

By Leigh Crews

Designing a **YOGA** PROGRAM for Active SENIORS

How a simple yoga practice can alleviate symptoms of arthritis, hypertension and osteoporosis, three health conditions that typically affect older adults.

Fitness professionals are reporting a surge in the number of active older adults engaging in mind-body exercise programs, such as yoga. And in the 2004 IDEA Fitness Programs & Equipment Survey, 47% of respondents said they now offer specialty programming just for seniors (IDEA Health & Fitness Association 2004).

What are some of the benefits and con-traindications of yoga for active seniors? Are there appropriate yoga breathing techniques and pose sequences for our older clients? And what can we, as fitness professionals, do to appropriately adapt our regular yoga classes to accommodate clients who suffer from three of the most common health conditions facing seniors today: arthritis, hypertension and osteoporosis? >>

Health Benefits of Yoga

Studies have shown that the practice of yoga—including pranayama (breath work), asana (movement) and dhyana (meditation)—offers numerous physiological and psychological health benefits for all age groups. When it comes to older yoga students, the beneficial effects can be particularly helpful in relieving the symptoms of arthritis, hypertension and osteoporosis. These effects include

- decreased blood pressure
- increased respiratory efficiency
- improved musculoskeletal flexibility and range of motion (ROM)
- improved posture
- increased strength and resiliency
- improved immune function
- decreased pain
- improved somatic and kinesthetic awareness
- increased steadiness
- improved depth perception
- improved balance
- improved integrated functioning of body parts (Lamb 2001)

The Physiology of Aging

As we age, our bodies undergo a number of degenerative physiological changes in the skin, bones, heart, blood vessels, lungs, nerves, and other organs and tissues. Yoga instructors working with an aging population need to become familiar with these changes and know how to modify a yoga practice to address the conditions commonly seen in seniors. Even if you are not teaching a class specifically for older adults, this information will prove valuable as more and more seniors start to participate in mainstream fitness classes.

Arthritis

Arthritis is a medical condition that affects the joints and causes pain, swelling and stiffness, especially in older adults. Although the term arthritis encompasses more than 100 different diseases and conditions, two of the most common types that affect the senior population are rheumatoid arthritis and osteoarthritis (Keller 2004).

Rheumatoid arthritis (RA) is a chronic inflammation of the joint lining (synovium), which leads to weakness, loss of mobility and eventual destruction and deformity of the joints. It is a chronic disease that affects sufferers for life, but it is also episodic in that flare-ups can occur at any time. Because RA is a systemic disease, it affects other organs in the body. RA affects 1% of the U.S. population, impacting the lives of some 2.1 million Americans (The Arthritis Foundation 2005).

Osteoarthritis (OA) is characterized by the breakdown of cartilage in the part of the joint that cushions the ends of bones. This causes the bones to rub directly against each other, causing pain and limiting movement. Also known as degenerative joint disease, OA usually appears after middle age and affects the hands and weight-bearing joints, such as those in the knees, hips, feet and back. OA can lead to long-term joint damage,

chronic pain, loss of function and disability. The disease affects an estimated 20.7 million Americans, especially women (The Arthritis Foundation 2005).

Studies have shown that engaging in physical activity, maintaining a healthy weight and avoiding joint injuries are all effective in reducing the risk and symptoms of arthritis and may even slow progression of the disease (Keller 2004). Yoga promotes full-ROM movements, helping to restore flexibility and improve circulation to joints, thereby aiding in healing. Yoga also facilitates the release of endorphins, which promote a sense of well-being and can alleviate pain. Finally, yoga can help end the stress–pain cycle (in which chronic muscle tension creates stress, stress creates pain, pain causes more muscle tension, etc.) that many arthritis sufferers experience.

Recommendations for Arthritis Clients

When selecting yoga asanas, or poses, for clients with arthritis, emphasize movements that

- increase the space within the joints (e.g., bound angle pose);
- provide both extension and flexion (e.g., moving cat pose); and
- strengthen surrounding ligaments and tissues (e.g. tree pose) (Sparrowe 2002).

