Treating Every Patient as an Athlete

Elizabeth Joy, MD, MPH, FACSM, FAMSSM

Senior Medical Director

Wellness & Nutrition

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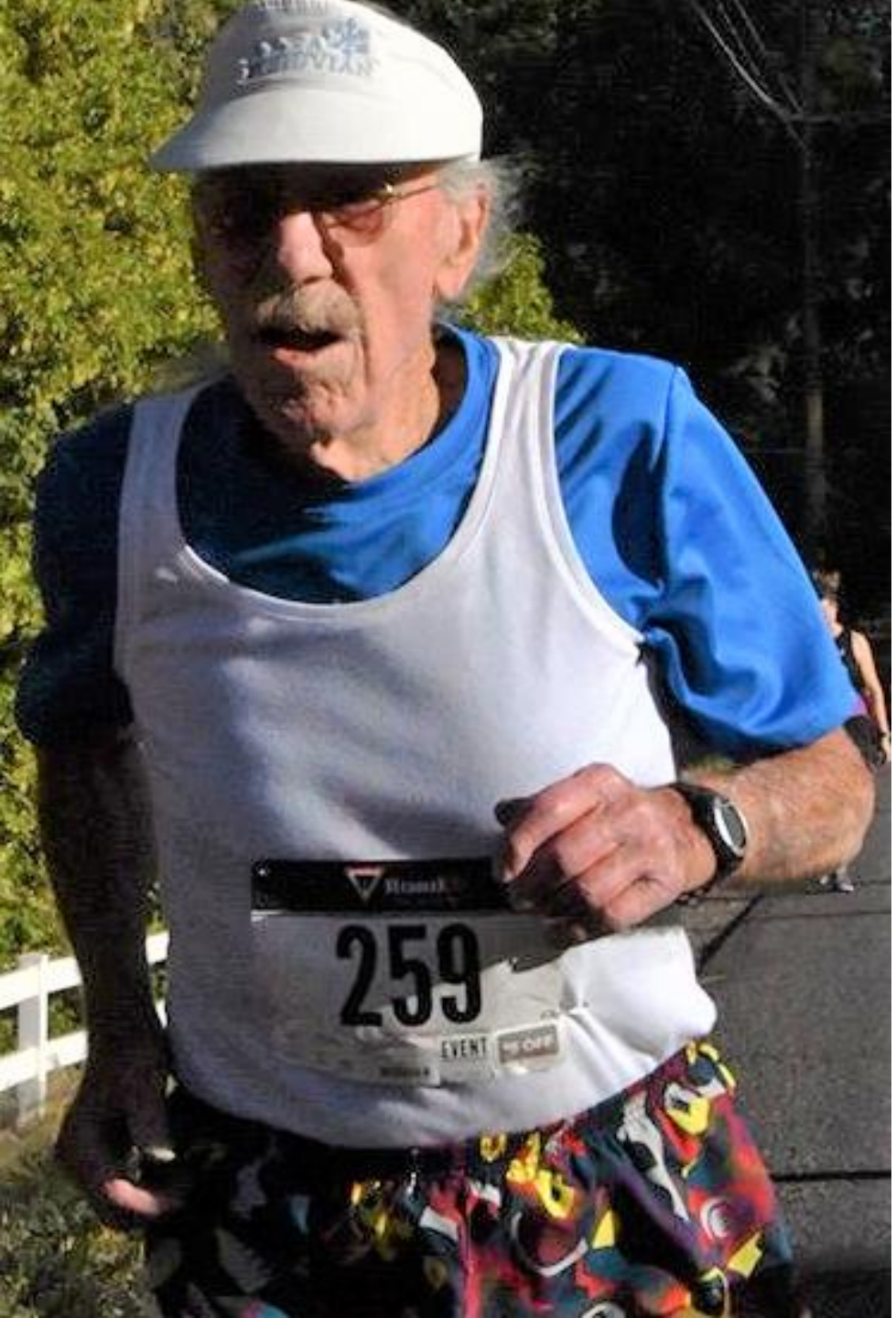

Let's start with a story.....

- Started running at age 62
- Overweight, smoking
- Doctor said make some changes or you're going to die early
- Ran his fastest marathon at age 72 – 3:05:50
- In 2017, at age 93, he ran 26 5Ks
- He has hypertension, atrial fibrillation and neuropathy – but still ran, swam and biked into his mid 90s

(He's now 98 years young!)

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Outline

- Physical activity assessment and promotion
- Preparticipation evaluation
- Physical activity, health and disease
- A word about other lifestyle behaviors.....diet and sleep

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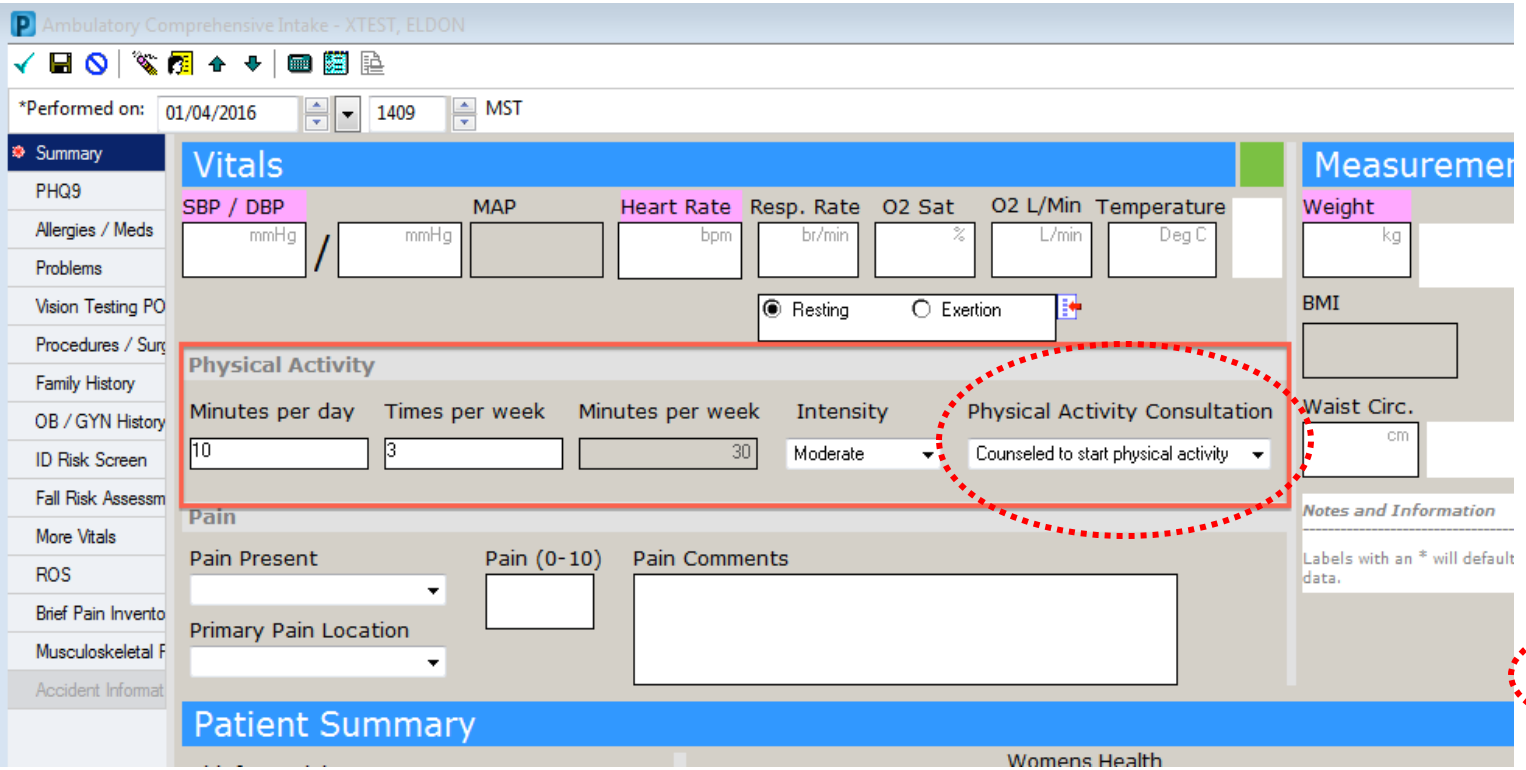
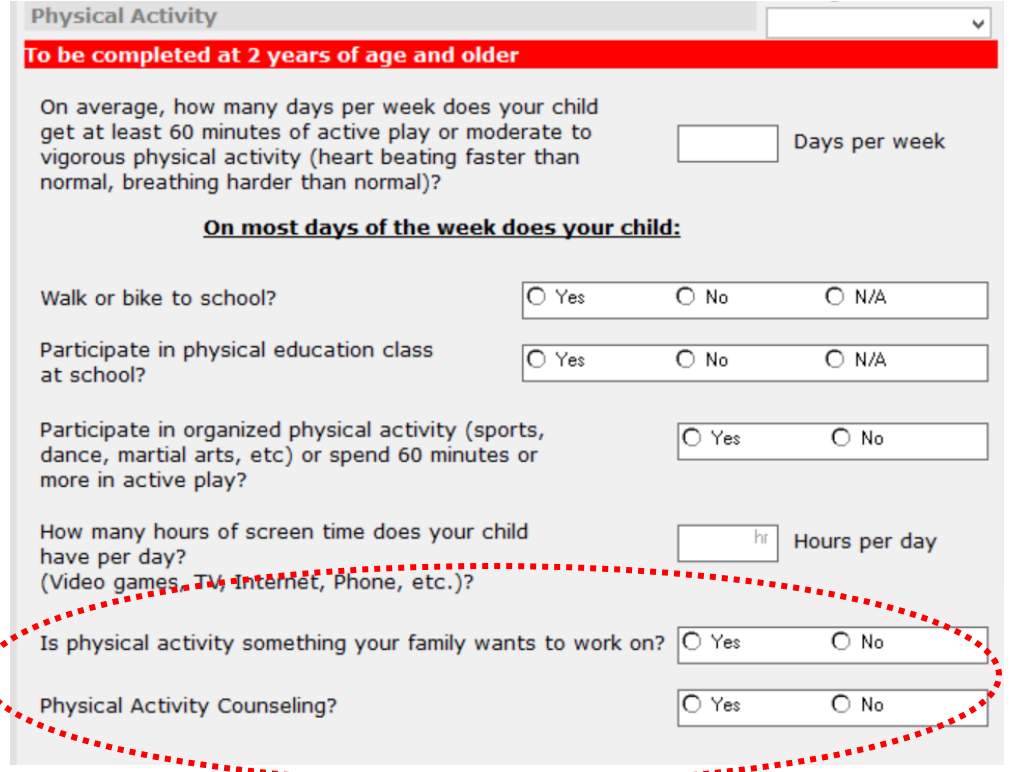
Physical Activity Assessment …..and Promotion

