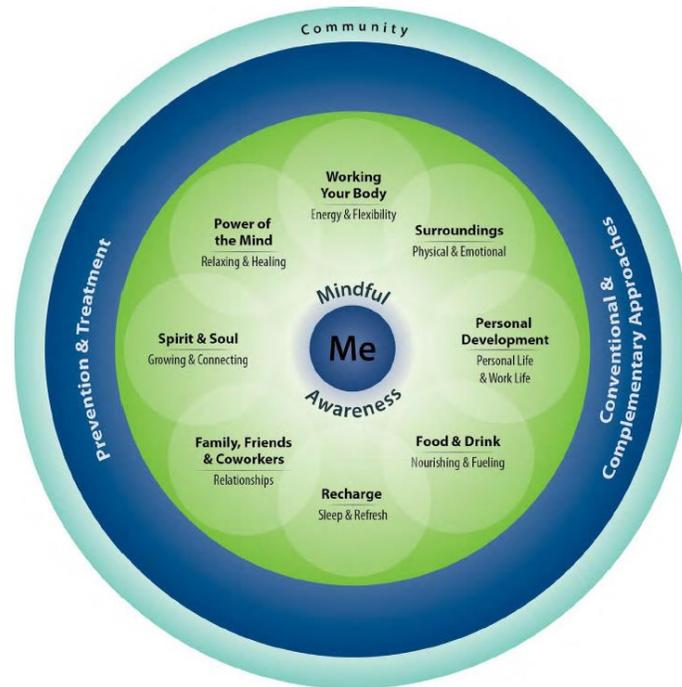


WHOLE HEALTH: CHANGE THE CONVERSATION

Advancing Skills in the Delivery of
Personalized, Proactive, Patient-Driven Care

Working Your Body Educational Overview



This document has been written for clinicians. The content was developed by the Integrative Medicine Program, Department of Family Medicine, University of Wisconsin-Madison School of Medicine and Public Health in cooperation with Pacific Institute for Research and Evaluation, under contract to the Office of Patient Centered Care and Cultural Transformation, Veterans Health Administration.

Information is organized according to the diagram above, the *Components of Proactive Health and Well-Being*. While conventional treatments may be covered to some degree, the focus is on other areas of Whole Health that are less likely to be covered elsewhere and may be less familiar to most readers. There is no intention to dismiss what conventional care has to offer. Rather, you are encouraged to learn more about other approaches and how they may be used to complement conventional care. The ultimate decision to use a given approach should be based on many factors, including patient preferences, clinician comfort level, efficacy data, safety, and accessibility. No one approach is right for everyone; personalizing care is of fundamental importance.

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What if there was one prescription that could prevent and treat dozens of diseases, such as diabetes, hypertension, and obesity? Would you prescribe it for your patients? Certainly.”¹

Vignette: Javier

Javier is a former paratrooper who served multiple tours in the Gulf War. In the course of his service, he experienced numerous injuries, but he is unsure which happened at what times. He does recall many “hard hits” when parachuting, and after some of these he was not able to get up without assistance.

After completing his military service in 1991, Javier’s previously good state of health began steadily deteriorating in the context of now chronic, debilitating bilateral knee and low back pain. He had an arthroscopic knee surgery complicated by both a post-operative wound infection and an allergic reaction to antibiotics. He soon began gaining massive amounts of weight, and he eventually developed severe sleep apnea requiring continuous positive airway pressure (CPAP) with supplemental oxygen. He began binge eating, rationalizing it by telling himself that it did not interfere with his normal functioning as a public school teacher and it was better than using any drugs or alcohol. He does not take his prescribed extended-release oxycodone.

Things began to change after Javier “hit rock bottom,” passing out in front of his classroom one day due to sleep deprivation and exhaustion. Around this time, he remembered how a yoga class decades ago had made his back feel great. However, when he went looking for local yoga classes, he was turned away repeatedly due to his poor physical condition. He heard that his local VA was offering yoga classes, and he decided to establish care there so that he could see what his options were.

