

**The Effect of Yoga in Senior Populations with
Osteoarthritis of the Spine**

Teaching Yoga to Seniors



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The contents of this paper do not provide medical advice and should not be interpreted as such.
Before beginning any exercise program, see your physician for clearance.

Introduction

Osteoarthritis of the spine, is the oldest and most prevalent form of arthritis, particularly in adults age 65 years and older. Evidence of arthritis has been found in ice-age skeletons. Osteoarthritis is known by many different names, including degenerative joint disease, spondylosis, ostoarthrosis, hypertrophic arthritis and degenerative arthritis. For these purposes, all of these will be referred to as osteoarthritis, or OA.

Osteoarthritis Overview

OA is a chronic degenerative arthropathy, a disease or an abnormality of a joint, that frequently leads to chronic pain and disability. OA is frequently thought of as wear and tear of the joints. It is a joint disease caused by the breakdown of cartilage, the firm rubbery tissue that cushions the bones at the joints. Healthy cartilage allows the bones to glide over one another and cartilage absorbs energy from the shock of physical movement. In OA cartilage breaks down and wears away. As a result, the bones of the joint rub against each other causing swelling, pain and stiffness. OA may also limit the range of motion in the affected joints. Most often, OA develops in the hands, knees, hips and spine. OA can affect the cervical, thoracic or lumbar regions of the spine.

Risk Factors

Risk Factors for OA include:

- Increasing age
- Sex, women are more likely to develop OA, although it is not clear why
- Genetic predisposition
- Obesity
- Injury to the joint
- History of inflammatory joint disease
- Metabolic or hormonal disorders (such as hemochromatosis and acromegaly)
- Bone and joint disorders present at birth

- Repetitive stressful joint use
- Deposits of crystals in the joints

Symptoms and Treatment

The symptoms of OA develop slowly and worsen over time. The individual may experience one or any combination of the following symptoms of OA:

- Joint pain (often a deep and aching pain) that worsens with movement and improves with rest. In severe cases the pain can be constant.
- Stiffness in the morning or after inactivity
- Joint swelling
- Joints that are warm to the touch
- Loss of flexibility making it difficult to use the joint
- Crepitation, a crunching or crackling noise when the joints move
- Limited range of motion
- Muscle weakness
- Abnormal growth of bony knobs near the affected joints causing deformity

The symptoms are treated in a number of ways. Initial treatment for mild OA may include:

- Rest. During a flare (experiencing pain or inflammation in the joint) rest the area for 12 to 24 hours. Do not perform activities that require use of the joint repetitively.
- Exercise. Regular, gentle exercises, such as walking, biking or swimming are recommended. Exercise can increase endurance and strengthen the muscles around the joint, increasing joint stability.
- Weight loss. Being overweight or obese increases the stress on weight-bearing joints, such as knees and hips. Even a small amount of weight loss can relieve some pressure and reduce pain.

- Use of heat and cold to manage joint pain. Heat also relieves stiffness and cold can relieve muscle spasms.
- Physical therapy. A physical therapist can create an individualized exercise plan that will strengthen the muscles around the joint, increasing range of motion and reducing pain.
- Avoid stressing the joints. An occupational therapist can assist in recommending changes in ways to do everyday tasks without stressing already painful joint(s).
- Analgesic creams and gels. Over the counter analgesics may provide temporary relief from osteoarthritis pain. Pain creams work best on joints that are close to the surface of the skin.
- Orthotics. Special splints, braces, shoe inserts or other medical devices that can help reduce pain. These devices can immobilize or support the joint to help keep pressure off it. Participate in a chronic pain class. The Arthritis Foundation and some medical centers have classes for people with osteoarthritis or chronic pain. These classes teach skills that help the patient manage osteoarthritis pain and learn coping skills.

Diagnosis

There is no single way to diagnose OA. Most physicians use a combination of methods to rule out the possibility of other causes.

- A physical exam can reveal limited range of motion, grating of the joint while in motion, joint swelling and tenderness.
- X-ray images of the affected joint may reveal a narrowing space within a joint, which indicates that the cartilage is breaking down. An X-ray may also show bone spurs around a joint.
- Blood tests may help rule out other causes of joint pain, such as rheumatoid arthritis.

