

# Health, Wellness & Fitness Quarterly

## Exercising Safely During Fitness Center Workouts

By Linda Erickson, PT, MS, OMPT

Fitness centers have become popular places for aerobic conditioning and strength training. The larger facilities cater to individuals and families and have extensive programs which may include swimming, rock-climbing, spinning (cycling), running, basketball and other sports, fitness classes including Pilates and aerobics, spa offerings, locker rooms with showers, and child-care. Smaller gyms attract customers by providing basic services such as weight-training and cardiovascular conditioning for low monthly fees. Both types of fitness centers partner with personal trainers, who are available for hire by members who would like assistance in reaching their personal fitness goals.



Fitness centers have become popular places for aerobic conditioning and strength training.

Exercise instructors and personal trainers provide some valuable expertise and feedback during classes and one-on-one sessions. Their expertise lies with the conditioning of normal adults and youth: those who are free of musculoskeletal injuries. This is important for the fitness enthusiast to keep in mind, particularly if he is just returning to regular fitness workouts following a period of rehabilitation or is a newcomer to the fitness environment.

Fitness goals for members often differ by age groups. Seniors may wish to sustain or improve functional strength, joint range of motion, and muscular flexibility, as well as maintain bone density. Middler-agers may be trying to lose weight, to return to the fitness of their youth, or trying to maintain an already toned physique. Teens and twenties may be trying to build muscle bulk or gain aerobic endurance for individual or team sports. Ex-



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### Our Therapists

Frank C. Kava, PT, MS, OCS, OMPT

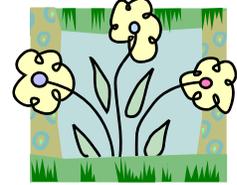
Kristie Sherman Kava, PT, MS,  
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Elizabeth Burkel, DPT

Cathy Jamrog, MPT





## Exercising Safely During Fitness Center Workouts (continued)

ercises performed by a younger person are often not suitable for a geriatric exerciser because of factors such as strength, flexibility, speed, balance and timing, and physiological considerations such as heart rate and breathing capacity.

### Safety considerations in the gym

Fitness enthusiasts must regularly allocate time during the week to work-out. Sometimes the time allotment is less than optimal in the mind of the avid exerciser. Despite time constraints, the two aspects that should be a part of every session are the warm-up and cool-down phases. Initially the participant should perform a total body aerobic activity for 5-10 minutes at 60% maximum heart rate to



**DON'T:** Exercises performed without good neck and low back position can cause unnecessary discomfort.

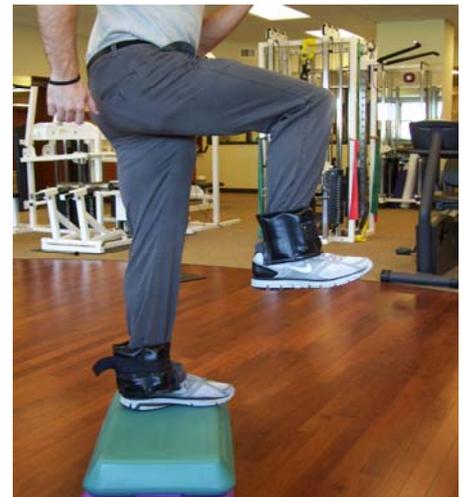
increase circulation throughout the body and warm-up the muscles. Then gentle stretches should be performed for the arms, legs and trunk muscles. Hold each stretch for 20-30 seconds without causing pain. After completing the entire work-out, the process should be reversed and more stretches performed.

### Maintaining optimal alignment

While performing cardiovascular exercises in the gym, using weight machines, or lifting free-weights, it is important to maintain the entire spine in a neutral, balanced posture. In the lower trunk the transversus abdominus or lower abdominals must be contracted to protect the spine from undue stress. It is also advantageous to use the buttocks and lateral thigh muscles to stabilize the low-back and pelvis. Co-contraction of gluteals and abdominals provides a “girdle” effect which maximizes stability. Likewise in the upper torso the shoulder blades should be held against the sides of the ribs to facilitate shoulder function and protect the neck. The chin should not be allowed to poke forward because this increases the lordotic (sway-back) position of the cervical spine.

The more strenuous an exercise, the more likely it is that the neu-

tral spine position will be altered negatively thus increasing the risk of injury. Spinal neutral can also be abandoned when an exercise is performed too rapidly without attention to proper positioning. An example of this might be trying to do “rapid-fire” sit-ups or crunches in a certain time period. Self-imposed time constraints cause good form and proper stabilization to be ignored for the sake of meeting a

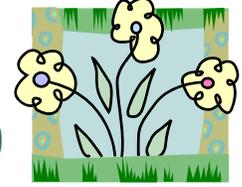


**DON'T:** If weights are placed on the ankles, this places a stress on the hip flexor muscles.

quantitative goal. An injured muscle or ligament will be a setback that can be easily avoided if proper positioning observed.