He was asked to complete a **Personal Health Inventory (PHI)** prior to his visit. Below is the “Working the Body” section he completed.

Working the Body: <i>“Energy and Flexibility”</i> includes movement and physical activities like walking, dancing, gardening, sports, lifting weights, yoga, cycling, swimming, and working out in a gym.	
Where you are: Rate yourself on a scale of 1 (low) to 5 (high) 1 2 3 4 5	Where would you like to be? 1 2 3 4 5
What are the reasons you choose this number? <i>I can't walk. I have a diagnosis of “traumatic neuro-ataxia.” I have to use knee braces and crutches to get anywhere, and they tell me it is incurable. I weigh 340 pounds. I am feeling like I am closer to dying all the time.</i>	What changes could you make to help you get there? <i>I weighed 190 in the Service. I would like to get back there and feel strong again. I should probably just be thankful even to be able to walk better, but I want to believe more is possible, even if it is crazy.</i>

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Javier eventually found a yoga teacher who began teaching and coaching him via instructional videos and online chats. He started feeling better “almost immediately” after starting to practice. This teacher was blunt with him; he was told that if he didn’t change the way he was living, he would die and leave his family behind. This confrontation allowed Javier to see that his behavior was totally inconsistent with his deep love for his family, and his motivation to be well.

The Great Benefits of Working Your Body

Lack of activity destroys the good condition of every human being while movement and methodical physical exercise saves and preserves it. – attributed to Plato

It is difficult to find a component of health that physical activity does not have the potential to improve. There is a vast and growing field of research on how *working one’s body* can improve well-being, longevity and many medical conditions.^{2,3} There should be little (if any) doubt of the tremendous potential of physical exercise in improving and protecting the health status of populations and individuals.

Physical activity and exercise are two related terms with considerable overlap. In general, *physical activity* refers to any activity which moves the skeletal muscles of the body and increases energy output, whereas *exercise* refers to structured and repetitive physical activity with a specific intent—usually to improve some component of *physical fitness*.^{4,5} *Physical fitness* refers to a broad array of health or skill related attributes that include strength, flexibility, endurance, balance, agility etc.⁴ Given the overlapping research, similarly matched physical activity and exercise forms (e.g., walking briskly for a job versus walking briskly for exercise) presumably have similar health effects. Both structured exercise and other forms of physical activity have important health benefits and should be strongly encouraged.

Physical activity is associated with lower all-cause mortality rates^{5,6} and increases life span.⁷ Lack of physical activity is a modifiable risk factor for many of the most prevalent diseases of modern civilization, including cardiovascular disease, cancer (e.g., of the colon and breast), type 2 diabetes, hypertension and obesity.^{5,8}

Exercise mitigates the negative effects of aging even when initiated late in life and in moderate amounts.² Numerous prospective epidemiologic studies have found that physical activity is inversely associated with the risk of dementia.⁹ There is evidence that exercise enhances even such higher order skills as executive functioning, and that this benefit is found across the life span.¹⁰ Attention, processing speed and memory are also enhanced by exercise.¹¹

The positive effect of exercise on mood and psychological health has been very compelling.^{12,13} Exercise seems to decrease symptoms of both depression and anxiety^{14,15} Additionally, exercise is associated with increased psychological well-being¹⁶ and promotes brain cell growth.¹⁷

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SUMMARY: BENEFITS OF PHYSICAL ACTIVITY

- Associated with lower all-cause mortality rates^{5,6}
- Increases life span⁷
- Helps prevent cardiovascular disease, cancer (e.g., of the colon and breast), type 2 diabetes, hypertension and obesity^{5,8}
- Mitigates negative effects of aging²
- Associated inversely with risk of dementia⁹
- Enhances executive function¹⁰ and attention, processing speed, memory¹¹
- Decreases symptoms of depression and anxiety^{14,15}
- Increases psychological well-being¹⁶
- Promotes brain cell growth¹⁷