18 years +
(every visit)



2 – 17 years
(well visits +)



Ask | Assess | Advise | Agree | Assist | Arrange

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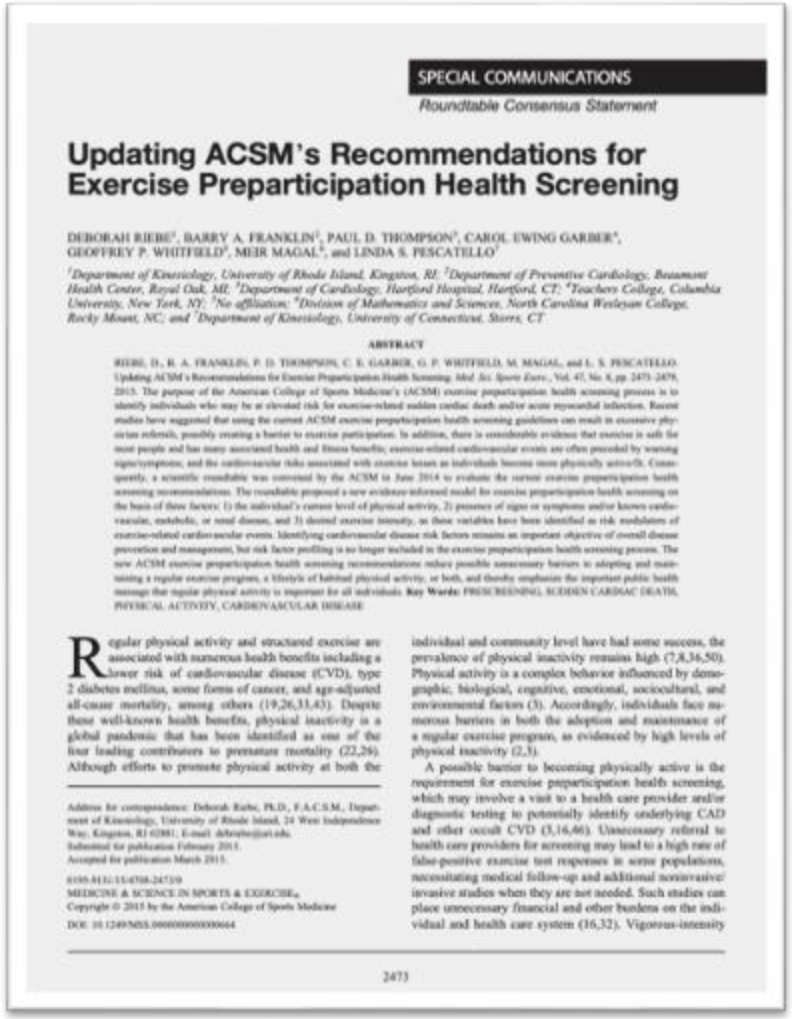
Assessment: Preparticipation Evaluation



SPECIAL COMMUNICATIONS

Roundtable Consensus Statement

Updating ACSM's Recommendations for Exercise Preparticipation Health Screening

DEBORAH RIEBE[1], BARRY A. FRANKLIN[2], PAUL D. THOMPSON[3], CAROL EWING GARBER[4], GEOFFREY P. WHITFIELD[5], MEIR MAGAL[6], and LINDA S. PESCATELLO[7]

[1]*Department of Kinesiology, University of Rhode Island, Kingston, RI;* [2]*Department of Preventive Cardiology, Beaumont Health Center, Royal Oak, MI;* [3]*Department of Cardiology, Hartford Hospital, Hartford, CT;* [4]*Teachers College, Columbia University, New York, NY;* [5]*No affiliation;* [6]*Division of Mathematics and Sciences, North Carolina Wesleyan College, Rocky Mount, NC; and* [7]*Department of Kinesiology, University of Connecticut, Storrs, CT*

ABSTRACT

RIEBE, D., B. A. FRANKLIN, P. D. THOMPSON, C. E. GARBER, G. P. WHITFIELD, M. MAGAL, and L. S. PESCATELLO. Updating ACSM's Recommendations for Exercise Preparticipation Health Screening. *Med. Sci. Sports Exerc.*, Vol. 47, No. 8, pp. 2473–2479, 2015. The purpose of the American College of Sports Medicine's (ACSM) exercise preparticipation health screening process is to identify individuals who may be at elevated risk for exercise-related sudden cardiac death and/or acute myocardial infarction. Recent studies have suggested that using the current ACSM exercise preparticipation health screening guidelines can result in excessive physician referrals, possibly creating a barrier to exercise participation. In addition, there is considerable evidence that exercise is safe for most people and has many associated health and fitness benefits; exercise-related cardiovascular events are often preceded by warning signs/symptoms; and the cardiovascular risks associated with exercise lessen as individuals become more physically active/fit. Consequently, a scientific roundtable was convened by the ACSM in June 2014 to evaluate the current exercise preparticipation health screening recommendations. The roundtable proposed a new evidence-informed model for exercise preparticipation health screening on the basis of three factors: 1) the individual's current level of physical activity, 2) presence of signs or symptoms and/or known cardiovascular, metabolic, or renal disease, and 3) desired exercise intensity, as these variables have been identified as risk modulators of exercise-related cardiovascular events. Identifying cardiovascular disease risk factors remains an important objective of overall disease prevention and management, but risk factor profiling is no longer included in the exercise preparticipation health screening process. The new ACSM exercise preparticipation health screening recommendations reduce possible unnecessary barriers to adopting and maintaining a regular exercise program, a lifestyle of habitual physical activity, or both, and thereby emphasize the important public health message that regular physical activity is important for all individuals. **Key Words:** PRESCREENING, SUDDEN CARDIAC DEATH, PHYSICAL ACTIVITY, CARDIOVASCULAR DISEASE

Regular physical activity and structured exercise are associated with numerous health benefits including a lower risk of cardiovascular disease (CVD), type 2 diabetes mellitus, some forms of cancer, and age-adjusted all-cause mortality, among others (19,26,33,43). Despite these well-known health benefits, physical inactivity is a global pandemic that has been identified as one of the four leading contributors to premature mortality (22,26). Although efforts to promote physical activity at both the individual and community level have had some success, the prevalence of physical inactivity remains high (7,8,36,50). Physical activity is a complex behavior influenced by demographic, biological, cognitive, emotional, sociocultural, and environmental factors (3). Accordingly, individuals face numerous barriers in both the adoption and maintenance of a regular exercise program, as evidenced by high levels of physical inactivity (2,3).