Experts recommend yoga poses that encourage fluid movement and keep the joints moving. Yoga asanas can be performed statically (holding) or dynamically (moving). Many arthritis sufferers report that holding a static posture is more painful than moving gently through a pose. For example, rather than holding Virabhadrasana 2 (Warrior 2) as a static pose, try moving in and out of the pose, bending the front knee and straightening it in a gentle, rhythmic way. That gentle movement can increase the synovial fluid in the joint, lubricating it and decreasing painful friction.

Because arthritis is painful, fitness professionals need to provide cues, corrections and adjustments to let participants self-adjust the poses as needed. While it is unlikely that many students will go beyond a painful ROM, it is difficult for trainers and instructors to know the appropriate stopping point for a given participant (Christensen 1995). Additionally, allowing participants to find their ideal personal movement pattern facilitates learning, since the correct motor function automatically becomes integrated.

Late-afternoon practice may be preferable for many arthritis sufferers. By late afternoon, they will typically have had time to loosen up stiff morning joints and can more fully participate in yoga practice. (Participants who anticipate pain tend to tense up as a protective mechanism, making it difficult to relax.) Encourage your students to practice at the time of day they feel best.

To keep their joints mobile and decrease further swelling, participants with arthritis should continue to practice yoga even on flare-up days. Exercising even when it is painful can heighten their sense of empowerment as they work through the pain. However, the opposite is also possible. Depending on individual temperament, attempting unsuccessfully to practice in pain can reinforce feelings of depression, inadequacy and dis-

empowerment. When this is the case, give participants permission to take the day off; reduce the intensity of the poses; or try some guided meditation or positive affirmations instead of actual movement.

Contraindications for Arthritis Clients

Although no specific yoga poses are contraindicated for arthritis sufferers, vigorous practice may compromise already damaged joints. In general, clients with such joints may want to avoid some of the more intense forms of yoga, such as Ashtanga or power yoga. Yoga instructors should modify poses for arthritis clients, taking into account the individual manifestation of their condition.

Hypertension

To understand the abnormal condition called hypertension, it is helpful to review a few basic cardiovascular principles. According to the National Heart, Lung, and Blood Institute (NHLBI), blood pressure is the force of blood against the walls of the arteries (NHLBI 2005). Blood pressure is recorded as two numbers, with one written above or before the other. For example, a blood pressure measurement of 120/80 mm Hg (millimeters of mercury) is expressed verbally as “120 over 80.” In this example, the top value (120) is the systolic blood pressure, which measures the force of blood in the arteries when the heart beats, whereas the bottom value (80) is the diastolic blood pressure, which records the force of blood when the heart relaxes between beats.

It is important to remember that blood pressure rises and falls throughout the day. However, when blood pressure stays elevated over time, it is classified as hypertension, or high blood pressure. Hypertension is dangerous because it causes the heart to work too hard, increasing the risk of heart disease and stroke.

A blood pressure level of 140/90 mm Hg or above is considered hypertensive. According to the NHLBI, about two-thirds of adults over the age of 65 have hypertension. Hypertension is usually the result of lifestyle factors—such as obesity, stress and/or high alcohol and sodium intakes—or genetics.

Last year, a national committee on high blood pressure established a new category called “prehypertension” for people whose blood pressure falls between 120/80 and 139/89 mm Hg (NHLBI 2005). The bad news is that people with prehypertension are likely to advance to the hypertension range at some point in their lives (Golub 2004). The good news is that hypertension can be treated with medication, diet and exercise.

Recommendations for Hypertensive Clients

Studies have shown that yoga practices that incorporate breath work, guided relaxation and meditation can reduce stress, which in turn can have a favorable impact on blood pressure (Gilmore 2002). In one study, researchers subjected participants to stress by asking them to solve a frustrating problem (Pirisi 2001). Then the researchers compared how quickly blood pressure returned to normal in response to various interventions, one of which was controlled breathing. (The others were listening to classical music; listening to nature sounds; and no inter-

vention.) They determined that controlled-breathing techniques returned both systolic and diastolic blood pressure levels to normal more quickly than any of the other methods tested.