While physical activity is beneficial to health, physical *inactivity* or *sedentariness* is associated with negative health effects.⁶ According to the World Health Organization, inactivity (along with unhealthy diets) is a leading cause of non-communicable disease and poses a rapidly increasing health burden globally.¹⁸ Inactivity contributes to the American obesity epidemic in which currently about two thirds of adults are overweight or obese. There seems to be a linear relationship between physical activity and overall health status,⁵ with increases in health benefits seen even with increasing already high levels of physical activity.⁶ Not surprisingly, the greatest health benefit of physical activity comes as a result of increasing from no activity to some activity.⁶

This educational overview will discuss different ways for moving the body, including some that are often classed as complementary approaches. Benefits, harms and suggestions for making referrals for them will be outlined.

Evaluating Our Exercise Paradigm: Exercise As Usual

Aerobic exercise... and beyond

In recent decades much attention has been paid to the importance of aerobic exercise for disease prevention and health promotion, likely owing to the burden of illness from cardiovascular disease. This emphasis is reflected in recommendations and guidelines for exercise.² Indeed, aerobic fitness in particular has been strongly associated with decreased risk of cardiovascular disease,¹⁹ which remains the number one cause of death worldwide.

In addition to aerobic exercise, the research literature on exercise also strongly supports including other forms of fitness for health and disease prevention, especially resistance/strength training and flexibility exercise.³ There is data suggesting that musculoskeletal fitness is strongly predictive of health even in the absence of aerobic fitness.^{5,20-22} This may be particularly important for the elderly for whom musculoskeletal fitness is strongly associated with maintenance of functional status, and is negatively predictive for disease such as diabetes, chronic obstructive pulmonary disease (COPD), arthritis, coronary artery disease (CAD) and strokes.²³

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Few forms of exercise exclusively develop one type of physical fitness, and the non-aerobic aspects of physical fitness may be underemphasized in the literature.⁵ In light of our increasingly diverse society, we might consider alternative forms of exercise as well as common everyday sources of physical activity in order to optimize our health. Other forms of physical activity and exercise, particularly those developed centuries ago, may help to protect us against the rising diseases of “modern” civilization.

In light of our increasingly diverse society, consider alternative forms of exercise as well as common everyday sources of physical activity in order to optimize health.

The risks of usual exercise

There is clear evidence that physical exercise is associated to a small degree with increased risk of coronary events and musculoskeletal injury, but overall benefits of exercise clearly outweigh the risks.^{3,12} However, for individual patients, these risks and benefits must be carefully balanced. When we consider that death is a possible adverse event from an exercise intervention, our exercise prescriptions should be accompanied by a strong commitment to prevent harm.

We might question whether the prevalence of adverse events due to exercise is related more to regular exercise or to starting a new exercise program after not having exercised for some time. There is a paucity of research into what factors might reduce the incidence of exercise-related harms.³ In such circumstances we might remember Hippocrates’ aphorism to “first do no harm.” Personalizing our recommendations to the specific patient is, of course, fundamental.

Excessive or extreme exercise may be harmful in select patient populations and for certain patients.²⁴ Sudden cardiac death is a well-known risk associated with competitive athletics but is actually quite rare, with about 1 death per 100,000 marathoners.²⁵ Amongst participants in competitive and extreme endurance sports such as marathoners, ultramarathoners, triathletes and long-distance cycle racers, acute elevation of cardiac enzymes and adverse myocardial remodeling has been observed, and there are likely clinically significant effects of these changes in some patients.^{25,26}

There have been recent attempts to define exercise addiction and/or dependence,²⁷ which, like overtraining, may be associated with negative effects on mood.²⁸ There is also a well-known association between exercise dependence and eating disorders.²⁷ The female athlete triad of disordered eating, amenorrhea and osteoporosis is another important condition associated with impulsive and harmful behaviors around excessive exercise.²⁹ Compared to the robust body of research demonstrating benefits, there is not much known about the incidence of adverse events due to exercise. The incidence of exercise-related injuries in those engaged in moderately intense exercise are probably around 1% per month,³⁰ with highest rates amongst participants in resistance training, where up to 25-30% of participants report injuries that prompt them to seek medical attention.³¹

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Injury rates due to exercise are much higher in military training, with estimates between 6-30% of trainees being injured per month of training depending on the type of training.³² One study found that 25% of men and 55% of women had an injury requiring an outpatient visit in 8 weeks of basic training.³³ Musculoskeletal injuries are a leading health concern for military populations often with lasting effects on health.

