PATIENT, FAMILY,  
AND COMMUNITY CENTERED



**Monday, October 30, 2023**  
**8AM – 5PM**  
**San Francisco, CA**

>140 attendees

Including Department Chairs, Researchers, Practicing Physicians, Patients, Residents, Students...

# National Research Strategy for Family Medicine: 2024-2030

## VISION

*Family Medicine research is whole-person, family, and community centered and improves health by enhancing health promotion, improving care for chronic diseases and advancing healthcare delivery, while including cross-cutting themes of health equity, technology, and team science*

## STRATEGIC PRIORITIES

Pathways / Mentorship



Funding & Advocacy



Infrastructure



## GOALS

Grow the family medicine research  
strengthen

**Vision:** Family Medicine research is **whole-person, family, and community centered** and improves health by enhancing **health promotion**, improving care for **chronic diseases** and advancing **healthcare delivery**, while including cross-cutting themes of **health equity, technology, and team science.**

A1: Maintain, promote and contribute research programs to connect learners

A2: Enhance and grow pathways to practice

- medical students (e.g. expanding residency slots)
- residents (e.g. creating additional residency slots)
- and family physicians (e.g. offering training opportunities)

A3: Create structured mentorship experiences inside and outside home institutions

A4: Normalize a team science approach by developing cross-disciplinary partnerships with PhDs, interprofessional groups, and community based organizations

A5: Promote a "culture of curiosity" among medical students and family medicine residency programs to ensure the workforce is well-equipped to critically analyze and apply evidence

Increase funding for family medicine research and advocate for enhanced health

B1: Primary Care Research and support efforts to direct other sources of funding to primary care research (e.g. foundations, payers, venture capital and other federal agencies such as: PCORI, CDC, and HRSA)

B4: Advocate for increased funding for Departments of Family Medicine from institutional leadership

B5: Identify and promote promising practices for chairs to support and fund research participation within their departments and institutions

C3: Increase accessible and integrated research models that produce clinically applicable research and evidence-base (e.g. optimize PBRNs, communities of practice, and consider other types of networks such as geographic and content networks)

C4: Leverage Clinical and Translational Science Awards (CTSA) networks and create Centers of Excellence to increase family medicine research within institutions

C5: Design and utilize distinctive methodology such as pragmatic trials, participatory methods, community-based research, translational science, implementation research and dissemination, big data analytics and machine learning

# Dr. Monica Bertagnolli: Director of the National Institutes of Health

**nature**

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NEWS Q&A | 15 January 2024

## New NIH chief opens up about risky pathogens, postdoc salaries and the year ahead

*Nature* talks to Monica Bertagnolli about hot-button issues and her top priorities for 2024.



“In a year, I would like to see us having built and put into action multiple user communities centred around innovative approaches to [data sharing and analytics](#). I would also like to see us doing multiple studies across [the NIH’s various] institutes and centres that are being offered to patients through a [primary-care research network](#) that engages diverse communities. And I want to see both of those projects being viewed as something that can grow.”



# NEW Primary Care Network Research Hubs – A Pilot (OT2)

Primary Care HEART-NET (Health Equity through Access and Research in Transformative Networks) in the Deep South