When working with hypertensive participants, yoga instructors should provide ample time for students to make adjustments and to get in and out of poses. Focus on simpler poses and short vinyasas, which are two or more poses linked together in flow. It is most helpful to include short rest periods between poses, because participants whose blood pressure is above normal at rest are likely to become even more hypertensive during exercise. You should also allow adequate rest after practice, since relaxation techniques increase the parasympathetic response, which slows the body down and lowers blood pressure and respiration rate (Pirisi 2001).

Keep in mind, too, that static exercise tends to raise diastolic blood pressure more than dynamic exercise. A rise in diastolic pressure can strain the heart, which must overcome that elevated pressure with every beat (Gilmore 2002). However, you can reduce this adverse effect on blood pressure by consciously designing your yoga classes to exclude poses requiring more strength and avoid any lengthy holding of static postures.

Contraindications for Hypertensive Clients

Inverted yoga postures, such as headstands, shoulder stands and handstands, are a core component of many yoga practices. However, inverted postures invoke a significant rise in systolic and diastolic blood pressure levels compared to resting values. In a study of men and women with normal blood pressure, cranial blood pressure recorded when performing a headstand averaged 150/110 mm Hg (Gilmore 2002). Results like this raise concerns about the possible response of a hypertensive participant when performing an inverted posture. Therefore, experts recommend that hypertensive participants avoid inverted yoga postures, even if their condition is stabilized by medication (Kraftsow 1999).

Breathing is another area of concern, especially with novices who may unconsciously hold their breath while concentrating on a new pose. Inhaling and exhaling cause pressure in the chest cavity to increase and decrease. Holding the breath does not allow for the natural release of the pressure, which can stress the heart and circulatory system, causing a spike in blood pressure. That’s why breath retentions (pausing at the end of inhalations or exhalations) are not recommended for hypertensive participants (Carrico 1998; Mandik 2004). Instead, remember to incorporate breathing cues into your verbal instructions. Caution your participants to avoid straining to increase the length of inhalations or exhalations and not to force the chest to expand on inhalations.

RESOURCES

The Arthritis Foundation, www.arthritis.org
National Heart, Lung, and Blood Institute,
www.nhlbi.nih.gov
National Osteoporosis Foundation, www.nof.org

TWO SAMPLE YOGA VINYASAS

VINYASA #1: INCLUDES FORWARD-BENDING POSES

The following chart provides two different sample vinyasas, or yoga pose sequences. Each vinyasa can be used as part of a yoga class or expanded into a full class by simply repeating the poses two to four times, as desired. Vinyasa #1 is designed for active seniors who do not suffer from osteoporosis. Because this sequence includes forward-bending poses, it is contraindicated for osteoporosis clients. Vinyasa #2 is a better choice for these clients.

Pose/Sequence	Purpose/Benefit	Notes
Seated Easy Cross-Legged Pose	Establishes neutral spinal alignment.	Provide yoga blocks, blankets or bolsters, as needed, to support tight joints and facilitate neutral alignment.
Pranayama: Breathing	Promotes internal focus; calms the mind; slows breathing; warms the body.	Use props described above. Option: Incorporate positive affirmations and stress reduction guidelines.
Seated Spine Extension and Flexion	Prepare joints for deeper work to follow; develop kinesthetic awareness of movements of spine.	Option: Include raising and lowering of arms, and teach coordination of shoulder girdle.
Seated Hip Internal and External Rotation	Involve rhythmic movement of hip through full range of motion.	Place hands behind back to support spinal alignment and assist balance.
Reclining Big-Toe Pose	Increases hamstring flexibility, joint mobility and back decompression.	Use strap around foot to facilitate pose. Keep pose dynamic by gently moving leg back and forth in hip socket.
Quadruped, Cat and Cow Poses	Take spine through full range of motion; provide weight bearing for the shoulders and wrists.	Reinforce stabilization of shoulder girdle while performing movement. Place folded towel under knees for cushioning.
Downward-Facing Dog Pose	Stretches back; strengthens upper body; releases spine.	Distribute weight evenly over whole hands; lift tailbone while engaging abdominals. Use chair or tabletop to facilitate pose.
Mountain Pose	Reinforces standing neutral posture; indicates imbalances.	Align from mat up. Keep shoulders relaxed. Option: Do pose against wall to teach alignment and support balance.
Warrior 1 Pose	Strengthens back extensors and legs; challenges balance.	Align hip bones to face forward. Lift back heel to facilitate alignment and challenge balance. Add shoulder squeeze to strengthen muscles between shoulder blades and to stretch chest and anterior shoulders. Option: Perform with chair, wall or stability ball for support.
Bridge Pose	Opens shoulders; strengthens legs.	Keep feet and knees hip width apart. Use yoga strap above knees, as needed.
Corpse Pose	Decompresses spine; supports relaxation.	Let legs roll open from hips. Let arms roll open from shoulders, palms facing up. Support back, if needed, by placing blanket under knees.

