

PRESCRIBING MOVEMENT

Physical activity is essential to healthy living. In fact, it is difficult to find a component of health that physical activity does not improve.[1,2] This is especially important in the setting of humanity’s increased sedentary behavior. Some studies have shown that up to 25% of Americans currently sit for more than 8 hours each day, and this lack of movement is associated with poorer health outcomes.[3, 20] How might we, as clinicians, inspire and support our patients to maximize the benefits of movement and shift away from sedentary behavior? The following guide offers practical concepts and tools to help you and your patients “move the body.” Notably, this guide focuses on intentional movement, but unintentional activity, which is built into our day (for example, commuting to work with a bicycle), is also important to our physical and mental well-being.

BASIC CONCEPTS

Being fluent in basic concepts and terminology is important when articulating prescriptions for physical activity and exercise. The following section lists some key terms to be aware of.

KEY TERMS RELATED TO MOVING THE BODY

- **Physical activity:** Any activity that moves the skeletal muscles of the body and increases energy output (e.g. walking to work)
- **Exercise:** Structured and repetitive physical activity with a specific intent, usually to improve some component of physical fitness (e.g. weight lifting for muscular strength)
- **Physical fitness:** Various health- or skill-related physical attributes (e.g. muscular strength)

In short, physical activity, including structured exercise, contributes to health via the development of physical fitness.

There are many ways of categorizing types of physical activity, exercise, and physical fitness. The following scheme is endorsed by the American College of Sports Medicine (ACSM).[1] Each exercise represents a category of physical fitness. Body composition, however, is included as an additional fitness category without corresponding to a specific type of exercise. Having a grasp of the major types of exercise can help us to customize recommendations in a patient-centered approach. These exercise types are described in the section below.

TYPES OF EXERCISE AND PHYSICAL FITNESS

(adapted from the American College of Sports Medicine[1])

Aerobic: Exercise that increases cardiac output and oxygen consumption

- Prototype: Jogging/long distance running
- Physical Fitness: Cardiorespiratory fitness

Resistance: Exercise that uses resistance to develop the skeletal muscles

- Prototype: Weight lifting
- Physical Fitness: Muscular fitness

Flexibility: Exercise that stretches the soft tissues around joints to maintain or gain range of motion or limberness

- Prototype: Yoga (*asanas*)
- Physical Fitness: Flexibility

Neuromotor (a.k.a. functional fitness training): Exercise that improves a range of motor skills such as balance, agility, and proprioception

- Prototype: Tai chi
- Physical Fitness: Neuromotor fitness

(n/a): Relative amounts of bone, muscle, and fat in the body

- Prototype: BMI and waist-to-hip ratio are imperfect surrogates
- Physical Fitness: Body composition

It is important to realize that while specific exercises predominately fit into one category of physical fitness, most forms of exercise contribute to the development of fitness in more than one category. For example, while distance running mainly targets cardiorespiratory fitness, it also results in skeletal muscle hypertrophy, thus improving muscular fitness.[4] Similarly, different types of yoga may increase flexibility while also improving muscle composition and cardiovascular health.[5]. Even weight lifting, which has traditionally been considered resistance training, can be adapted to stimulate aerobic activity.

UNDERSTANDING INTENTION IN EXERCISE

In addition to considering which type of fitness is developed by a specific exercise, it may also be helpful to clarify the therapeutic intention of a prescribed movement. Improving a patient's aerobic fitness through jogging might be a good goal for a clinician interested in preventing coronary artery disease, but the patient may be more motivated by dancing for recreation. Focusing on the patient's intentions for a given exercise might bring us closer

to supporting their desired behavioral change. To do so, clinicians need to be aware of multiple ways to prescribe an intended type of exercise and to adjust these recommendations based on a patient's goals and abilities. Finally, providers must have a basic understanding of different conditions for which specific fitness strategies may be beneficial. The following section lists common reasons for promoting physical activity.

COMMON REASONS FOR PROMOTING PHYSICAL ACTIVITY

Rehabilitation: Fixing what is broken

- Example: Range of motion exercises for a sprained ankle

Prevention: Stopping a disease before it starts

- Example: Walking on a treadmill to prevent a myocardial infarction

Fitness: Being or becoming fit

- Example: Lifting weights to be stronger

Performance: Achievement

- Example: Improving endurance for a tennis competition

Cosmetic: Looking good

- Example: Cross-training to increase muscle definition

Recreational: Having fun

- Example: Salsa dancing on the weekends

Wellness: Feeling good

- Example: Running to enhance your mood

At least one study emphasizes the importance of intention to patient outcomes during physical activity.[6] In this study, researchers enrolled a group of 84 female hotel custodians and assigned half of them to an “informed” condition in which they were educated about how movement during their work day exceeded national recommendations for physical activity. The control group, on the other hand, was not informed about the active benefits of their work. At the end of 4 weeks, with no change in actual physical activity between both groups, the group that had the “informed” mindset about their physical activity at work showed significant improvement in several physiological parameters such as weight, blood pressure, and waist-to-hip ratio. The authors concluded that exercise partially affects health through the placebo effect, which is dependent on the

“mindset” of the participant. Thus, developing a clear intention for a particular exercise may be critical to the potency of that exercise.