A possible barrier to becoming physically active is the requirement for exercise preparticipation health screening, which may involve a visit to a health care provider and/or diagnostic testing to potentially identify underlying CAD and other occult CVD (3,16,46). Unnecessary referral to health care providers for screening may lead to a high rate of false-positive exercise test responses in some populations, necessitating medical follow-up and additional noninvasive/invasive studies when they are not needed. Such studies can place unnecessary financial and other burdens on the individual and health care system (16,32). Vigorous-intensity

Address for correspondence: Deborah Riebe, Ph.D., F.A.C.S.M., Department of Kinesiology, University of Rhode Island, 24 West Independence Way, Kingston, RI 02881; E-mail: driebe@uri.edu.
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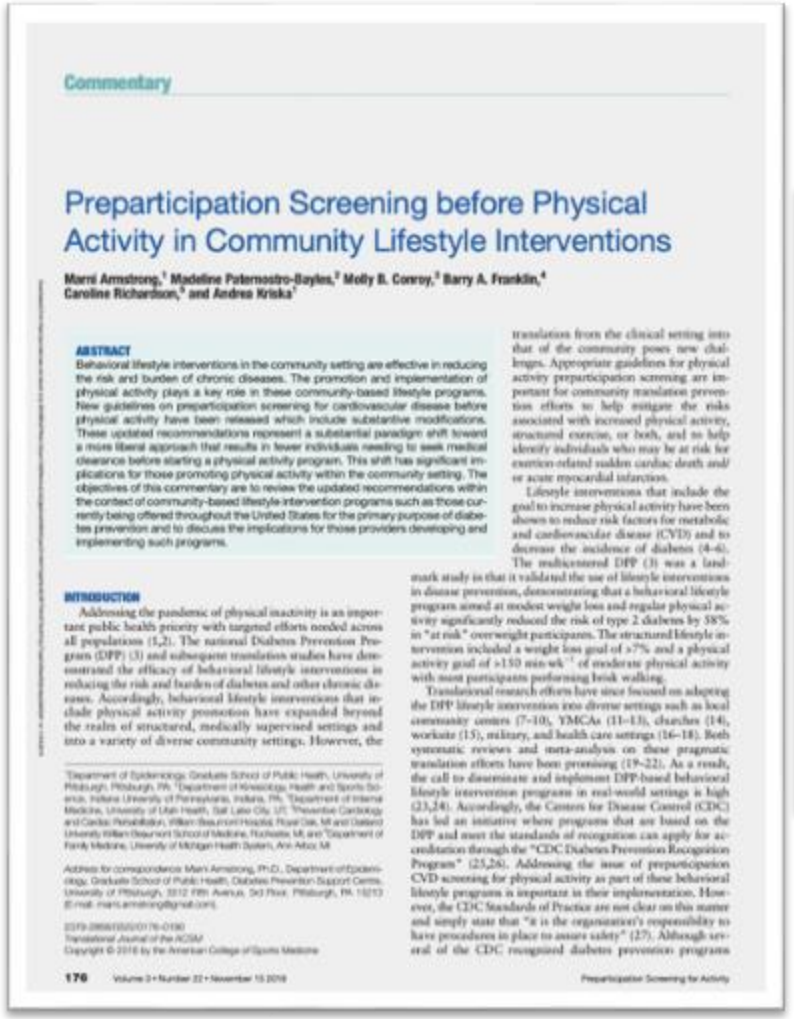

Commentary

Preparticipation Screening before Physical Activity in Community Lifestyle Interventions

Morni Armstrong,[1] Madeline Paternostro-Bayles,[2] Molly B. Conroy,[3] Barry A. Franklin,[4] Caroline Richardson,[5] and Andrea Kriska[1]

ABSTRACT

Behavioral lifestyle interventions in the community setting are effective in reducing the risk and burden of chronic diseases. The promotion and implementation of physical activity plays a key role in these community-based lifestyle programs. New guidelines on preparticipation screening for cardiovascular disease before physical activity have been released which include substantive modifications. These updated recommendations represent a substantial paradigm shift toward a more liberal approach that results in fewer individuals needing to seek medical clearance before starting a physical activity program. This shift has significant implications for those promoting physical activity within the community setting. The objectives of this commentary are to review the updated recommendations within the context of community-based lifestyle intervention programs such as those currently being offered throughout the United States for the primary purpose of diabetes prevention and to discuss the implications for those providers developing and implementing such programs.

INTRODUCTION

Addressing the pandemic of physical inactivity is an important public health priority with targeted efforts needed across all populations (1,2). The National Diabetes Prevention Program (DPP) (3) and subsequent translation studies have demonstrated the efficacy of behavioral lifestyle interventions in reducing the risk and burden of diabetes and other chronic diseases. Accordingly, behavioral lifestyle interventions that include physical activity promotion have expanded beyond the realm of structured, medically supervised settings and into a variety of diverse community settings. However, the translation from the clinical setting into that of the community poses new challenges. Appropriate guidelines for physical activity preparticipation screening are important for community translation prevention efforts to help mitigate the risks associated with increased physical activity, structured exercise, or both, and to help identify individuals who may be at risk for exertion-related sudden cardiac death and/or acute myocardial infarction.

Lifestyle interventions that include the goal to increase physical activity have been shown to reduce risk factors for metabolic and cardiovascular disease (CVD) and to decrease the incidence of diabetes (4–6). The multicentered DPP (3) was a landmark study in that it validated the use of lifestyle interventions in disease prevention, demonstrating that a behavioral lifestyle program aimed at modest weight loss and regular physical activity significantly reduced the risk of type 2 diabetes by 58% in "at risk" overweight participants. The structured lifestyle intervention included a weight loss goal of >7% and a physical activity goal of >150 min·wk^{-1} of moderate physical activity with most participants performing brisk walking.

Translational research efforts have since focused on adapting the DPP lifestyle intervention into diverse settings such as local community centers (7–10), YMCAs (11–13), churches (14), worksite (15), military, and health care settings (16–18). Both systematic reviews and meta-analysis on these pragmatic translation efforts have been promising (19–22). As a result, the call to disseminate and implement DPP-based behavioral lifestyle intervention programs in real-world settings is high (23,24). Accordingly, the Centers for Disease Control (CDC) has led an initiative where programs that are based on the DPP and meet the standards of recognition can apply for accreditation through the "CDC Diabetes Prevention Recognition Program" (25,26). Addressing the issue of preparticipation CVD screening for physical activity as part of these behavioral lifestyle programs is important in their implementation. However, the CDC Standards of Practice are not clear on this matter and simply state that "it is the organization's responsibility to have procedures in place to assure safety" (27). Although several of the CDC recognized diabetes prevention programs

[1]Department of Epidemiology, Graduate School of Public Health, University of Pittsburgh, Pittsburgh, PA; [2]Department of Kinesiology, Health and Sports Science, Indiana University of Pennsylvania, Indiana, PA; [3]Department of Internal Medicine, University of Utah Health, Salt Lake City, UT; [4]Preventive Cardiology and Cardiac Rehabilitation, William Beaumont Hospital, Royal Oak, MI and Oakland University William Beaumont School of Medicine, Rochester, MI; and [5]Department of Family Medicine, University of Michigan Health System, Ann Arbor, MI

Address for correspondence: Morni Armstrong, Ph.D., Department of Epidemiology, Graduate School of Public Health, Diabetes Prevention Support Centre, University of Pittsburgh, 3512 Fifth Avenue, 3rd Floor, Pittsburgh, PA 15213 (E-mail: morni.armstrong@gmail.com).

2379-2868/15/01/170-0190
Translational Journal of the ACSM

TABLE 1.
Comparison of Previous and Updated ACSM Guidelines on Exercise Preparticipation Screening.

Previous ACSM Guideline (29)	Updated ACSM Guidelines (28)
Based on:	Based on:
1) Number of CVD risk factors	1) Current level of physical activity
2) Presence of signs and symptoms of CVD	2) Presence of signs and symptoms of CVD
3) Known CVD, metabolic, renal, or pulmonary disease	3) Known CVD, metabolic, or renal disease
	4) Desired exercise intensity

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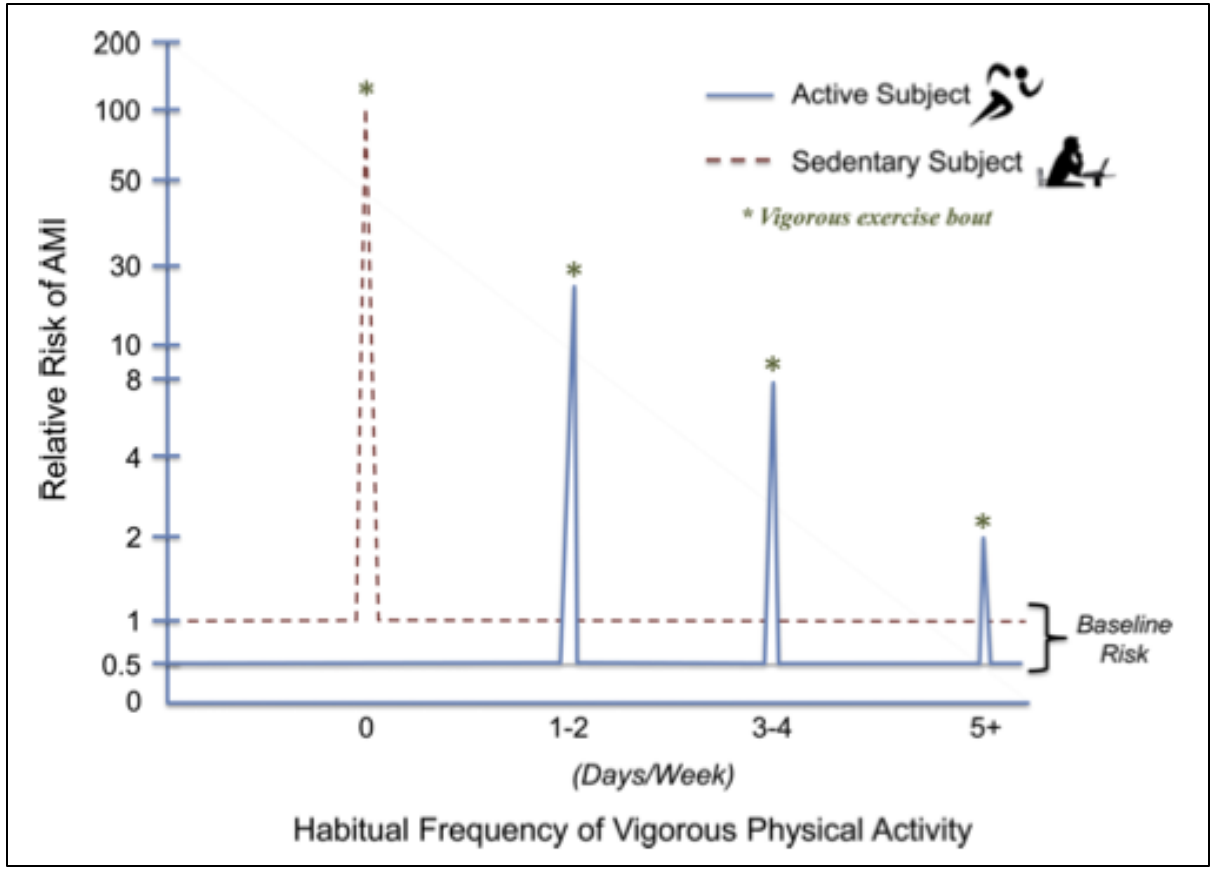
Habitual PA vs. CVD Risk Factors