- Joint fluid analysis. A doctor may use a long needle to draw fluid out of the affected joint. Examining and testing the fluid around the joint can determine if the pain is caused by gout or an infection.
- Arthroscopy. In some cases, a doctor may recommend arthroscopy to see inside the joint in order to determine the cause of the pain. During arthroscopy, small incisions are made around the joint and a tiny camera is inserted to see inside the joint. Your doctor watches a video screen to look for abnormalities within the joint.

Disease Progression

There are several stages of OA:

- Cartilage loses its elasticity and is more easily damaged by injury or use
- Wear of the cartilage causes changes to the underlying bone. The bone thickens and cysts may appear under the cartilage. Bony growths, known as spurs or osteophytes, appear near the end of the affected bones.
- Bits of bone or cartilage float loosely in the joint space.
- The synovium, or joint lining, becomes inflamed due to cartilage breakdown causing inflammation proteins, known as cytokines, and enzymes causing further breakdown of the cartilage.

Osteoarthritis grows from mechanical defects in the surface of the joint cartilage and from irregular growth of new cartilage by the underlying cartilage cells. This makes for an uneven distribution of pressures within the joints, and irregular force on the bones beneath the cartilage, which also slowly disrupts the bone substance beneath the joint's cartilage. Subsequently there is further irregularity in the cartilage and yet further distortion of the bone beneath. This process occurs with normal wear and tear in everyone, but genetic makeup, activity, and the environment in which we live influence the effects on the joints.

Cartilage has a unique type of collagen called type II collagen. It is made of a long, thin string of proteins (proteoglycans) with complex side-chain glycosaminoglycans attached. The arrangement resembles a bottle-washing brush, with a protein at the center and the glycosaminoglycans acting as bristles.

The glycosaminoglycans have negative charges, which attract water molecules between them. When there is pressure on the joint, and consequently on the cartilage, the water molecules are reluctantly released, cushioning the pressure and giving a wonderful resilience to the cartilage. Changes in the molecular structure of the proteoglycans are thought to be the basic force in osteoarthritis. These changes accelerate the process of degeneration and impede repair of the surfaces of the cartilage. They might be involved in the unusual and restricting boney formations and ligamentous damage that are so often seen in degenerative arthritis throughout the body. Adult chondrocytes no longer multiply, but they do respond to damage, “eating” the degenerated cartilage and using the molecular building blocks to create new, healthy strands of it. The enzymes that help digest the old cartilage are more abundant where osteoarthritis is present. OA generates an increase in metabolism. The process of degeneration and repair are going on simultaneously, but over time the repair cannot keep up with the degeneration. Less elastic forms of cartilage appear, which increases the stresses on the bone below, causing microfractures. After the microfractures heal, the bone is less supple and less elastic. This concentrates the shock waves of pressure inherent in so many forms of action, focuses them on the cartilage, and promotes even more degeneration.

Osteoarthritis Related Statistics

Arthritis is highly prevalent among U.S. adults, the leading cause of disability in the United States, and associated with substantial activity limitation, work disability, reduced quality of life, and high health-care costs.

The incidence of osteoarthritis increases with age and is more prevalent in women than in men, especially after age fifty and levels off around age eighty. Forty-six point four million adults in the United

States have doctor-diagnosed arthritis (just over 1 in 5 adults) As the population ages, arthritis is expected to affect an estimated 67 million adults in the United States by 2030.

Sixty six percent of adults with doctor-diagnosed arthritis are overweight or obese (compared with 53% of adults without doctor-diagnosed arthritis). Almost 44% of adults with doctor-diagnosed arthritis report no leisure time physical activity compared with 36% of adults without arthritis.

Arthritis is strongly associated with major depression (attributable risk of 18.1%), probably through its role in creating functional limitation.