EXPERT RECOMMENDATIONS FOR EXERCISE

Numerous recommendations and guidelines exist for exercise and physical fitness. These guidelines reflect the emphasis on aerobic exercise from the research literature and are helpful for setting a reasonable goal for most patients.

The American College of Sports Medicine has provided robust recommendations for adults, summarized in the following section.

Table 1. ACSM Exercise Recommendations for Healthy Adults[1]

Type of Exercise	Duration
Moderate-intensity* cardiorespiratory	≥30 minutes/day on ≥5 days/week for a total of ≥150 minutes/week
Vigorous-intensity** cardiorespiratory	≥20 minutes/day on ≥3 days/week for a total of ≥75 minutes/week
Combination of moderate- and vigorous-intensity	To achieve a total energy expenditure of ≥500-1,000 MET-minutes/week***
Resistance	For each of the major muscle groups
Neuromotor	Involving balance, agility, and coordination, 2-3 days/week
Flexibility	For each the major muscle-tendon groups, a total of 1 minute per exercise on ≥2 days/week

* Examples of moderate-intensity exercise include brisk walking and gardening.

** Examples of vigorous-intensity exercise include swimming or jogging.

*** A MET, or metabolic equivalent, is a unit used to gauge the intensity of exercise. 1 MET is being sedentary. A MET-minute incorporates how long is spent at various intensity levels. For more information, refer to the http://www.cdc.gov/nccdphp/dnpa/physical/pdf/PA_Intensity_table_2_1.pdf.

The U.S. Department of Health and Human Services' 2008 *Physical Activity Guidelines for Americans*[7] are nearly identical to the above guidelines for healthy adults. They also provide additional guidelines for special groups such as children, pregnant women, and persons with disabilities. Visit the [CDC website](#) for more information.

APPLYING THE RECOMMENDATIONS

Of course, being active for longer than is stated in these guidelines still has added health benefits. Additionally, if individuals are unable to meet the minimum recommended amounts of activity, health benefits are still noted with lesser activity. Given that only about 20% of American adults meet physical activity guidelines with respect to both aerobic and muscle-strengthening,[8] it is reasonable to support patients in moving *however and whenever it is possible*. This accommodation is especially important since many jobs rely on virtual and/or computer work, and this contributes to prolonged sitting and limited time for intentional exercise.

Additionally, the importance of non-aerobic exercise and fitness is generally under-recognized in practice,[2,9,10] and also may be under-emphasized by current activity guidelines.[10] In light of our increasingly diverse society, we should consider unique forms of exercise (like yoga and tai chi) as well as unscheduled sources of physical activity (like walking for transportation and gardening for neuromuscular benefits) to optimize our health.

A final consideration based on recent research is to prescribe a variety of physical activity, and alter this prescription over time, to maximize total energy expenditure through exercise. Medical anthropologists at Duke University recently published a study of a modern hunter-gatherer tribe in Tanzania known as the Hadza. While the Hadza exercise the same amount in one day as Americans exercise in one week, they burn the same number of calories as the average American each day [21]. One hypothesized explanation for this discrepancy is that the body gets accustomed to certain movements and undergoes energy conservation. If this is true, it is reasonable to consider changing the type of movements we perform to prevent the body from getting accustomed to these movements. Certainly, more research is needed to substantiate this theory.

APPROACHES TO COUNSELING AND PRESCRIBING

While every provider should develop his or her own unique style of prescribing movement, having a general framework for recommendations can be more helpful than a haphazard approach. The key points listed below may help provide that general framework while also working within a *Whole Health* model for care:

- **Learn and utilize structured techniques such as *motivational interviewing* and *health coaching*.** As with facilitating other lifestyle or behavioral changes, these approaches might help support a collaborative, respectful, and open-minded process. (For more information, refer to the [Motivational Interviewing Network of Trainers](#) and the *Global Advances in Health and Medicine* May 2013 special themed issue.[11]) Many VA clinicians have already been trained in this interviewing method.
- **Use a structured, brief intervention when recommending exercise.** The UK's National Institute for Health and Care Excellence (NICE) has published evidenced-based guidelines on "providing brief [activity] advice for adults in primary care."

[12] The NICE recommendations for offering advice on physical activity are summarized as follows:

- Advise those who are inactive to be more active, targeting minimum physical activity recommendations (such as the ACSM's) and emphasizing the benefits of physical activity.
- Tailor the brief advice to the person's motivations, goals, current activity and ability, circumstances, preference, barriers, and health status.
- Provide information about opportunities to be physically active.
- Consider giving a written summary of the advice given.
- Record the outcomes of the discussion.
- Follow up on progress when there is the opportunity.
- **Write your specific exercise prescriptions on a prescription pad.** Some authors have argued that given the potency and risks of exercise interventions, they should be dosed with the care warranted for the prescribing of drugs.[13]
- **Offer low-cost alternatives for patients who do not have the time or money to join a gym.** Consider the “make your body work” resource at the end of this handout, which offers links to 50 popular and effective at-home exercises. Or consider utilizing one of many free exercise applications for smartphones (such as “the 7-minute workout” or the “30-day squat challenge”). Check with the local YCMA. Some VA facilities have their own gyms.
- **When articulating an exercise plan, specify the FITT:[14,15]**
 - Frequency
 - Intensity
 - Type
 - Time (duration)