- In people with lowest PA, the relative risk of exertion-related acute myocardial infarction (AMI) ranged from 4.5 to 107
- The risk among those who are habitually active was 0.86 to 3.3
- Every additional exercise bout per week, resulted in a 30% reduction in the risk of SCD and 45% reduction in the risk of AMI during PA

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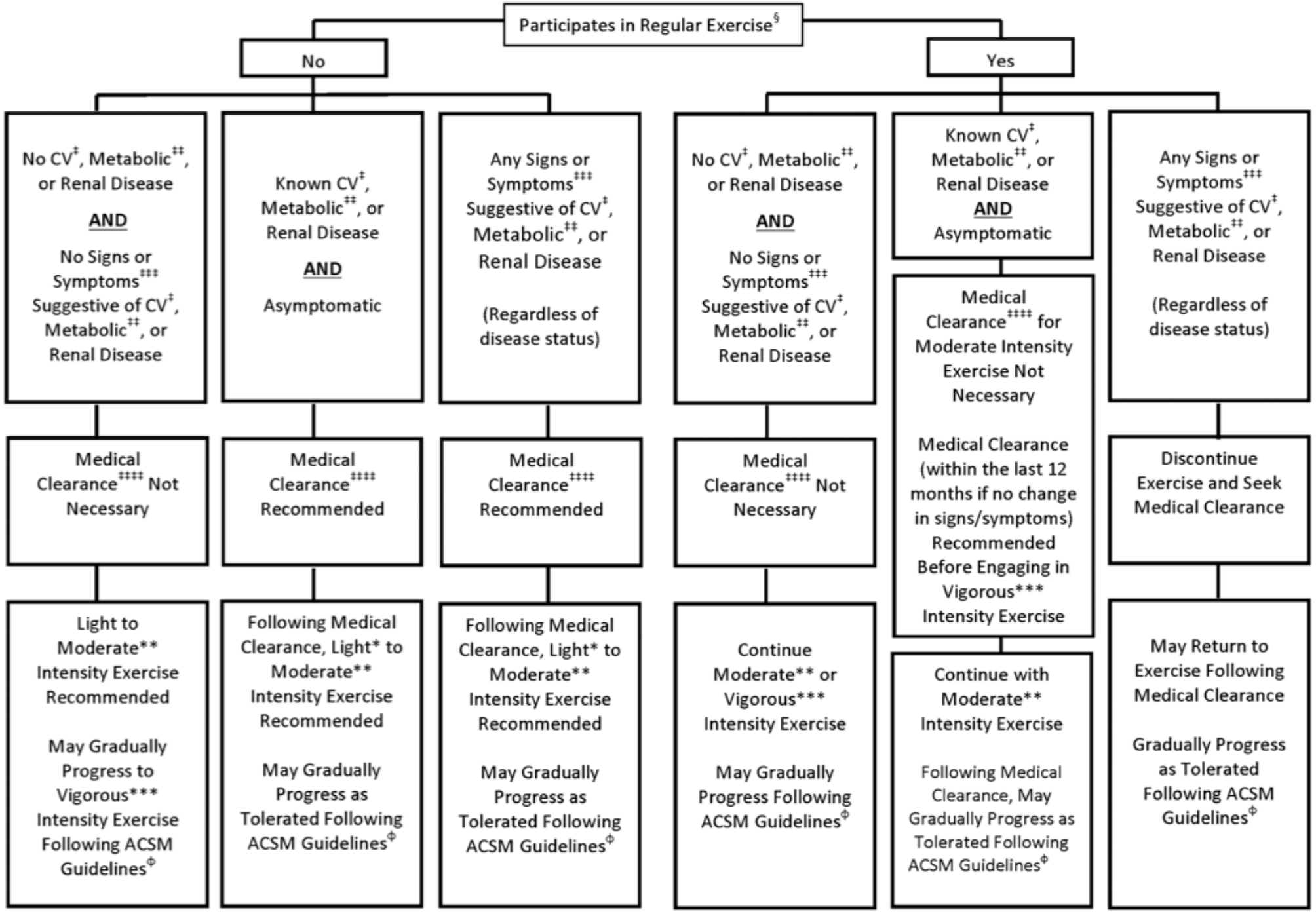

Regular Exercise: Planned, structured physical activity at least 30 min at moderate intensity on at least 3 days per week for at least the last 3 months.

Medical Clearance:

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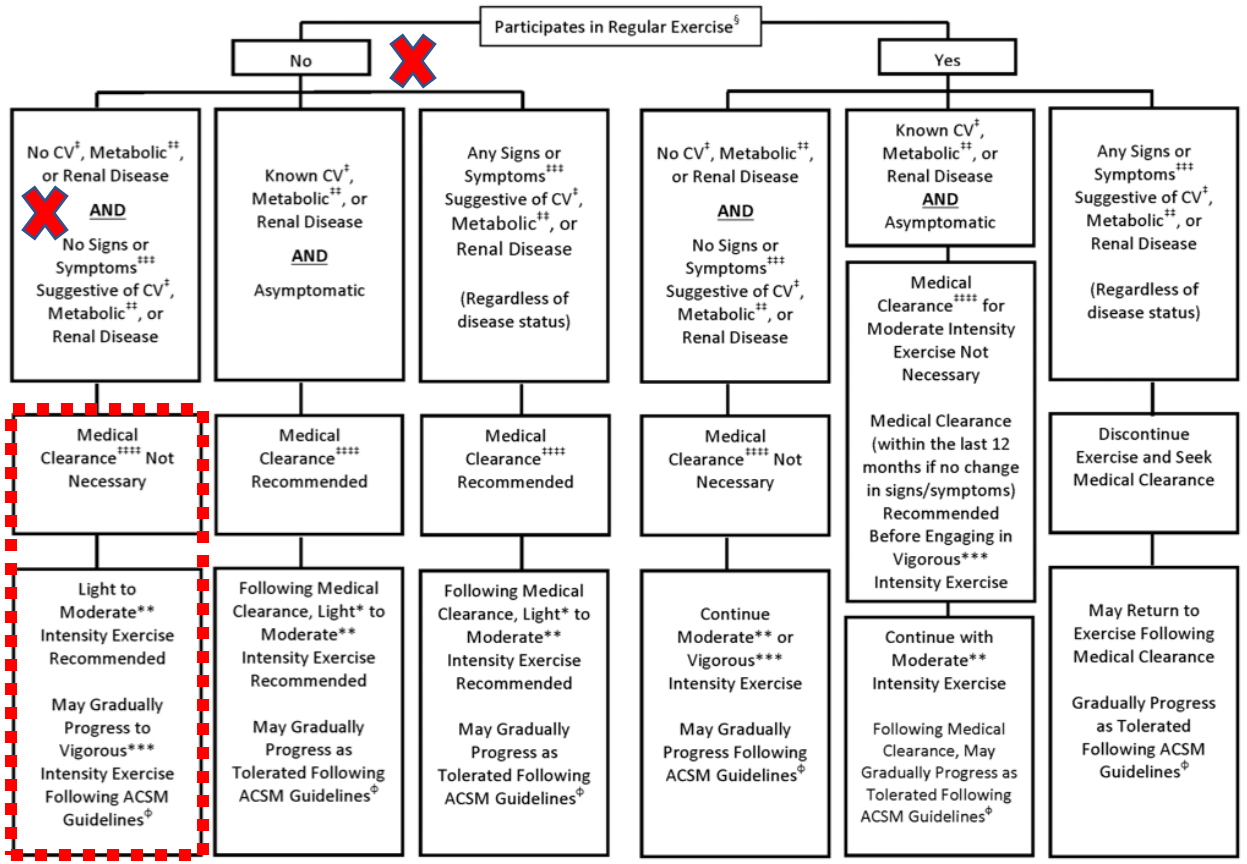
Patient A

- 50 yo female
- BMI 29
- Walks 2 times a week for 30 minutes with a friend
- Normotensive, normoglycemic
- Wants to do a Sprint Triathlon with her kids

Does she need medical clearance?