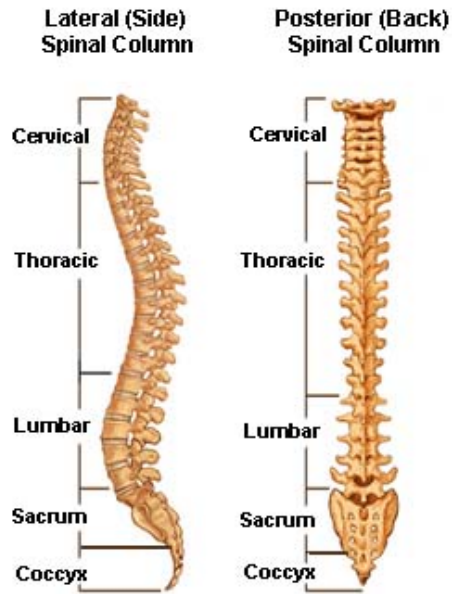
In 2003, the total cost attributed to arthritis and other rheumatic conditions in the United States was 128 billion dollars, up from 86.2 billion dollars in 1997.

With the aging of our population, this condition is becoming increasingly prevalent and its treatment increasingly financially burdensome. Finding better treatments for OA is a major focus of research at this time.

Spinal Structure and Spondylosis

The body's joint system is composed of hyaline cartilage and synovial fluid. The exceptions to this structure are the intervertebral joints and the two sacroiliac joints on the back of the pelvis. The spinal structure includes 33 vertebrae, intervertebral discs, facet joints and ligaments.

- **Cervical spine:** The vertebrae in your neck are labeled C1-C7
- **Thoracic spine:** The thoracic spine, which goes from your shoulders to your waist, are labeled T1-T12
- **Lumbar spine:** The five vertebrae in your low back are labeled L1-L5
- **Sacrum / Coccyx:** Your sacrum is made up of five vertebrae between the hipbones that are fused into one bone. The coccyx is small fused bones at the very tail of your spine (hence the tailbone).

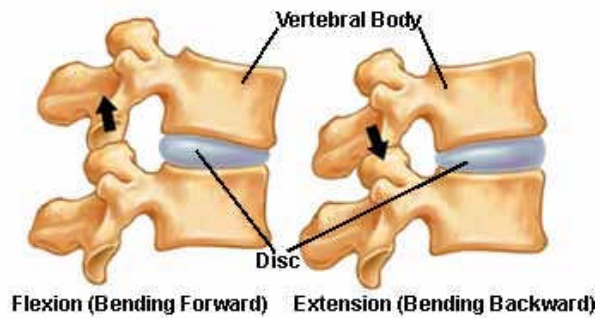


The intervertebral discs serve to cushion the vertebrae in the absence of the synovial fluid. As biochemical changes occur, collagen – a key structural component of the intervertebral disc - is affected by the loss of water content. Discs may weaken and wear out causing a reduction in disc height and an increase in the risk for disc bulging and herniation. The loss of disc height affects the function of the facet joints.

The joints in the spine are commonly called Facet Joints. Other names for these joints are Zygapophyseal or Apophyseal Joints. As the facet joints degenerate, the articular cartilage covering joint surfaces erodes. In an effort to repair itself, the body forms bone spurs (osteophytes). Joints enlarge (called hypertrophy) causing osteoarthritis or degenerative joint disease. Degenerative changes in the spine also cause the spine's ligaments to thicken and lose some strength.

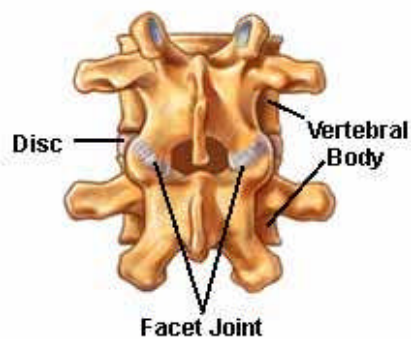
Each vertebra has two sets of facet joints. One pair faces upward (superior articular facet) and one downward (inferior articular facet). There is one joint on each side (right and left). Facet joints are hinge-like and link vertebrae together. They are located at the back of the spine (posterior).

Facet Joints in Motion



Facet joints are synovial joints. This means each joint is surrounded by a capsule of connective tissue and produces a fluid to nourish and lubricate the joint. The joint surfaces are coated with cartilage allowing joints to move or glide smoothly (articulate) against each other.