Often overly-zealous exercisers or novices will use heavy free weights in their upper extremities, performing vigorous movements with their arms away from





## Exercising Safely During Fitness Center Workouts (continued)

the body. Functionally, an arm which is heavily-weighted acts as a long lever. In standing, the force which is generated is magnified and transferred to the low back (lumbar spine). By maintaining spinal neutral the impact of the arm as a long lever can be greatly reduced, thus protecting the lumbar spine from injury. Also, when starting out, always use less weight than you think you can realistically lift. Unconditioned muscles have underdeveloped nutrition delivery and waste removal systems. Muscle soreness occurs when waste by-products (lactic acid) build up in



**CAUTION:** Deep knee bends or lunges while lifting excessive weight can wear down the knees over time.

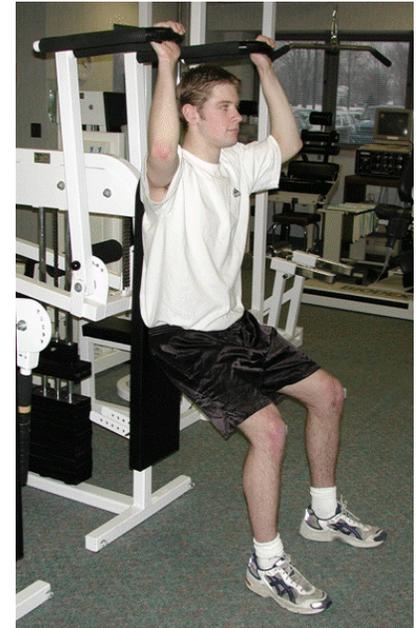
the muscles. Soreness may take up to 24-48 hours to develop. To avoid soreness use light weights and take longer rest periods be-

tween repetitions.

Sometimes fitness enthusiasts will feel compelled to place cuff weights around their ankles and then walk, run, or perform other closed-chain (feet in contact with a surface) activities. Although to some the equation “additional weight=increased strength” may seem logical, the location of the weight and the resulting effect of the weight placement do make a difference. If weights are placed on the ankles, this places a load on the hip flexor muscles in the groin. These hip flexor muscles (iliacus and psoas) lift the thigh toward the ceiling during walking and bend the trunk down when the foot is planted on the floor. Because of the muscular attachment of these muscles on the lumbar spine, the spine can actually be stressed as the weighted limbs become fatigued by exercise repetition.

### Protect your knees and shoulders

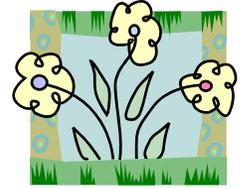
Extremity joints can also be stressed with vigorous exercise. Deep knee bends or lunges while lifting excessive weight can wear down the knees over time. In addition, poor posture, rounded shoulders due to anatomy, and over-emphasis on chest strengthening exercises can cause shoulder pain labeled “impingement”. Impingement is



**DO:** Keep your spine in good alignment while using weights or machines.

caused when the muscles of the superior shoulder such as the rotator cuff or long head of biceps are repeatedly pinched in the shoulder socket by the top of the humerus (upper arm bone). The muscles which counteract this phenomenon are the scapular adductors and depressors which are located in the mid back. Often these muscles are overlooked in the strengthening program in favor of the more glamorous pectorals. Chest presses and overhead presses with excessive weight or too many repetitions can worsen shoulder impingement.

The novice exerciser may be in-



## Exercising Safely During Fitness Center Workouts (continued)

trigued by watching the exercises of other individuals. He or she may be enticed into trying a floor exercise that has been observed, or may be coaxed into doing a difficult exercise by a well-meaning acquaintance. The inherent danger is that many exercises are built on sequential skills or steps that must be mastered before progressing to the next level. To perform the entire exercise well requires perfect coordination, strength and timing brought about by concentrated practice. When learning complex exercises, the steps must be broken down and learned in a sequence before compiling the parts into a perfect whole. If performed prior to the sequential learning, the exerciser expends energy needlessly and puts himself at risk of injury because he has not mastered the previous steps. As always, the spine and extremities may be at risk for injury when the exerciser rushes the progression by attempting too much too soon.