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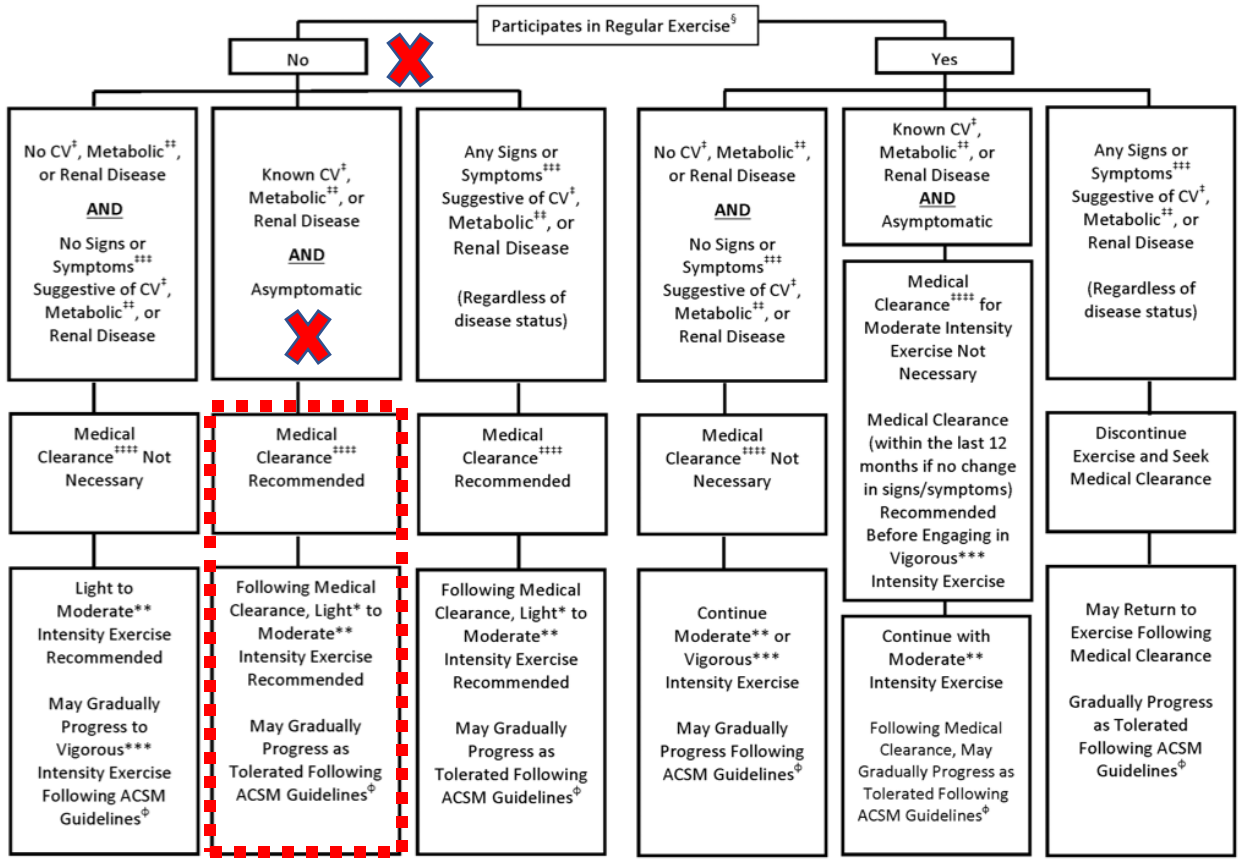
Patient B

- 60 yo male
- Plays golf 1 time per week (cart)
- Hypertension, prediabetes, BMI 32
- Wife has signed them up for personal training

Does he need medical clearance?



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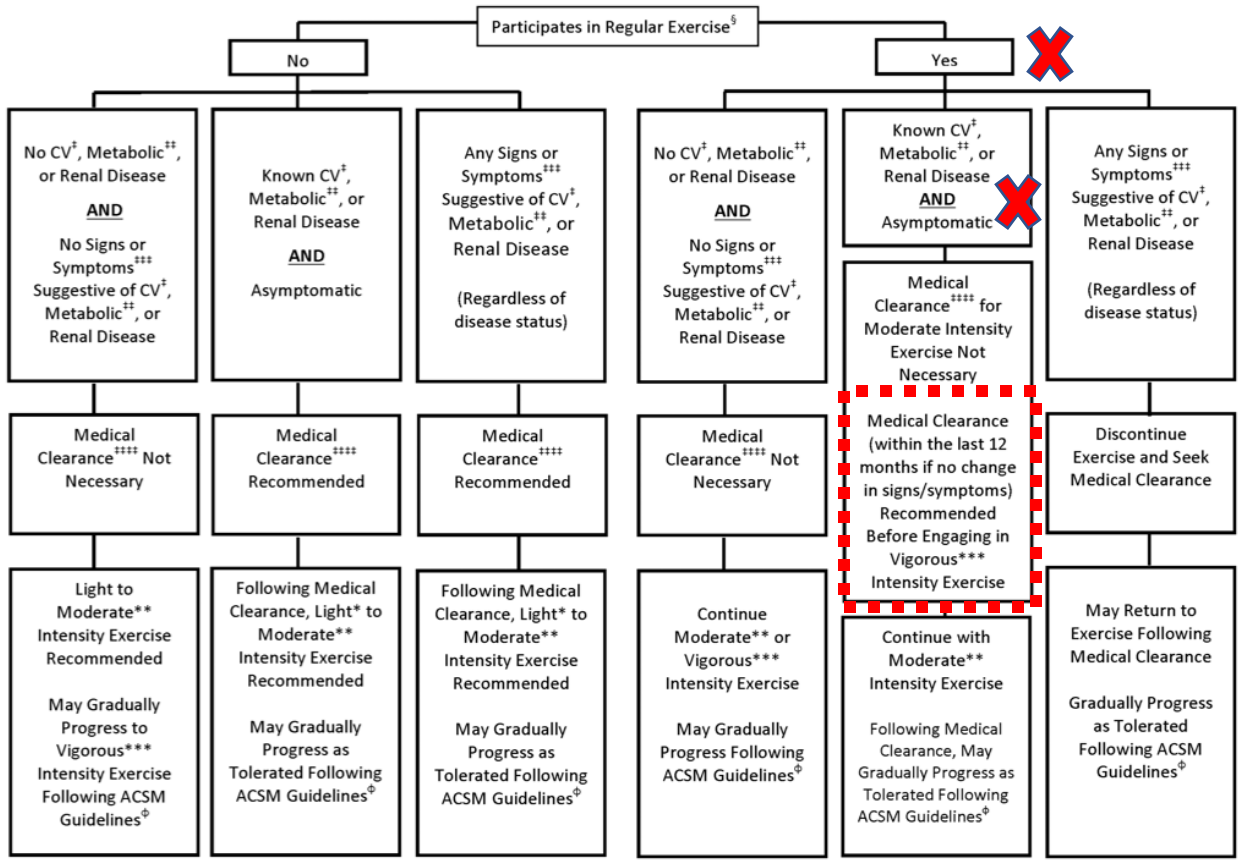
Patient C

- 45 yo male
- Type 1 diabetes (HbA1c 7.5)
- Hikes, skis, bikes
- Planning to climb Denali

Does he need medical clearance?



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Physical Activity Spectrum

Activities of Daily Living

- Walking/Rolling

Active Transportation

- Walk/Bike/Roll to work

Lifestyle Activities

- Walk the Dog
- Gardening

Exercise

- Aerobic activity
- Strength training
- Combination

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Physical Activity, Health and Disease

Time for another story.....

- Retired school teacher
- Hypertension, T2DM, hyperlipidemia, degenerative disc disease
- Referred to Physical Therapy
- Graduated to personal training – 2X per week

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Physical Activity, Health and Disease

- Can a patient with stable angina exercise?
- Can a patient with a seizure disorder swim?
- Should a person with Parkinson's Disease ride a bicycle?
- If a patient has osteoarthritis of the knee should they perform weight-bearing exercise?
- Can a patient with hypertension lift weights?
- Should a patient with a history of frequent falls exercise?

Can a patient with stable angina exercise?

VIEWPOINT

Physical Activity and Structured Exercise for Patients With Stable Ischemic Heart Disease

William E. Boden, MD
Barry A. Franklin, PhD
Nanette K. Wenger, MD

EXERCISE WAS RECENTLY DESCRIBED AS "A MIRACLE drug" that can benefit every part of the body and substantially extend lifespan."[1] The authors suggested that the cardioprotective and systemic health benefits of regular exercise are underestimated by many clinicians, who often fail to emphasize the importance of regular physical activity, as well as the harms of physical inactivity, even though they routinely counsel patients about other modifiable cardiovascular risk factors, such as cigarette smoking, elevated cholesterol levels, and hypertension.