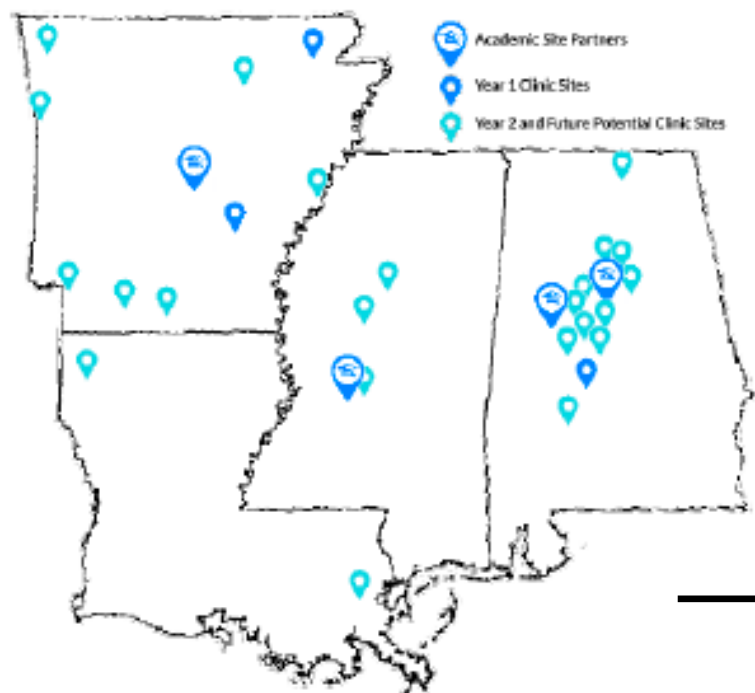


Figure 1: HEART-NET entities span three rural, underserved states

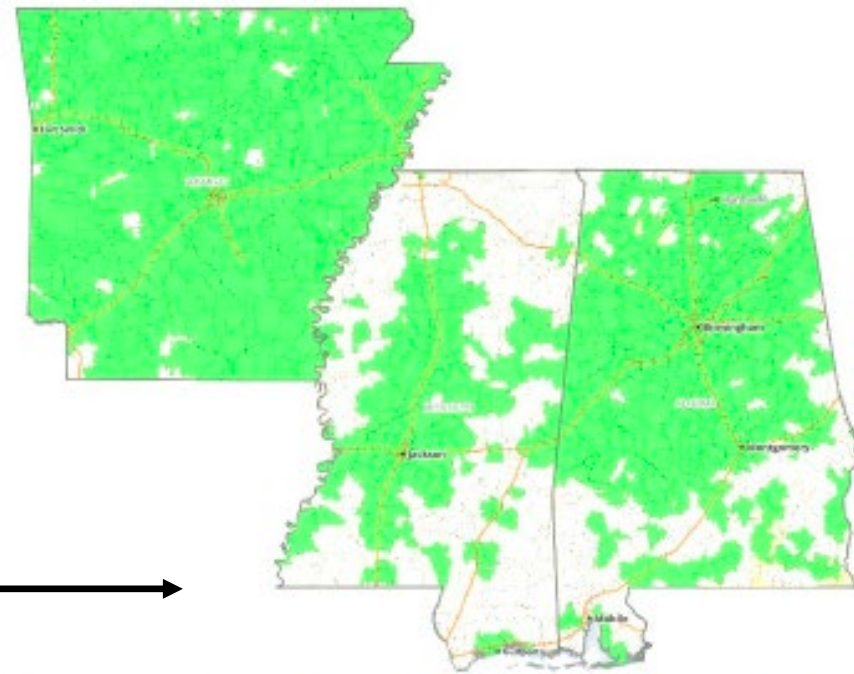


Figure 6: The HEART-NET catchment area reaches a 57% rural population

Facilitate community engagement and leverage existing research networks for clinical studies.

Conduct and expand clinical research in primary care settings, focusing on underrepresented populations.

Implement innovative study designs for disease prevention and treatment, embracing health equity and whole person health.

Support existing NIH-funded studies and develop new studies based on community health needs.

**Target partner states:** Alabama, Arkansas, Mississippi

# Primary Care Takeaways

1. Exercise is a cornerstone for the prevention and treatment of disease
2. Medical education must do a better job of preparing our future workforce to help patients make lifestyle changes, such as engaging in physical activity
3. Consider using the FITT-VP Model when designing an exercise prescription for your patients

# Leaderboard

Nobody has responded yet.



**UAB** THE UNIVERSITY OF  
ALABAMA AT BIRMINGHAM.

# Thank You!

**Irfan Asif, M.D.**

Professor and Chair; Department of Family and Community Medicine

Associate Dean for Primary Care and Rural Health

UAB Heersink School of Medicine

Twitter: @IrfAsif

Email: [iasif@uab.edu](mailto:iasif@uab.edu)