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Working Your Body and Mindful Awareness

Working your body for Whole Health

One of the key issues in any exercise or physical activity program is how one *listens to* her/his body. Most of us have an intuitive sense of what we mean by "listening to" or attending to the various cues and feedback signals of our own body. We might actually overlook this body-centered attention as a given, or we might view body awareness as simply a side effect of athletic training. However, with a bit of reflection, we can easily see that attending to our bodies' cues represents an underlying skill set of somatic and visceral attentiveness that can be learned and cultivated... or allowed to atrophy. It is precisely this skill set that many forms of alternative and complementary movement practices (such as yoga, tai chi, etc.) seek to develop. This set of skills might be referred to as *mindful awareness of the body*, and there are many ways to develop it.



Mindful Awareness Moment Working Your Body

Pause for a moment. Bring your awareness to your physical body. (You may want to do a body scan. That is, take a moment to survey each part of your body. Bring your awareness to your feet, ankles, legs, abdomen and lower back, chest and so on up.

- How do you feel physically?
- Now focus on your feelings. How do you feel emotionally?
- What about your thoughts right now—are they positive, negative, neutral?
- When did you last engage in any physical activity? Today? Yesterday? Last week? Longer ago?
- Might your level of physical activity explain, in part, how you feel physically and emotionally right now (whether positive or not so positive)?
- Is it time to engage in some movement?
- What will you do? When will you do it? How long will you do it?

Is there an activity you have not done previously that you want to try in the future? If so, what is your first step in making that happen? When will you start the ball rolling regarding this new activity?

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It seems that exercise-as-usual might affect one's mindful awareness of the body in paradoxical ways. On one hand, exercise may deepen and enrich one's feeling and awareness of the body. For example, as a result of their training, many athletes report heightened awareness of aspects of their body of which they were previously unconscious (such as their breathing and the effects of diet). On the other hand, exercise may allow one to entrench and engrain habits of ignoring and suppressing important biological cues. For example, "That crushing left chest pain is just weakness leaving my body." The exercise itself is the same in both cases, but the outcomes are very different. We might recognize this polarity within our own experience of exercise or in that of our patients. Given the high injury rates in military training mentioned previously, we might suspect that military training could offer some the double-edged sword of ignoring the body's pain cues.

Many medical providers have seen the stoic patient who downplays symptoms and presents late for medical attention. Although this trait is sometimes associated with a "macho" personality, it is exhibited by patients of all genders. This behavior may not merely be due to an absence of knowledge about the signs and symptoms of illness; it may also represent an overt belief system or subtle relationship dynamic between the patient and his or her embodiment. Good providers can recognize such tendencies and modify diagnostics, treatments and recommendations accordingly, especially in the context of a long-term therapeutic relationship.

But what about the other extreme of body awareness? Again, many clinicians will recognize the type of patient who may be a little overly sensitive to their bodily feedback. Certainly such patients might prematurely withdraw from activity that is uncomfortable and/or need reassurance that they are okay. Guiding such patients to appropriate physical activity may also require certain sensitivity on the part of the clinician.

True to the *Whole Health* approach, an exercise program that emphasizes mindful body awareness is probably more advantageous than a mindless, self-unaware approach to exercise. At the very least, more mindful approaches to exercise might help to empower patients to work more effectively from their current level of ability. Guiding patients towards ways of moving the body that increase their own understanding of the connections between body, mind and spirit can send a powerful message in support of self-efficacy, self-awareness and healing.