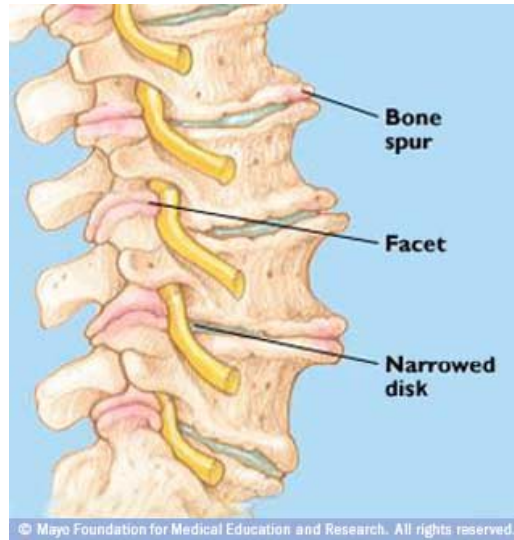
Posterior Spinal Segment



Spondylosis can affect the cervical spine, thoracic spine, or lumbar spine. Another factor determining what symptoms you have.

Osteoarthritis of the Spine

In osteoarthritis of the spine, disks narrow and spurs form. Where bone surfaces (facets) rub together, cartilage becomes worn and may be painful.



Financial Burden

The financial burden of arthritis is one example of the far-reaching impact of chronic diseases in the U.S. population. Arthritis and related conditions are associated with chronic pain and functional limitations and represent the leading cause of disability in the United States. The aging of the U.S. population, in conjunction with the obesity epidemic, will only increase the impact of arthritis. The number of adults with arthritis is projected to increase to 67 million by 2030, and although 54% of this group will be aged 65 or older, working-age adults (45–64 years) also will be seriously affected, accounting for almost one-third of cases.

Summary of Fieldwork

My fieldwork consisted of observation of senior citizens in a gym environment and in yoga classes that were not specifically designed for senior citizens. I also interviewed a trainer for the Silver Sneakers fitness-training program at the gym. Mr. Butler is also a retired Physical Therapy Assistant. Mr. Butler, himself is a senior citizen at 69 years old, works out enthusiastically on a daily basis despite acute lumbar spine pain and chronic stiffness in the hips and hamstrings. Mr. Butler was able to provide me with much insight to the senior population's abilities and function.

I observed that the senior population moves much more slowly and deliberately. They are aware of their limits and make modifications to accommodate their limitations. The seniors did have trouble getting up and down from the floor. They can get up and down slowly and mindfully, but they are not adept at getting up and down several times in succession. Seniors cannot hold an asana as long as a younger individual. They were more comfortable with shorter hold times but doing more repetitions. They frequently had rounded or slumped spinal postures (kyphosis) and their shoulders were tight. Many had hands and wrists that exhibited arthritic symptoms and were painful. Tight hips and hamstrings were very common in the senior population. Knees were often achy and they sometimes chose not to do asanas that required being on their hands and knees on the mat. When in the gym on a treadmill, elliptical trainer or bicycle, their sessions were slow and steady, and briefer than the younger population's.

Description of Program

It was agreed that I would teach yoga to the "Silver Sneakers" senior fitness group each Wednesday beginning June 25th through the end of July. The seniors already participate in strength and aerobic conditioning at least twice weekly in accordance with the Silver Sneakers fitness plan. They had no stretching routines or yoga program already in place with Silver Sneakers. Silver Sneakers is a fitness program offered by leading Medicare health plans and Medicare Supplement carriers throughout the country at no additional cost to the participant. The fitness center in turn is compensated for the individual's participation through the health care plan. Silver Sneakers offers evidence-based programs that motivate individuals to increase their physical activity and adopt healthy lifestyle behaviors, thereby improving health status, managing risk and lowering costs.