If exercise is a central and indispensible component of a comprehensive strategy for the primary prevention of coronary artery disease, the mantra "exercise is medicine" may be even more valid and is too often undervalued as a critical element in secondary prevention. However, many patients with heart disease who qualify for and require exercise training as an essential part of their recovery process are not receiving this therapy, often because of a lack of awareness by patients, health care professionals, and payers of the necessity, appropriateness, and effectiveness of this intervention.[2] This gap between scientific evidence and clinical practice is the focus of this Viewpoint, which discusses the importance of structured exercise and increased physical activity for patients with stable ischemic heart disease and the need to highlight the poor prognosis associated with being in the least fit, least active cohort (bottom 20%) for the 12 to 13 million US residents who comprise this population.

One of the most puzzling aspects of the medical community's failure to recommend regular exercise for patients with stable ischemic heart disease may be the fundamental simplicity and affordability of this intervention, particularly compared with other widely accepted preventive measures. For instance, the Clinical Outcomes Utilizing Revascularization and Aggressive Drug Evaluation (COURAGE) trial[3] showed no difference in clinical outcomes in patients with stable ischemic heart disease (eg, death, myocardial infarction, hospitalization for unstable angina) during a mean 55-month follow-up between those who underwent percutaneous coronary intervention (PCI) and optimal medical therapy (including both risk-reducing and symptom-reducing therapies) and those treated with optimal medical therapy and lifestyle modification. Anginal symptoms were reduced in both groups, and there was no significant difference in health status between the groups, demonstrating that optimal control of risk factors could favorably affect outcomes. Despite clinical guideline recommendations that, among patients with stable ischemic heart disease, revascularization may be deferred until the effects of optimal medical therapy and lifestyle modification have been assessed and validated,[4] more than half of the 1.3 million annual PCI procedures in the United States are performed electively for patients with stable ischemic heart disease,[5] and only about 45% of these patients receive optimal medical therapy prior to their procedure.[6] Equally concerning is that many of these patients do not participate in medically supervised or home-based exercise training programs, even after revascularization.

Increased exercise or physical activity and cardiorespiratory fitness appear to mitigate cardiovascular disease progression. Exercise has antiatherosclerotic, antithrombotic, anti-ischemic, antiarrhythmic, and positive psychological effects, and secondary prevention exercise training regimens in conjunction with optimal medical therapy have been shown to reduce total mortality by 20%, cardiac mortality by 26%, and nonfatal myocardial infarction by 21%.[7] Cardiorespiratory fitness may be expressed as metabolic equivalents (METs), for which 1 MET is approximately 3.5 mL of oxygen per kilogram of body weight per minute (mL/kg/min), which is equivalent to the energy requirement for basal homeostasis. Multiples of this value are often used to quantify relative levels of energy expenditure. Each 1-MET increase in exercise capacity is associated with an 8% to 35% (median, 16%) reduction in mortality,[8] which compares favorably with the survival benefit conferred by low-dose aspirin, statins, β-blockers, and angiotensin-converting enzyme inhibitors after acute myocardial infarction.

Current guidelines recommend 30 to 60 minutes of moderate-intensity aerobic activity at least 5 days a week for patients with stable ischemic heart disease to augment peak oxygen uptake and modify cardiovascular risk factors, as well as complementary resistance training at least 2 days a week to increase weight-carrying tolerance and skeletal muscle strength.[9] Resistance training also attenuates the rate-

Author Affiliations: Department of Medicine, Samuel Stratton VA Medical Center and Albany Medical College, Albany, New York (Dr Boden); Department of Preventive Cardiology/Rehabilitation, William Beaumont Hospital, Royal Oak, Michigan, and Oakland University William Beaumont School of Medicine, Rochester, Michigan (Dr Franklin); Division of Cardiology, Department of Medicine, Grady Memorial Hospital and Emory University School of Medicine, Atlanta, Georgia (Dr Wenger).
Corresponding Author: William E. Boden, MD, Department of Medicine, Samuel Stratton VA Medical Center, 113 Holland Ave, Albany, NY 12208 (william.boden@va.gov).

See also p 141.

"Patients with stable ischemic heart disease are among those for whom exercise is most important and for whom failure to exercise is potentially most harmful. Yet fear of developing exercise-induced angina often deters symptomatic patients from undertaking moderate-to-vigorous physical activity. However, studies continue to show a low risk of cardiovascular events in the rehabilitation setting.

A study involving 3 Norwegian cardiac rehabilitation centers found rates of complications (such as fatal and nonfatal cardiac arrest) of 1 per 129 456 hours of moderate-intensity exercise.

Physicians and allied health professionals must take every opportunity to explain to concerned patients that moderate physical activity will not exacerbate cardiovascular dis- ease and that the danger to health is not in exercise but in failure to exercise."

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Can a patient with a seizure disorder swim?

Zach McGinnis

Tips for safely swimming with epilepsy

- Swim in a pool - not open water.
- Tell the lifeguard at the pool that you have epilepsy
- Swim on the outside lanes so that lifeguards can easily reach you if you have a seizure in the water
- Visit the swimming pool at quieter times so that lifeguards can watch you more easily
- Try not to get too tired as this can be a seizure trigger
- Consider having a sports energy drink which will ensure there is enough sugar in your bloodstream - because low blood sugar and dehydration can also trigger seizures
- Wear armbands if you are not so confident at swimming

Should a person with Parkinson's Disease ride a bicycle?

npj | Parkinson's Disease

www.nature.com/npjparkd

REVIEW ARTICLE OPEN

Check for updates

Parkinson's disease patients benefit from bicycling - a systematic review and meta-analysis

Marianne Tiihonen[1,2✉], Britta U. Westner[3,4], Markus Butz[1,5] and Sarang S. Dalal[3,5]

Many Parkinson's disease (PD) patients are able to ride a bicycle despite being severely compromised by gait disturbances up to freezing of gait. This review [PROSPERO CRD 42019137386] aimed to find out, which PD-related symptoms improve from bicycling, and which type of bicycling exercise would be most beneficial. Following a systematic database literature search, peer-reviewed studies with randomized control trials (RCT) and with non-randomized trials (NRCT) investigating the interventional effects of bicycling on PD patients were included. A quality analysis addressing reporting, design and possible bias of the studies, as well as a publication bias test was done. Out of 202 references, 22 eligible studies with 505 patients were analysed. An inverse variance-based analysis revealed that primary measures, defined as motor outcomes, benefitted from bicycling significantly more than cognitive measures. Additionally, secondary measures of balance, walking speed and capacity, and the PDQ-39 ratings improved with bicycling. The interventions varied in durations, intensities and target cadences. Conclusively, bicycling is particularly beneficial for the motor performance of PD patients, improving crucial features of gait. Furthermore, our findings suggest that bicycling improves the overall quality-of-life of PD patients.

npj Parkinson's Disease (2021)7:86 ; https://doi.org/10.1038/s41531-021-00222-6

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If a patient has osteoarthritis of the knee should they perform weight-bearing exercise?

Osteoarthritis and Cartilage 28 (2020) 755–765

Osteoarthritis and Cartilage

OARSI OSTEOARTHRITIS RESEARCH SOCIETY INTERNATIONAL

What type of exercise is most effective for people with knee osteoarthritis and co-morbid obesity?: The TARGET randomized controlled trial

K.L. Bennell † *, R.K. Nelligan †, A.J. Kimp †, S. Schwartz †, J. Kasza ‡, T.V. Wrigley †, B. Metcalf †, P.W. Hodges §, R.S. Hinman †

† The University of Melbourne, Centre for Health, Exercise and Sports Medicine, Department of Physiotherapy, School of Health Sciences, Melbourne, VIC, Australia
‡ School of Public Health and Preventive Medicine, Monash University, Melbourne, VIC, Australia
§ The University of Queensland, Centre for Clinical Research Excellence in Spinal Pain, Injury and Health, School of Health and Rehabilitation Sciences, QLD, Australia

- Compared WB functional exercise to NWB quadricep strengthening X 12 wks
- RCT: 128 people, 50+ years with medial knee OA and body mass index $\geq$ 30
- Primary outcomes were change in overall knee pain and difficulty with physical function
- Secondary outcomes included other pain measures, physical function, quality-of-life, global changes, physical performance, and lower-limb muscle strength.
- There was no evidence of a between-group difference in change in pain and function
- For secondary outcomes, the WB group had greater improvement in quality-of-life and more participants reporting global improvement