Given the many benefits and potential risk of *working your body*, how might we maximize the benefit and reduce the risk? What is the range of options available? The following is an evidence-based survey of several approaches to working the body, with special attention to more mindfulness-based approaches. This is certainly not an exhaustive list, but rather an attempt to give examples of the range of possibilities.

Yoga: The Power of Self-Awareness

Background

Yoga is an ancient system of contemplative practice that has become very influential in contemporary culture. Originating in India where it has been practiced for millennia, yoga may be considered historically both a classical school of Indian philosophy and a multifaceted “psychospiritual technology.”³⁴ Today, yoga usually refers to a diverse set of exercises based on traditional practices that involve the body, breath and mind. A typical yoga class in the United States will focus on the physical postures (or *asanas*) of yoga, with varying amounts of attention to breathing, relaxation, and/or meditation.

The recent popularity of yoga in the United States is substantial. A 1998 survey found that 3.8% of Americans used yoga in the previous 12 months.³⁵ Ten years later a survey found that 6.9% of all U.S. adults were currently practicing yoga, and about half (49.4%) started practicing to improve their health.³⁶

Benefits

A vast and growing body of research suggests yoga has many health benefits, and these benefits somewhat overlap with those of more conventional forms of exercise. For example, yoga may benefit patients with cardiovascular disease,³⁷ type 2 diabetes³⁸⁻⁴⁰ and mood disorders.³⁸⁻⁴⁰ The research evidence for yoga is limited mainly by heterogeneity of yoga interventions and difficulty blinding controls.^{38,41,42} The strongest biomedical evidence for yoga is for treating non-specific low back pain^{38,43,44} for improving and maintaining functional status^{3,45,46} and for fall prevention.^{3,45,46}

Yoga has novel effects compared to usual exercise,⁴⁰ and there may be ways that yoga is superior to usual exercise for particular aspects of health.^{40,46} Preliminary data demonstrates that yoga practice is associated with increased mindfulness traits^{47,48} and decreases in stress levels.⁴⁸⁻⁵⁰ Yoga practice consistently demonstrates enhancement of physiologic markers of relaxation such as alpha wave activation on EEG and decrease in serum cortisol.⁵¹

Risks

Like exercise in general, the risks of yoga exercise seem to vary greatly by type of yoga and by preconditions of the participant.⁵² Generally, adverse events due to yoga seem to be rare.^{52,53} One large survey of Australian yoga practitioners found 21.3% of respondents reported ever being injured while practicing yoga, and only 3.4% reported being injured in the prior year.⁵³ Practice of the headstand, shoulderstand and lotus position, along with advanced breath practices, have produced a higher proportion of injury reports.⁵² Certain outlying styles, such as Bikram yoga, which is performed vigorously in hot, humid rooms, are associated with more adverse events.⁵² Patients with glaucoma should avoid inverted poses. Patients with osteopenia should avoid forceful practices. All participants should practice under the guidance of a qualified teacher.⁵²

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Making a referral

- Keep in mind that yoga is safe for healthy persons.
- Yoga may share many of the benefits of other types of exercise.
- Yoga has demonstrated novel effects compared to aerobic exercise, such as increased mindfulness and increased physiologic relaxation.
- There is fair evidence that favors using modified yoga programs to treat non-specific low back pain, to prevent falls, and to preserve functional status for those at risk of decline.
- The type of yoga matters; when in doubt, try it out for yourself before you make recommendations.
- Look for certified teachers with the Yoga Alliance, who bear the designation of Registered Yoga Teacher (RYT).
- Consider the longevity of the studio, school or center.
- Learning yoga from books or audiovisual media is traditionally cautioned against; encourage patients working from media to seek out an in-person teacher.