Method of Evaluation of Yoga for Seniors Program and Results

The evaluation of my study is anecdotal at best. The study participants completed a pre and post yoga session evaluation form. The evaluation forms completed by the participants had many inconsistencies upon review. While many seniors chatted of insomnia or pain they did not report these conditions on the evaluation forms. Pre and post questionnaires had contradictory responses from

individuals, leading me to question the accuracy of the replies. Casual observation, questionnaire comments and verbal feedback provided the most insight into the positive effect of yoga on spinal osteoarthritis in the senior population I worked with. While I received much positive verbal feedback from the participants, it is not documented and therefore cannot be used to provide statistical data. I also believe that because the seniors were already participating in a regular fitness program on a regular basis their over all sense of well-being was already elevated and produced less dramatic results.

The data trend indicated that both spinal flexibility and the sense of wellbeing increased in the participants. However, I can state without doubt that yoga increased the overall wellbeing of all the seniors that participated in my yoga study.

Comments gleaned from the questionnaires include:

- *“Wonderful!”*
- *“Very nice, especially being on the floor”*
- *“This class is perfect adjunct to the other classes and exercise I do. Teaching me to relax and better body awareness.”*
- *“Wonderful class –you’re worth it!”*
- *“Enjoying this program!”*
- *“Stress level reduced after yoga class to nil.”*

Verbal feedback I received was overwhelmingly positive. One participant said, “It’s the only fitness class I look forward to and never want it to end!” All of the participants remarked that they wished the study did not have to end, as they came to look forward to each week’s practice.

Teaching Experience

The group that participated in the yoga program were very eager to participate and a very social, positive, enjoyable group overall. Mr. Butler had explained to the group that I would be teaching yoga for my project. All participants had some degree of osteoarthritis of the spine. One participant also had osteopenia in addition to the arthritis. There were 5 females and 1 male participant. However there were

only 4 participants at each session. Each of the participants missed a class. The female participants were 67-79 years of age. The male participant was 69 years old.

We would spend the first few minutes of class checking in on how everyone was doing and noting any problems and/or new health developments. The social interaction was clearly a high point in their day, as all but one student was a widow.

We would begin the class by spending several minutes in silence. Bringing our focus to the present moment, becoming aware of the breath, practicing the three-part breath and centering our attention. We would then move into the practicum. I would explain the benefits of the asana as well modifications as we moved through the sequence. I encouraged questions so that we could address them as we were in asana. The class was lively, yet serene and focused.

Initially Mr. Butler said that he doubted that one or two of the participants in my study would agree to get up and down off the floor. Much of their Silver Sneakers fitness class was conducted while seated. I told him that would not be a problem as any of the asanas could be modified to accommodate a seated participant. Much to Mr. Butler's and my surprise they all agreed to get down on the floor in yoga class and even reported that they enjoyed getting down on the floor as they usually had little reason to in their everyday routines.

The participants liked to ask questions about yoga and I gladly addressed the questions as they arose. They were all very happy to participate in a new activity.

All participants thoroughly enjoyed savasana. They all chose to lie on their mat. I would guide them through a gentle progressive relaxation. I also gave each participant a brief neck massage with lavender scented cream (with their prior permission) which they loved. Each and every student would eagerly move through the asana sequence, anticipating their neck massage in savasana. You could feel any tension that remained in their bodies noticeably release. One of the participants remarked that yoga was the only activity they had participated in at a gym that they didn't want to end. Another said she

would go home following our practice, eat a light lunch, and then nap. She said she was usually unable to sleep during the day, or well at night.

Sequencing and Curriculum

Much of my curriculum was chosen from Mukunda Stiles' book *Structural Yoga Therapy: Adapting to the Individual*. Specifically, his "Joint-Freeing Series." I selected many of the movements from the series as they work every joint in the body, important in lubricating arthritic joints and retaining range of motion.

- Check in, how everyone was doing, how students felt that day. How they felt following the previously week's session.
- Seated on floor, begin silent meditation, centering and awareness of body and breath
- Pranayama, dirga breath
- Neck Flexion

(Facing down)

- Inhale, sitting with head and spine erect (neutral position)
- Exhale, letting the head bow slowly forward (neck flexion)
- Inhale, bringing the head back to the starting position and repeating
- Neck Lateral Flexion

(Facing forward, ear toward shoulder.)