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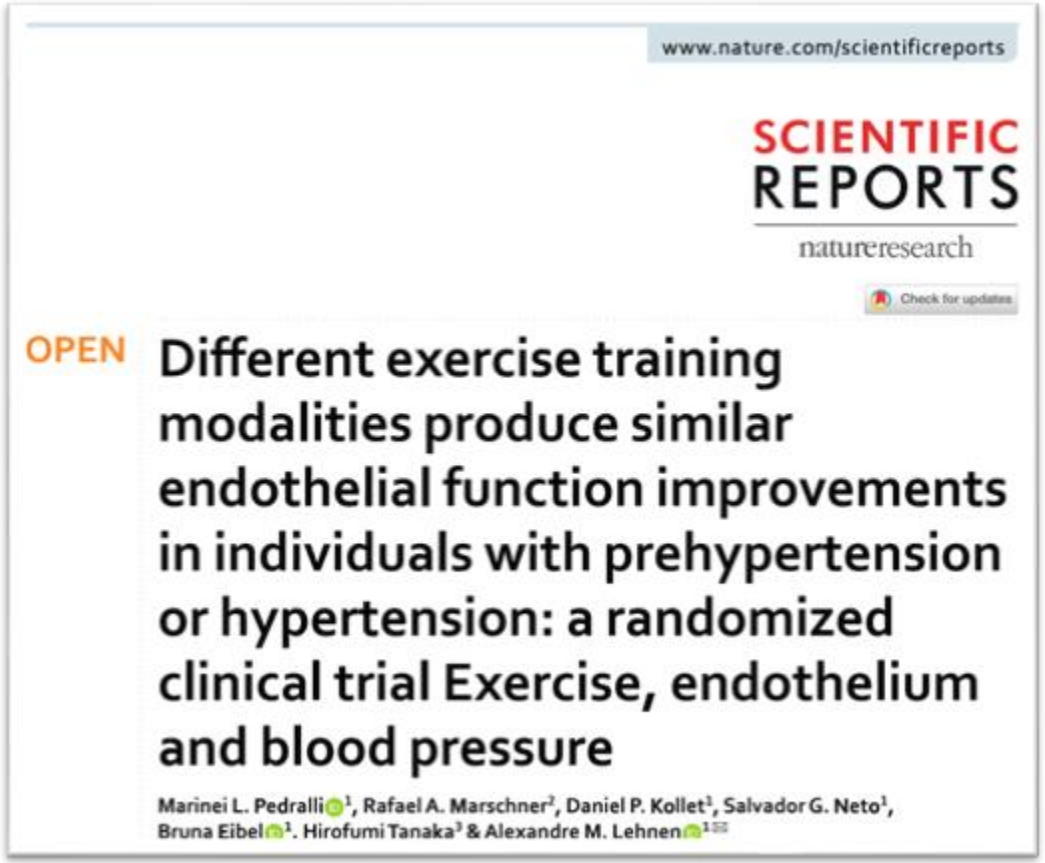
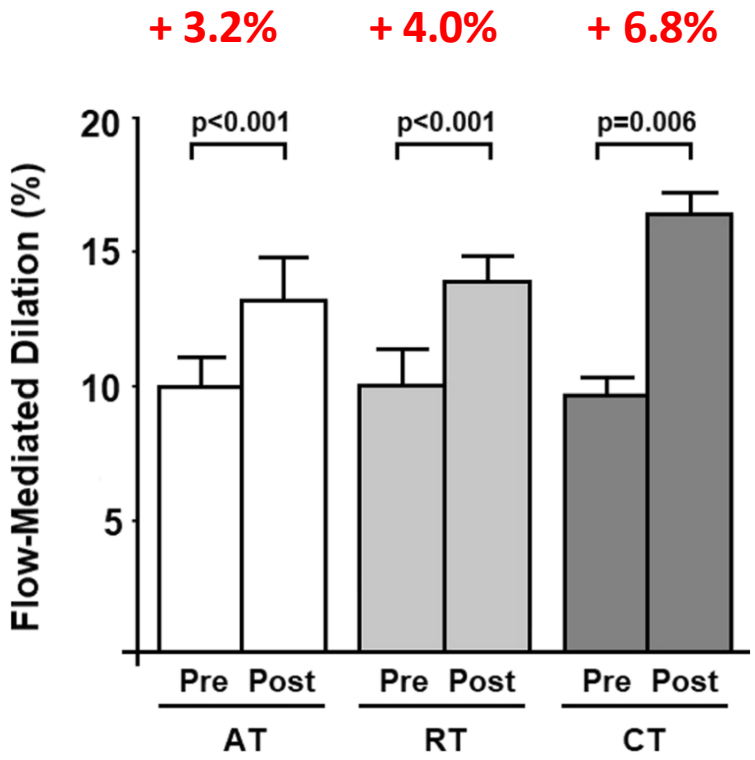
Can a patient with hypertension lift weights?



Pedralli ML, Marschner RA, Kollet DP, Neto SG, Eibel B, Tanaka H, Lehnen AM. Different exercise training modalities produce similar endothelial function improvements in individuals with prehypertension or hypertension: a randomized clinical trial Exercise, endothelium and blood pressure. Sci Rep. 2020 May 6;10(1):7628. Erratum in: Sci Rep. 2020 Jun 24;10(1):10564.



An increase of 1% in FMD is associated with a 13% reduction of cardiovascular risk in individuals with increased cardiovascular risk such as those suffering from hypertension

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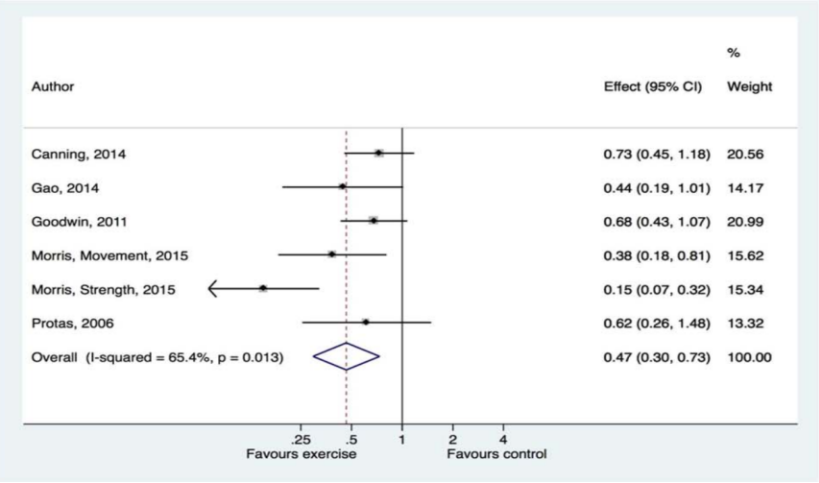
Should a patient with a history of falls exercise?

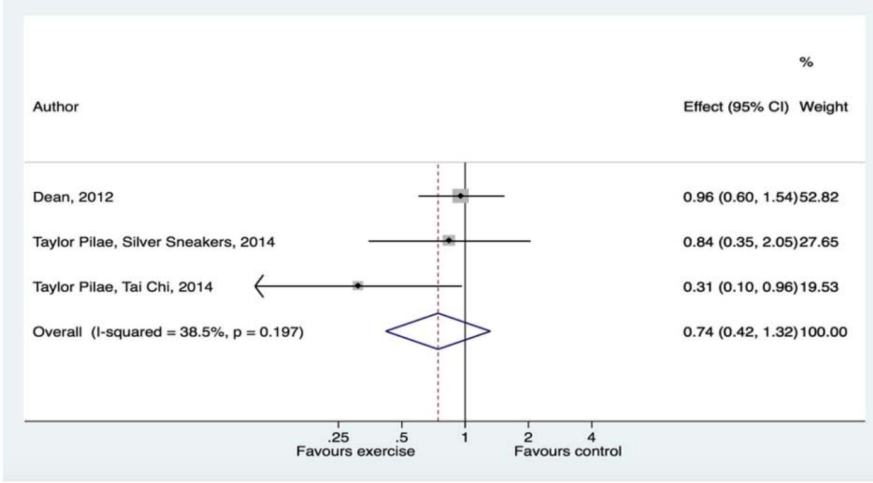
Exercise to prevent falls in older adults: an updated systematic review and meta-analysis

Catherine Sherrington,[1] Zoe A Michaleff,[1,2] Nicola Fairhall,[1] Serene S Paul,[1] Anne Tiedemann,[1] Julie Whitney,[3] Robert G Cumming,[4] Robert D Herbert,[5] Jacqueline C T Close,[5,6] Stephen R Lord[5]

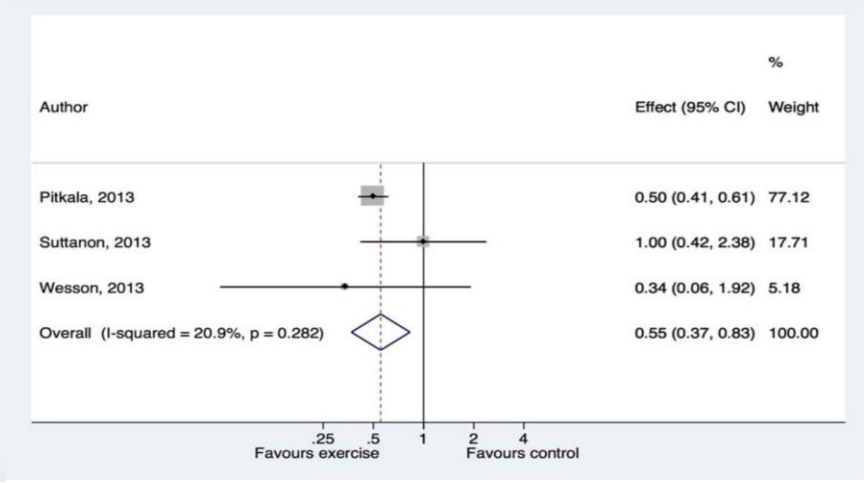
Br J Sports Med. 2017 Dec;51(24):1750-1758