Healing-Oriented Yoga: Yoga Therapy

Yoga therapy (sometimes called *therapeutic yoga*) is yoga that is oriented specifically towards healing. Historically, the therapeutic aspects of yoga have been formalized by yoga's sister system of medicine, *Ayurveda*.⁵⁴ For more information, see the clinical tool on **Ayurveda**. Yoga therapy arose in recent years as practitioners sought to integrate current biomedical perspectives and yoga's therapeutic aspects. Yoga therapy now has an international professional organization, the International Association of Yoga Therapists (<http://www.iayt.org>), as well as a peer reviewed journal and numerous training programs. A growing number of yoga teachers, yoga therapists and more conventionally-credentialed health-oriented practitioners are contributing to this developing paradigm. Research on the health effects of yoga usually does not differentiate yoga and yoga therapy, but the distinction is important; most of the clinical trials using yoga employ an explicit therapeutic intent, as well as modifications of normal yogic exercise.

Making a referral

- Consider referring ill or debilitated patients to a qualified yoga therapist rather than a regular yoga class.
- Refer to therapists who are experienced and actively practicing therapeutic yoga. Word-of-mouth still matters.
- Choose therapists who have additional training and credentialing in a health care profession such as nursing or medicine.

Tai Chi: Moving Meditation

Background

Tai chi (also known as *t'ai chi ch'uan* or *taijiquan*) is an ancient Chinese martial art that has received considerable attention in recent years for its health effects. This system has its roots in Taoist philosophy, and the abbreviated form of its name *tai chi* also refers to an important concept from this view; it is literally translated as “supreme ultimate.” Tai chi has deep historical associations also with traditional Chinese medicine (TCM) particularly in regard to theory and practice of harmonizing the energy or *qi* (pronounced “chee”) within the body. See also the clinical tools, [Energy Medicine](#) and [Acupuncture and Traditional Chinese Medicine](#).

In its contemporary form, tai chi is recognized by its slow, graceful gestures and soft flowing movements coordinated with the breath, conducted standing with slightly bent knees. The exercises are often poetically named (e.g., “grasping the bird’s tail”), and the rhythmic movements invite peace and clarity of mind.

Given its relationship to many of the martial arts traditions of Asia, tai chi’s many health effects are suggestive of the health potential of other martial arts forms. Although historically tai chi’s role in self-defense was more integral, many contemporary schools and teachers have de-emphasized the martial aspect of tai chi while underscoring the health and healing intentions. Tai chi is sometimes classified as an “internal” martial art due to its emphasis on internal processes of the practitioner, while more externally forceful martial art forms, such as karate, are classified as “external” martial arts.

Qi gong

Qi gong (also known as *qigong*, *chi gung* or *chi kung*) is another practice closely related to tai chi. The name of this system refers to a process of “cultivation of vital energy,” and its practices involve harmonizing and regulating the energy (or *qi*) internally through the use of posture, breathing and mental attention. It is said that tai chi is a type or expression of qi gong. Given this close relationship, some have argued that research about tai chi and qi gong should be considered as a unified whole.⁵⁵

Benefits

The body of evidence supporting the health benefits of tai chi/qi gong is fairly robust. The strongest evidence for tai chi is for fall prevention in the elderly.⁵⁶⁻⁵⁸ This effect is most likely mediated by increase in balance and muscular strength. Somewhat surprisingly, tai chi has an aerobic component.^{59,60} Numerous physiologic benefits of tai chi have been observed including lowering of heart rate, blood pressure and cholesterol.⁶⁰ Tai chi is most likely helpful in both preventing and treating osteoporosis.⁶⁰ This practice may also be beneficial for mood disorders⁶¹ and improving psychological well-being.^{56,60,62}

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Risks

There is likely very low risk of harm doing tai chi. Given tai chi's aerobic component, the general risks of aerobic exercise, as noted earlier, should be considered.

Making a referral

- Tai chi is a safe and beneficial form of exercise when practiced under the guidance of a qualified teacher.
- The benefits of tai chi may be particularly suited to an aging population.
- Tai chi has an aerobic component in addition to increasing strength and balance.
- Tai chi has strong evidence for preventing falls and increasing psychological well-being.
- Other martial arts classes may share some of the effects of tai chi as well as incorporating some of the techniques of tai chi.