- Inhale, with back and head erect
- Exhale, letting the head tilt straight to the right side, the ear falling toward the shoulder without lifting the shoulder
- Inhale, moving the head back to neutral position
- Exhale, relaxing the head to the left
- Ankle Plantar Flexion – Dorsiflexion

(Stretch the top of the foot. Stretch the sole of the foot.)

- Inhale point toes (plantar flexion)
- Exhale flex the top of the foot back toward the body (dorsiflexion)

- Ankle Exversion – Inversion

(Side of foot turned out. Side of foot turned in.)

- Inhale as you rotate the soles of the feet outward, drawing the little toes toward the head. The inner ankle bones may touch (exversion)
- Exhale as you draw the soles of the feet toward each other so the big toes are pulled toward the head and the inner ankle bones are spread wide as possible. (inversion)

- Ankle Rotation

(Rotate feet right. Rotate feet left)

- Inhale with legs separated about 12 inches, as you rotate the ankles to the right and then point the toes forward
- Exhale as you rotate the ankles left and draw the toes up toward the head. As you continue, make a smooth circle with the toes. Restrict the movement to the ankles by keeping the thigh and knee from turning.

- Hip External and Internal Rotation

(Thigh turned in. Thigh turned out.)

- Begin in Staff Pose, then move hands wider and farther back than in the standard position so your arms support your back.
- Inhale as you turn your right leg out at the hip (external hip rotation) so the knee and foot are pointing to the right side.
- Exhale as you turn your leg in (knee point to the left) swinging your leg back to touch the left leg (external hip rotation.)

- Wrist Flexion and Extension

(Palms of hands move toward forearms. Backs of hands move toward forearms)

- Begin with arms extended straight in front of you, parallel to the floor and to each other, palms down.
- Exhale, pulling your hands down, palms toward the body
- Inhale, pulling your hands up, with the backs of your hands facing your head

- Wrist Rotation

(Rotate upward, rotate downward)

- Inhale as your fist is brought up
- Exhale as your wrist goes down. Rotate the fist in slow circles. Do both arms simultaneously, in rhythm, without moving the upper arms.
- Shoulder Abduction-Adduction

(Arms open to the sides. Elbows close together.)

- Begin with knuckles resting on your shoulders, elbows straight ahead at shoulder height.
- Inhale, opening your elbows and pulling them behind your shoulders
- Exhale, pulling your elbows inward, touching them in front of you

- Spine – Lateral Flexion

(Side bend)

- *Inhale, and extend upward as you elongate from the tailbone to the top of the head.*
- *Exhale, and bend to the right side allowing the elbow to come to the floor. Continue to inhale to the center and exhale and bend to the left.*

- Spinal Rotation

(Rotate to each side)

- Inhale, and bring your left hand to your upper right shin, putting your right hand flat on the floor approximately 12 inches behind the right hip. Lift your chest with an arch in your midback.
- Exhale, and pull with your arms, turning your head and shoulders to the right
- Inhale, and fact to the center. Reverse the arms and lift your chest.
- Exhale, and repeat the twisting motion to the left side.

- Bound Angle (Baddha Konasana)

Transition to hands and knees – students with knees problems use(d) additional padding under knees.

- Spine Extension – Flexion (Cat – Cow)

- Bird dog

(Engaging muscles of the core, stretching arm and opposite leg)

- Begin in tabletop position in neutral spine
- Extend the right arm and left leg, engaging the abdominal muscles and balancing.
- Release the right arm and left leg back to tabletop position in neutral spine
- Extend the left arm and right leg, engaging the abdominal muscles and balancing.

Transition to lying prone

- Half-Locust or Locust (Salabhasana)
- Modified Cobra (Bhujanghasana) Sphinx

Transition to lying on the back

- Pelvic tilts
- Upward stretched legs (Urdhva Prasarita Padasana) doing one leg at a time with a strap.
- Energy Freeing Pose (Apanasana)

- Dying bug
- Bridge or rolling bridge
- Energy Freeing Pose (Apanasana)
- Abdominal twist (Jathara Parivartanasana)
- Energy Freeing Pose (Apanasana)