VINYASA #2: SAFE FOR CLIENTS WITH OSTEOPOROSIS

Pose/Sequence	Purpose/Benefit	Notes
Corpse Pose	Begins breath work; decompresses spine.	Teach breathing technique; allow time for inward focus. Support pose with pillows or bolsters, as needed.
Supine Shoulder Press	Strengthens shoulder girdle; stretches front of shoulders.	Coordinate movement with breathing. Support arms with towel folded under elbows, if needed.
Supine Shoulder Stretch	Strengthens shoulder girdle; stretches latissimus dorsi.	Keep entire hand on floor, with abdominals engaged. Use opposite hand to support arm, keeping elbow up and close to head.
Rib Lift	Strengthens back extensors; stretches anterior muscles.	Combine with shoulder press for more advanced variation. Very weak students can use bolster for support.
Supine Bridging	Strengthens core muscles; stretches quads.	Vary by lifting heels, adding leg raises or moving bridge. Place yoga block between thighs, or use yoga strap.
Alternate Prone Hip Extension	Strengthens hip extensors and lower back.	Add opposite arm raise for variation. Option: Perform pose standing against wall for support.
Cobra Pose	Stretches anterior muscles; relieves compression of thoracic vertebrae.	Move carefully through range of motion.
Mountain Pose	Reinforces standing neutral posture; indicates imbalances.	This is the foundation point for standing balance work. Option: Perform pose against wall to teach alignment and support balance.
Tree Pose (see below)	Challenges balance; builds stability of the ankle, knee and hip joints.	Reinforce neutral alignment. Use chair or wall for support, if needed.
Warrior 2 Pose	Strengthens legs; opens chest; extends back.	Use chair for support, if needed.
Mountain Pose With Reverse Namasté	Opens front of shoulders; strengthens between shoulder blades and spinal extensors; stretches wrists.	If wrists are too tight, simply clasp hands behind back and retract shoulders, or use yoga strap.
Legs Up the Wall Pose	Decompresses spine; improves circulation; assists relaxation.	Restorative posture. Use blankets or bolsters, as needed. >>

Osteoporosis

Osteoporosis is a systemic skeletal disease characterized by low bone mass and deterioration of bone tissue, which puts sufferers at increased risk of bone fragility and susceptibility to fracture. Although the wrist, spine and hips are the areas of the body most frequently affected by the condition, any bone can be at risk. Osteoporosis is a particular concern for older adults. According to the National Osteoporosis Foundation (NOF), it affects 55% of those over age 50 (NOF 2005). Of the 10 million Americans estimated to have osteoporosis, 80% are women (NOF 2005).

Yoga is a weight-bearing exercise that can stimulate bone growth in clients of all ages. By contracting the muscles around the bones, yoga poses create a force that encourages bone maintenance throughout all areas of the body (Sparrowe 2004). By strengthening the muscles supporting the joints and providing balance training, yoga can also reduce the risk of falls, a major concern for older adults.

Recommendations for Osteoporosis Clients

The first step in creating an appropriate yoga practice for participants with osteoporosis is to educate them about the ways that regular exercise can strengthen muscles and bones, improve posture and safely challenge balance (Kasper 2004). Many people are unaware that yoga is a safe exercise option when performed carefully and with appropriate modifications.

When designing a yoga class for osteoporosis clients, be sure to incorporate spinal extension postures, such as Cobra, Quadruped Opposition Arm and Leg Raises, and Modified Camel. These poses increase muscular strength around the spine, improve posture and relieve spinal compression.