Pilates: Strengthening from Your Core

Background

Pilates is a method of exercise that emphasizes controlled, coordinated movements and integration of the musculoskeletal system. It was developed in the early twentieth century by Joseph Pilates (1880-1965) who suffered from debilitating illness as a child but recovered dramatically by adulthood. True to its therapeutic roots, Pilates is often offered in hospitals and therapeutic settings. It is explicit in its aim to develop aspects of physical fitness such as strength, flexibility and endurance, along with mental and neurological aspects, such as concentration and control.

Pilates classes typically focus on developing balanced muscular strength, especially in the postural and accessory muscles of the trunk, i.e., "the core." The movements also target neuromuscular integration through use of the breath and attention to precision of movement. It uses a variety of specific apparatuses towards these ends. The system is appropriate for all stages of life and contains modifications for various levels of fitness.

Benefits

There is fair evidence that the Pilates method can improve flexibility and balance.^{63,64} It may also help with muscle endurance.¹ Evidence of clinically-oriented outcomes is lacking.

Risks

Pilates is a low-risk activity when performed correctly, and there are few reports of adverse events due to the Pilates method.

Making a referral

- Pilates is safe and likely helpful in improving balance, flexibility and strength.
- In the hands of an experienced teacher or therapist, there is potential for Pilates to facilitate other aspects of musculoskeletal health.
- Look for instructors who have completed training through the Pilates Method Alliance. (<http://www.pilatesmethodalliance.org/>)

Walking: Everyday Exercise

“Walking is man’s best friend.” – attributed to Hippocrates

Background

Walking has a somewhat unique combination of attributes to make it an excellent public health target; it is accessible, safe, inexpensive, well tolerated, effective, requires no special equipment, and is amenable to structured promotion programs.^{65,66}

Benefits

Walking programs can significantly improve cardiovascular risk, weight and other cardio-metabolic indicators.⁶⁷ While most research about the effects of walking have been from epidemiologic studies, brisk walking (3-4 miles per hour) does fit the profile of a moderate-intensity aerobic exercise.⁶⁵

Nordic or Pole Walking, which is basically walking with the use of ski poles or something like them, has received recent research attention and may have benefits over standard walking due to increased aerobic demand.^{68,69} This practice might also decrease the risk of falls.

Pedometers are one way of motivating walking behavior. One caution is that inexpensive pedometers vary widely in estimating steps.⁷⁰ Programs that promote “10,000 steps” motivate participants to meet this signature number of steps daily; this corresponds to walking about five miles. Meeting this requirement meets or exceeds physical activity recommendations and likely improves health.⁶⁷

Risks

Walking is generally well-tolerated. However, special modifications should be considered. Patients with conditions such as memory impairment should be supervised as they walk. Walking tracks (which eliminate or reduce obstacles, inclines, uneven surfaces, and effects of adverse weather conditions) should be used by those with balance issues.

Making a referral:

- Due to its relatively low-impact nature, walking may be ideal for people who are weak, debilitated or convalescing.
- Brisk walking (3-4 miles per hour) is an excellent moderate-intensity aerobic exercise. Target 30-60 minutes per day.
- Nordic walking (with poles) may have health advantages over regular walking.
- Pedometers are effective for motivating walking behavior. Poor-quality pedometers may be inaccurate and thus misleading.
- Targeting 10,000 steps per day is a good starting “dose” for walking.

Running: The Evolutionary Advantage

Background

Running or jogging is, of course, a more conventional form of exercise. Running has received much recent attention as far as its role in human evolution. There are numerous aspects of human physiology and anatomy that suggest the human body was optimally designed for running long distance. It is thought that this ability to run great distances was a prime advantage in early human history and possibly a major distinguishing feature of our species.^{17,71}

Benefits

Exercise routines involving running are central to the conventional paradigm of exercise. Much of the general exercise literature applies squarely to running.