### Summary

1. Choose a gym with the amenities and price that are right for you. Hours of operation are important too.
2. If you have had a recent injury, consult with your physical therapist about appropri-

- ate exercises for the gym. You may want to work with a personal trainer under those guidelines while you are getting started.
3. Begin by setting reasonable goals for improvement.
4. Warm-up and cool-down should be a part of every session.
5. Contract your lower abdominals and gluteal muscles to help protect your spine while exercising.
6. Keep your spine in good alignment while using weights or machines.
7. Exercise at a safe speed.
8. Started with LESS weight and/or time than you think you can realistically do. Muscle soreness may take 24-48 hours to appear.
9. Avoid excessive weight strapped to the ankles.
10. Strengthen chest muscles and back muscles equally.
11. Avoid excessive repetitions of heavy overhead shoulder presses.
12. Begin with basic exercises and progress to more complex movements, especially with mat activities.
13. Consider your flexibility and active range of motion of joints

when trying difficult exercises.

14. Relax, smile and make some new friends!

**Oakland Physical Therapy, P.C.** offers a fitness program to its therapy “graduates”. For a reasonable fee of \$35 per month, former physical therapy patients can exercise in the gym 6 days a week. Patients are welcome to use the equipment during office hours (except 12 noon - 1 pm). Advantages of pursuing fitness at **Oakland Physical Therapy, P.C.** include accessibility of therapists if you have questions or wish to progress your program, and technician supervision and assistance with more difficult equipment set-ups. For more information or to sign up contact the front desk at (248)380-3550.



A fitness program participant works out in the gym by doing sit ups on a fitness ball.



# Performing Arts Physical Therapy

By Kristie S. Kava, PT, MS, DScPT, OMPT

Instrumental musicians are at risk for upper extremity musculoskeletal injuries. The rate of occurrence of musculoskeletal injuries for musicians ranges from 39% to 87%, which is similar to work-related musculoskeletal injuries in the general population.<sup>1,2</sup> Just under 10% of college-level instrumental performance majors sustain a performance injury each year.<sup>3</sup> For musicians, even a minor musculoskeletal injury, which may not be disabling to the general population, may significantly affect their ability to perform. Successful treatment of musculoskeletal problems in a musician and prevention of future problems consists of several components. First, the type of injury must be identified and how often it occurs. The mechanism of injury and potential risk factors must also be identified. Regional muscle



pain syndromes and tendon damage accounts for the majority of diagnoses.<sup>3</sup> The most common parts of the body affected are the arms, hands, shoulder blades, and upper back. Risk factors for injury can include characteristics of the performer and the environment, and can be modifiable (e.g., strength or hours of practicing per day) or non-modifiable (e.g., gender).<sup>3</sup> Data shows that women are injured more frequently than men and the frequency of injury varies with the instrument played.<sup>4</sup> A likely risk factor for injury is a sudden increase in playing time. The second step in developing an effective prevention program would be to design an intervention based on the information mentioned above.



## At Oakland Physical Therapy, P.C.,

the musician is evaluated for the specific mechanism of injury and potential risk factors. Treatment for the injury would include specific attention to the painful area, and patient education for posture, ergonomics, strength, endurance, flexibility exercises, and management of risk factors. The goal of treatment would be to allow the musician to continue to safely perform without the interference of pain or limitations.



<sup>1</sup> Wu, S.J. (2007). Occupational risk factors for musculoskeletal disorders in musicians: a systematic review. *Medical Problems of Performing Artists*, 22(2), 43-51.

<sup>2</sup> Zaza, C. (1998). Playing related musculoskeletal disorders in musicians: a systematic review of incidence and prevalence. *Canadian Medical Association Journal*, 158(8), 1019-1027.

<sup>3</sup> Manchester, R.A.; Toward better prevention of injuries among performing artists. *Medical Problems of Performing Artists*, 21(1), 1-2.

<sup>4</sup> Cayea, D. Manchester R.A., Instrument specific rates of upper-extremity injuries in music students. *Medical Problems of Performing Artists*, 13, 19-25.



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## Your Career As a Physical Therapist

Oakland Physical Therapy, P.C. will be presenting a community education class entitled, **“Your Career As a Physical Therapist”**. This class will be given by Frank Kava, PT, MS, OCS, OMPT and Elizabeth Burkel, DPT. This class will be an introduction to the field of physical therapy. This is an opportunity for both high school and college students and their parents to meet and talk to both experi-

enced physical therapists and recent graduates with a doctorate in physical therapy. Hear about a typical day in the life of a physical therapist and tour an environment where physical therapists commonly work.

DATE:

**Thursday, May 27, 2010  
7 PM**

Oakland Physical Therapy  
26850 Providence Parkway  
Suite 365  
Novi, Michigan 48374  
Please register prior to the class as space is limited. Please reserve your spot by calling **(248)380-3550**.

The class is free of charge as a community service