Transition to Standing

- Mountain (Tadasana)
- Upward Salute
- Warrior I (Virhabhadrasana) with goddess arms
- Warrior II (Virhabhadrasana)
- Side Angle (Parsvakonasana)
- Triangle (Trikonasana)
- Downward Facing Wall Dog (Adho Mukha Svanasana)
- Tree Pose Using Wall (Vrksasana)
- Savasana with gentle neck massage

Lessons Learned in Working With the Senior Population

I found that my seniors always were not always willing to document how they felt in the pre and post yoga session questionnaire, especially if they were feeling poorly. While they would document that they were not experiencing insomnia, they would casually mention that they were having trouble sleeping and looked forward to our yoga sessions as they always went home relaxed and were able to sleep soundly. They frequently marked down that they had no stress in their lives, but conversation after our yoga session would reveal worries about family members or the health of friends. They were very

positive in their overall outlook on their life and health and frequently chose not to report any negative aspects of their health or life on their pre and post yoga session questionnaire.

I believe that the questionnaire could not statistically prove the increased improvement of osteoarthritis in the spine. Factors include small sample size, irregular attendance and conflicting responses on pre and post session questionnaires. However, the anecdotal evidence clearly indicates an overall increase in the overall feeling of wellness.

We had 4 participants at each of the 4 yoga sessions surveyed. A total of 16 questionnaires were received throughout the programs. The overall feeling of wellbeing was measured on a scale of one to ten, 1 feeling extremely poor and 10 feeling excellent. The results are as follows:

Session One

- Two participants reported a 30% increase in the overall feeling of wellness
- Two participants reported no change in the overall feeling of wellness

Session Two

- One participant reported a 10% increase in the overall feeling of wellness
- Three participants reported no change in the overall feeling of wellness

Session Three

- One participant reported a 10% increase in the overall feeling of wellness
- Three participants reported no change in the overall feeling of wellness

Session Four

- One participants reported a 20% increase in the overall feeling of wellness
- One participants reported a 10% increase in the overall feeling of wellness
- Two participants reported no change in the overall feeling of wellness

Nine out of the sixteen questionnaires experienced no change in the overall feeling of wellness.

There was no decrease in the overall feeling of wellness.

At the end of our time together the 79-year-old female participant was able to do tree pose at the wall and briefly remove her hand from the wall using her own strength and balance to maintain the posture.

Perhaps one of my most profound findings is that senior citizens do not like to be thought of as less able to perform fitness routines or body movements. They were very adamant in attempting to do things to the best of their ability and were likely to dismiss the thought that they were unable to perform a movement or sequence. They are individuals young at heart and rich in kindness, thought, and compassion. Their participation in a group exercise program undoubtedly influenced their sense of humor, health and social functioning. They hold monthly luncheons within their group and I was invited and chose to attend. They were very positive in their outlook on life and very caring towards each other. Their lives as seniors are as busy, if not busier, than the lives of younger, working persons.

After completing my study, Cape Carteret Aquatic and Wellness Center sent two of their Silver Sneakers fitness instructors to Silver Sneakers yoga training so that the program participants can continue to practice yoga, as they found it very enjoyable and relaxing.

My senior group and I formed a strong bond during our brief time together. They liked to hear about my scuba diving outings and asked me to bring pictures. I joined them for their monthly luncheon, and will continue to do so in the future.

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Arthritis is one example of the far-reaching impact of chronic diseases in the U.S. population.

Arthritis and other rheumatic conditions currently affect almost 43 million U.S. adults. Arthritis

and related conditions are associated with chronic pain and functional limitations and represent

the leading cause of disability in the United States. The aging of the U.S. population, in

conjunction with the obesity epidemic, will only increase the impact of arthritis. The number of

adults with arthritis is projected to increase to 67 million by 2030, and although 54% of this group

will be aged 65 or older, working-age adults (45–64 years) also will be seriously affected,

accounting for almost one-third of cases.

- **Johns Hopkins Arthritis Center**

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Osteoarthritis (OA) is the most prevalent type of arthritis, particularly in adults 65 years and

older.

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Osteoarthritis (OA) is the most common form of arthritis. It is a joint disease caused by the

breakdown of cartilage -- the firm, rubbery tissue that cushions bones at joints.

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Osteoarthritis (OA) is the oldest and most common form of arthritis.

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