PRACTICAL ADVICE FOR WHOLE HEALTH

In addition to following these recommendations, a *Whole Health* approach might emphasize some easily-overlooked features when creating recommendations for exercise. The following are some points to consider:

- **Prioritize approaches to exercise that enhance mindful self-awareness.** On one hand, exercise may deepen and enrich one's feeling and awareness of the body. On the other hand, exercise may solidify old habits of ignoring and suppressing important biological cues such as pain. True to the Whole Health approach, exercise forms such as yoga and tai chi can help patients develop insight into the body, breath, and mind.
- **Practice and teach exercise as a way of understanding the body.** Mindfulness can be applied to virtually any physical activity, and any exercise is an opportunity to develop self-awareness of the body. As trained clinicians we have the opportunity not only to develop a personal understanding of our bodies through exercise, but also to share this process of discovery with our patients.
- **Encourage balance as a guiding principle.** Hans Selye was the first to apply the term “stress” to physiological systems, and he also described how repeated

exposure to an *appropriately intense stressor* leads to adaptation or conditioning.[14] The emphasis here is on appropriate intensity. In lay terms, we might teach our patients about the “Goldilocks Principle” by focusing on exercise that is neither too intense nor too relaxed, but *just right*.

- **Consider multipurpose activity if time is an issue.** Whereas multitasking with exercise (e.g. reading a magazine while running on a treadmill) may be the opposite of a mindful approach, multipurpose physical activity (e.g. walking for exercise and transportation) might be the most practical approach for a busy schedule. This is also known as unstructured physical activity. Consciously recognizing and remembering the multiple intentions served by a given physical activity (e.g. gardening for neuromotor fitness, prevention, recreation, *and* food production!) might also help to sustain motivation for healthy behaviors.
- **Encourage the integration of physical activity and exercise in daily life.** There is fair support for using short bursts of activity frequently throughout the day instead of the traditional continuous daily session.[1,16] One may not have time to peddle an exercise bike for an hour 5 days a week, but one may be able to spend an hour biking to and from work 5 days a week. These activities would be roughly equivalent in terms of benefits.
- **Reminder: carefully consider all important contraindications and precautions for your patient and the potential exercise.** In addition to comorbid illnesses, exercise history, and current level of physical fitness, also consider the patient’s belief system and goals, not to mention access and environmental hazards, when making recommendations. Consider a separate preparticipation assessment for patients with numerous comorbidities.
- **Model and disclose healthy behaviors to your patients.** Physicians who disclose their own healthy behaviors such as exercise are more likely to motivate patients toward healthy behaviors.[17,18] In addition, positive exercise habits may increase providers’ credibility to patients[17] and make them more confident in recommending exercise.[19]
- **Encourage fun.** Most people like to have fun, and enjoying physical activity will increase a patient’s likelihood of maintaining an active lifestyle. Emphasize activities that patients find more pleasurable and help patients link healthy activities to rewards.

SUMMARY

- It is difficult to find a component of health that physical activity and exercise do not have the potential to improve.
- There is a rapidly growing epidemic of sedentariness that threatens human health on a global scale.
- Physical activity, including structured exercise, contributes to health via the development of physical fitness.
- There are four major types of exercise, which correspond to four types of physical fitness: cardiorespiratory, muscular strength, flexibility, and neuromotor fitness. Body composition is a fifth type of physical fitness.

- There are numerous distinct intentions or reasons to exercise such as rehabilitative, preventive, fitness-oriented, performance-oriented, cosmetic, recreational, and wellness-oriented.
- The ACSM and CDC recommendations are summarized in Table 1 above.
- Develop a general framework to prescribing exercise such as motivational interviewing, health coaching, or a structured brief intervention. Formalize your recommendations or plan verbally and in writing, specifying FITT (frequency, intensity, type, and time [duration]) of physical activity/exercise.
- Recognize and encourage the opportunity to develop mindful self-awareness in exercise and physical activity.
- Model and disclose healthy exercise habits to patients.

RESOURCES

- [VA's MOVE!](#)
 - Program Excellent resources related to weight loss, and physical activity is no exception
- [American College of Sports Medicine website](#)
 - Numerous guidelines and resources for clinicians
- [Centers for Disease Control information](#)
- [American Council on Exercise](#)
 - Informational materials
- [Department of Health and Human Services, Office of Disease Prevention and Health Promotion](#)
 - Physical activity guidelines
 - Summary available at www.health.gov/paguidelines/guidelines/summary.aspx
- [Make Your Body Work](#)
 - Links to 50 free online workouts that involve minimal supplies and can be completed at home or while traveling

AUTHORS

“Prescribing Movement” was written by [Surya Pierce](#), MD, ABIHM, RYT and updated by [Sagar Shah](#), MD (2014. Updated 2022).

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