Of note, equivalent energy expenditures of walking versus running are associated with similar improvement in cardio-metabolic variables, however running achieves the target in less time.⁷²

Risks

As noted previously, there is an increased risk of musculoskeletal injuries and coronary events with traditional forms of exercise.

Making a referral

- Evidence suggests that distance running may be a more physiologically correct form of exercise for our species.
- If you are short on time, running may be “more bang for your buck” compared to less intense forms of exercise.
- Routine pre-participation exams and advice should be provided to patients beginning running activities, especially in the context of comorbidities.

Back to Javier

Javier began avidly pursuing his yoga teacher’s training program, which involved a “clean,” whole food based eating program, “dynamic tension” yoga exercises performed with a heart rate monitor, and guidance with modifying yoga poses to his particular needs. He started reading more about health. He quickly lost weight from his new program, dropping a staggering 140 pounds during the first year of his new lifestyle. He also eventually stopped needing his crutches and knee braces.

Today Javier’s pain is “manageable” without medication. He practices yoga daily and teaches yoga four days a week in addition to his day job. He states that before his yoga program, “Health is what happened to me.” He now is certain that finding yoga and his yoga teacher is what allowed him to choose wellness and to take responsibility for his health.

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Working Your Body Clinical Tools
<ul style="list-style-type: none"> • Yoga: Looking Beyond “The Mat” • Prescribing Movement • Improving Flexibility

Online Resources		
Organization	Description	Website
American College Of Sports Medicine	Excellent source of guidelines, recommendations and research on exercise.	www.acsm.org
American Council on Exercise	Non-profit “committed to enriching quality of life through safe and effective exercise and physical activity.”	www.acefitness.org
Physical Activity Guidelines for America	Office of Disease Prevention and Health Promotion, U.S. Department of Health and Human Services guidelines and educational materials on physical activity.	www.health.gov/paguidelines/
CDC: Physical Activity	Centers for Disease Control and Prevention’s physical activity guidelines.	http://www.cdc.gov/physicalactivity/everyone/guidelines/index.html
Yoga For Vets	Non-profit organization dedicated to help war Veterans “cope with stress of combat through yoga instruction.”	http://www.yogaforvets.org
iRest in the Military	Branch of the Integrative Restoration Institute’s presentation of yoga-based practices in support of active duty military and Veterans.	http://www.irest.us/projects/veterans
Warriors at Ease	Training, certification and resources that bring “the healing power of yoga and meditation to military communities around the world.”	http://warriorsatease.com
Yoga Warriors International	Large multifaceted program offering evidence-based yoga and mindfulness practices “to alleviate symptoms of combat	http://www.yogawarriors.com

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	stress, post-traumatic stress disorder and increase the resilience of critical task performers.”	
The Huffington Post –Military yoga	A variety of articles/blog posts discussing yoga’s emerging role in the U.S. military.	
The International Association of Yoga Therapists	Professional organization with numerous publications and other resources dedicated to establishing “yoga as a recognized and respected therapy.”	http://www.iayt.org
Tai chi: A gentle way to fight stress	Basic information about tai chi from renowned Mayo Clinic.	www.mayoclinic.org/tai-chi/ART-20045184
Tai chi: A gentle way to fight stress	Basic video description of about tai chi	www.mayoclinic.org/tai-chi-video/VID-20084646
Horse Stance Exercise	Instruction on a basic tai chi exercise from UW Health Integrative Medicine.	www.uwhealth.org/alternative-medicine/horse-stance-exercise/39649
Pilates Method Alliance	Authoritative source of professional information and certification.	www.pilatesmethodalliance.org/

Whole Health: Change the Conversation Website
<p>Interested in learning more about Whole Health? Browse our website for information on personal and professional care.</p> <p>http://projects.hsl.wisc.edu/SERVICE/index.php</p>

This educational overview was written by Surya Pierce, MD, ABIHM, RYT, integrative family medicine physician at University of Oklahoma Health Services.

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