Parkinson's Disease

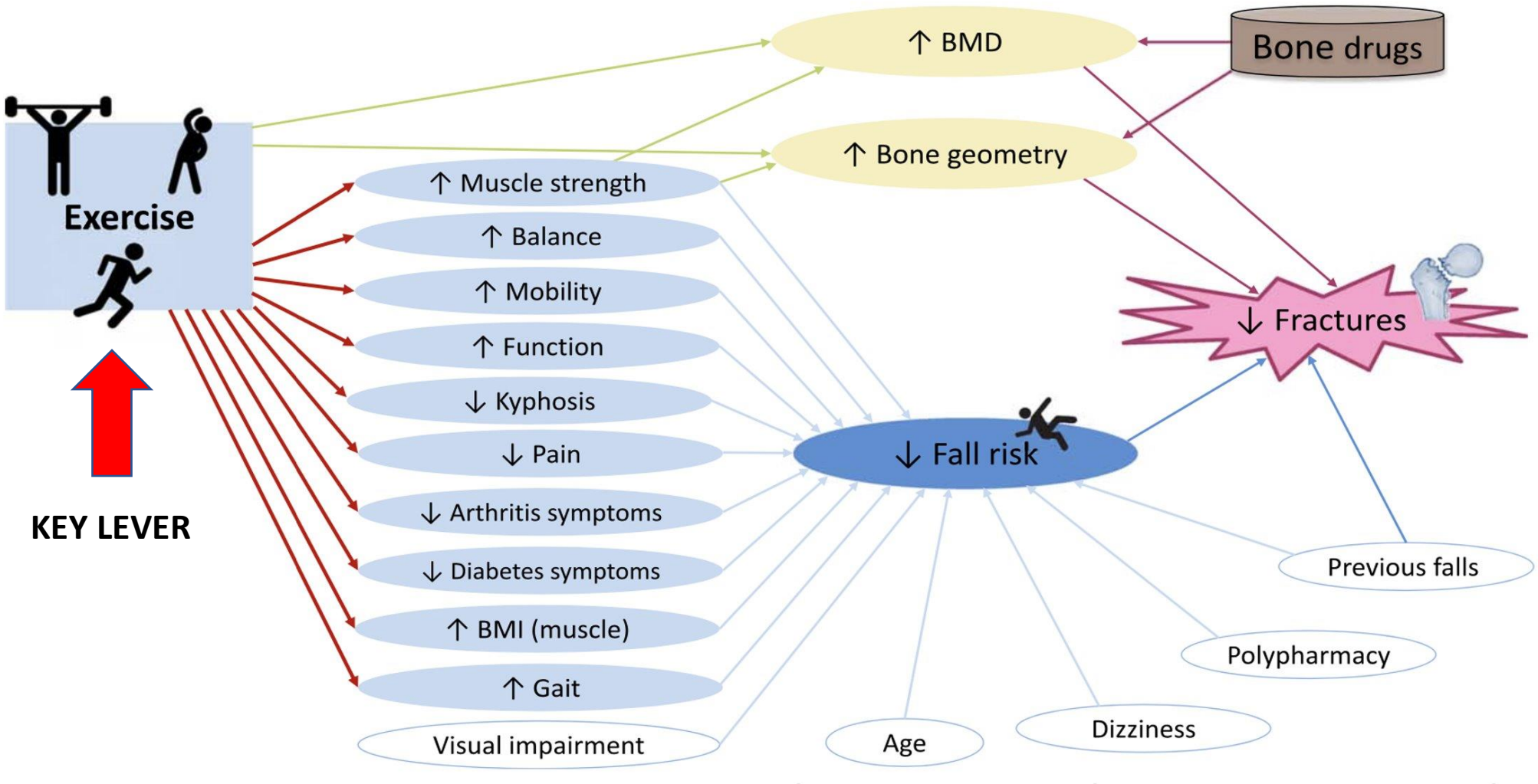


Stroke



Cognitive Impairment

Should a patient with a history of falls exercise?



Beck B. Exerc. Sport Sci. Rev., Vol. 50, No. 2, pp. 57–64, 2022.

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Eating and Sleeping Like an Athlete:

Calculating caloric needs for ADLs and exercise

Rest, recovery and sleep

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Caloric Needs by Age

Males

Age	Sedentary[a]	Moderately Active[b]	Active[c]
9	1,600	1,800	2,000
10	1,600	1,800	2,200
11	1,800	2,000	2,200
12	1,800	2,200	2,400
13	2,000	2,200	2,600
14	2,000	2,400	2,800
15	2,200	2,600	3,000
16	2,400	2,800	3,200
17	2,400	2,800	3,200
18	2,400	2,800	3,200
19-20	2,600	2,800	3,000
21-25	2,400	2,800	3,000
26-30	2,400	2,600	3,000
31-35	2,400	2,600	3,000
36-40	2,400	2,600	2,800
41-45	2,200	2,600	2,800
46-50	2,200	2,400	2,800
51-55	2,200	2,400	2,800
56-60	2,200	2,400	2,600
61-65	2,000	2,400	2,600
66-70	2,000	2,200	2,600
71-75	2,000	2,200	2,600
76 & Up	2,000	2,200	2,400

Females[d]

Age	Sedentary[a]	Moderately Active[b]	Active[c]
9	1,400	1,600	1,800
10	1,400	1,800	2,000
11	1,600	1,800	2,000
12	1,600	2,000	2,200
13	1,600	2,000	2,200
14	1,800	2,000	2,400
15	1,800	2,000	2,400
16	1,800	2,000	2,400
17	1,800	2,000	2,400
18	1,800	2,000	2,400
19-20	2,000	2,200	2,400
21-25	2,000	2,200	2,400
26-30	1,800	2,000	2,400
31-35	1,800	2,000	2,200
36-40	1,800	2,000	2,200
41-45	1,800	2,000	2,200
46-50	1,800	2,000	2,200
51-55	1,600	1,800	2,200
56-60	1,600	1,800	2,200
61-65	1,600	1,800	2,000
66-70	1,600	1,800	2,000
71-75	1,600	1,800	2,000
76 & Up	1,600	1,800	2,000

Calculating caloric

45 yo M; walks the dog, plays with his kids

- Weight in kg
- Activity factor
  - 1.1 - sedentary
  - 1.3 - active ADLs
  - 1.5 - moderate to vigorous intensity occupation
- 24 hours

Males

Age	Sedentary[a]	Moderately Active[b]	Active[c]
9	1,600	1,800	2,000
10	1,600	1,800	2,200
11	1,800	2,000	2,200
12	1,800	2,200	2,400
13	2,000	2,200	2,600
14	2,000	2,400	2,800
15	2,200	2,600	3,000
16	2,400	2,800	3,200
17	2,400	2,800	3,200
18	2,400	2,800	3,200
19-20	2,600	2,800	3,000
21-25	2,400	2,800	3,000
26-30	2,400	2,600	3,000
31-35	2,400	2,600	3,000
36-40	2,400	2,600	2,800
41-45	2,200	2,600	2,800
46-50	2,200	2,400	2,800
51-55	2,200	2,400	2,800
56-60	2,200	2,400	2,600
61-65	2,000	2,400	2,600
66-70	2,000	2,200	2,600
71-75	2,000	2,200	2,600
76 & Up	2,000	2,200	2,400

Females[d]

Age	Sedentary[a]	Moderately Active[b]	Active[c]
9	1,400	1,600	1,800
10	1,400	1,800	2,000
11	1,600	1,800	2,000
12	1,600	2,000	2,200
13	1,600	2,000	2,200
14	1,800	2,000	2,400
15	1,800	2,000	2,400
16	1,800	2,000	2,400
17	1,800	2,000	2,400
18	1,800	2,000	2,400
19-20	2,000	2,200	2,400
21-25	2,000	2,200	2,400
26-30	1,800	2,000	2,400
31-35	1,800	2,000	2,200
36-40	1,800	2,000	2,200
41-45	1,800	2,000	2,200
46-50	1,800	2,000	2,200
51-55	1,600	1,800	2,200
56-60	1,600	1,800	2,200
61-65	1,600	1,800	2,000
66-70	1,600	1,800	2,000
71-75	1,600	1,800	2,000
76 & Up	1,600	1,800	2,000

Sleep....the under-rated lifestyle behavior

- National Sleep Foundation guidelines advise that healthy adults need **between 7 and 9 hours of sleep per night**.

- Cross-sectional study involving 392 non-institutionalized adults aged ≥65 years
- Sleep quality and duration were assessed with the Pittsburgh Sleep Quality Index (PSQI)
- FRAIL scale was used to identify physical frailty
- Grip strength was measured using a hand-held dynamometer to assess muscle weakness
- **Participants with poor sleep quality were 2-3X more likely to have functional limitations, physical frailty and muscle weakness.**
- Sleep quality components associated with frailty were sleep disturbances, use of sleeping medication and daytime dysfunction.

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Summary

- Assess PA regularly – like a vital sign at every visit!
- Strength training becomes increasingly important with age
- Cardiometabolic disease is common – prediabetes 1 in 3 adults, high blood pressure 1 in 2 – assess as a part of preparticipation evaluation
- Caloric needs can be easily calculated (estimated) at the point of care: Wgt (kg) X Activity Factor (1.1, 1.3, 1.5) X 24 = Caloric needs
- Ask about sleep: 7-9 hours of QUALITY sleep for adults
- Exercise is Medicine.....for everyone!
  - Don't let disease get in the way of a good walk!

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