Abdominal strengthening exercises that do not flex the spine are also important for participants with osteoporosis. So be sure to add poses that move the lower extremities with the spine stabilized. Examples are Supine Alternate Leg Lowering and Modified Boat Pose.

A WORD ABOUT HYPOTENSION AND YOGA

Hypotension, or low blood pressure, can occur when a person moves his or her head to a higher position, such as when going from a sitting position to standing or when moving from a prone position to sitting up. Also referred to as orthostatic or postural hypotension, the condition is quite common in older people.

Changing head position causes a temporary reduction in cranial blood flow and therefore a temporary shortage of oxygen to the brain. This leads to light-headedness and, occasionally, "blackout" episodes. In most cases, this can be prevented by simply allowing participants additional time to come up from supine or seated postures to vertical.

Recommend that, outside of class, clients avoid high-impact activities, such as running, plyometrics and jumping, along with any props that increase the risk of falling, such as minitrampolines and slideboards (Nelson & Wernick 2000).

Clients with osteoporosis often lose mobility in their hands, which negatively affects their ability to perform the activities of daily living (Aaronson 2004). Yoga mudras, or hand positions, can enhance fine motor skills by strengthening the hand muscles. Mudras can be incorporated into class during seated meditation and/or standing balance work. For variety, try adding mudras and fluid arm patterns to standing postures, such as Virabhadrasana 1 (Warrior 1); this will help clients with osteoporosis develop concentration, coordination and additional balance skills. Yoga mudras are also beneficial for people with arthritis.

Contraindications for Osteoporosis Clients

Clients with osteoporosis should avoid yoga poses that involve spinal flexion, which compresses the anterior part of the spine and increases the risk of fracture. Examples of poses that flex the spine include forward-bending poses, such as Uttanasana (standing forward bend); Knees to Chest; Seated Spinal Flexion; and Quadruped Cat and Cow. It cannot be overstated that the risk of incorporating spinal flexion in any yoga practice for osteoporotic clients far outweighs any desirable benefit.

In addition to not bending forward while in yoga class, clients with osteoporosis need to refrain from flexing the spine during their daily activities. Movements to avoid include bending at the waist to lift objects and reaching unnecessarily. Yoga instructors should teach these participants proper lifting techniques and advise them to move as close to an object as possible before reaching for it (Meeks 1999).

Lateral bends and twists are also contraindicated for this population, because such movements can compress the spine and increase the risk of fracture. Before asking a client to perform any poses requiring hip abduction or adduction, check with the client's physician, as this question should be resolved on an individual basis (Bonnick 1994).

General Yoga Guidelines for Seniors

Here are some overall guidelines to consider when designing a yoga class for active seniors:

- Incorporate pranayama, gentle asanas and meditation in every class.
- Teach proper spinal alignment for every pose.
- Avoid poses that require forward spinal flexion, twists and lateral flexion (for any client with diagnosed or suspected osteoporosis).
- Advise students to move gently through and within poses.
- Incorporate spinal stabilization exercises in every class.
- Include yoga mudras to develop fine motor conditioning in the hands.
- Feature poses that are comfortable and steady.
- Encourage participants to rest whenever needed.
- Urge students to use a chair or wall during balance exercises to reduce the risk of falls.

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SAMPLE YOGA BREATHING PRACTICE

This simple exercise can reduce stress, teach mindfulness and relieve spinal compression. It is beneficial for older clients with arthritis, hypertension and osteoporosis.

1. Lie on your back, knees bent and feet flat on the floor. Keep knees and feet hip width apart. (Place a yoga strap around the thighs to assist with this alignment.) Use a small pillow to support the head, placing it in such a way that the face is parallel to the floor.
2. Place one hand on the chest and the other on the abdomen. Breathe, letting the abdomen expand naturally during inhalations and contract without force during exhalations. Keep the chest as still as possible throughout the breath.
3. Keeping the breath steady, bring the arms to the sides, slightly away from your body, palms up. The elbows and shoulders should be at the same level. If the elbows are lower than the shoulders, place a folded towel under the elbows for support.
4. Spend several minutes in this position, taking slow, deep, unforced breaths.
5. When ready to come out of this position, roll onto one side, using the hand of the arm on top to push up to a seated position.

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