Kyphosis & Lower Back Pain Prevention
What is Kyphosis?

- Kyphosis ("hunchback") is the excessive curvature of the thoracic spine.¹

- This condition is often seen in conjunction with osteoporosis in aging adults, but can be caused by numerous different factors.

- Types of Kyphosis:
  - Osteoporosis
  - Congenital
  - Degenerative
  - Postural
  - Scheuermann’s Disease

¹ Mayo Foundation For Medical Education and Research, 2014
Approximately 3 million cases each year in the United States.

Depending on insurance, the cost to see your primary care physician could be $0 and up to $150.  

Once diagnosed, a brace will be used. This brace is usually not covered by insurance, and can range from $30 up to $300 depending on the brace.

If surgery is required, the cost can be upwards of $250,000 after the hospital fees, doctors, and surgery.
Osteoporosis related Kyphosis

- The most common cause of Osteoporosis related Kyphosis is from a vertebral fracture due to osteoporosis. The fracture is typically in a wedge shape. In the picture below, the front of the bone is being crushed, which causes the spine to tip forward, which results in excessive kyphotic curvature. This fracture is more commonly seen in women than in men.  

DePuy Synthes Spine, Inc., 2014
Congenital Kyphosis

- Congenital Kyphosis is usually seen in infants and young children. The cause is a malformation of the spinal column while in the womb. Unlike other forms of kyphosis, this type requires surgery to correct the malformation(s) and prevent further progression.² Often times, the surgeon will fuse the vertebrae together without correcting the abnormality, or use an In Situ Fusion.³

Scoliosis Research Society, 2016
Postural Kyphosis

- Postural Kyphosis is due to poor posture and/or lifting mechanics. This type of kyphosis can occur to anyone regardless of age but is more prevalent in females than in males. A prime example is an office-setting occupation where the client is sitting at a desk all day. ³

Kirsty Pilates, 2016
Scheuermann’s Disease

This disease occurs in adolescents due to abnormalities of the spine and vertebral discs. Clients with this disease often times have scoliosis. If the client is still growing, a brace is typically used to potentially have a long-term corrective effect. If the curve of the spine is greater than 70 degrees, surgery may be required.

Kyphosis - Physical and technical rehabilitation of patients with Scheuermann’s disease and kyphosis, 2010
Exercise program
Warm-Up

- Begin with walking high-knees
- Focus on dynamic stretching and breathing

*Important not to do high impact warm up exercises like jumping jacks or jump rope due to the stress they put on the back
Walking High Knees

- Stand with feet shoulder-width apart
- Lift one knee up to the waist while swinging the opposite arm upward
- Return the lifted knee to the ground as you begin to lift the opposite knee
- Continue for 1 minute
Walking Hamstring Stretch

- Stand with feet hip width apart and kick one leg upward, ideally parallel with the ground but only go as far as you can without pain. Reach your arm out towards toe as you kick.
- Bring foot back down to ground while moving forward and kicking the opposite leg up.
- Continue for 30 seconds-1 minute.

www.rehab.hartfordhealthcare.org
Walking Gluteal Stretch

- Start by standing with feet hip width apart. Then grasp the knee and tuck it upward toward the chest.
- Hold for a few seconds and bring foot down gently.
- Step forward and do the same with the opposite leg.
- Continue alternating legs for 30 seconds-1 minute.

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Open the Gate

- Begin by walking and every three steps, bring one knee upward to the waist and rotate the leg out to the side while keeping the knee bent.
- Alternate legs every other 3 steps, walking a span of 20 yards total. Repeat 2-3 times.
Cardiovascular Phase

- Jarring Cardiovascular movements are not recommended for those suffering from kyphosis
- 20-30 minutes of walking or swimming followed by a cool down phase is recommended 3-5 times per week
Muscular Strength and Endurance

- Strengthening of the middle back and lower back muscles is needed to hold the body in the correct posture when standing or sitting.

- *Middle trapezius, Rhomboids, Lower trapezius, and Multifidus*

- Exercises for muscular endurance will be more helpful than those for strength.
“Y” Exercise
For Lower Trapezius and Multifidus

- Lay facedown on floor
- Bring arms overhead in a Y shape
- Lift and hold arms as high as possible while keeping torso grounded
- Hold for 30 seconds

http://umm.edu/programs/spine/health/guides/adult-kyphosis
“T” Exercise
For Middle Trapezius and Rhomboids

▸ Lay facedown on floor
▸ Bring arms to the side in a “T” shape
▸ Lift arms as high as possible while keeping torso grounded
▸ Hold for 30 seconds
Prone Extension

- Lay facedown on floor
- Bring your arms to side, even with hips
- Lift torso off ground
- Hold for 30 seconds

http://endyourbackpainnow.com/wp-content/uploads/2008/12/Prone-Extension-300x143.png
Bruegger Exercise

- Sit on edge of chair
- Keep chin neutral
- Turn thumbs out & bring arms behind you
- Contract shoulder blades together
- Hold for 30 seconds

Row

- Using a cable machine, set the height to be even with your chest
- Pull the cable towards your chest while contracting your upper back
- 8-12 repetitions

http://i.imgur.com/MfBlJ.jpg
Upright Row

- Hold 5lb dumbbells close together in front of you
- Bend elbows and pull weights directly upward until they are level with your chest
- Hold for 10 seconds each repetition
- 5-8 repetitions

Wall Exercise

- Stand with feet 12 inches off wall
- Touch buttocks, upper back, and head to wall
- Make a “W” with hands and touch elbows and hands to wall
- Hold for 30 seconds

https://www.t-nation.com/img/photos/278scap-wall-slide-start.jpg
Neuromotor Training

- Yoga and tai chi are believed to help prevent and relieve back pain by reducing tension and increasing flexibility.

- It is important to keep in mind that when doing yoga with low back pain, one must not engage in any poses that aggravate the pain. You should feel a slight stretch, but no pose should ever be painful.
High Lunge, Crescent Variation

- Step forward with one leg, keeping the back leg firm and straight
- Focus on keeping your balance and do not overarch the lower back.
- Begin to raise arms up above your head, palms facing inward.

*This pose can help strengthen and increase stability of the core, helping alleviate back pain
Warrior II Pose

- Stand with feet 3-4 ft apart while raising arms parallel to the floor
- Turn left foot slightly to the left and turn the right foot out to the right 90 degrees
- Look to the right and exhale while bending the right knee over the right ankle, bringing the left thigh parallel to the floor and stretching arms outward
- Be sure to keep the shoulders directly over the pelvis.

www.yogajournal.com
Flexibility

Stretches:

- Piriformis
- Hamstring
- Psoas Major
Piriformis Stretch

- Lie on your back and cross one leg over the other. Both knees should be bent.

- Place hands together under the knee of the lower leg and pull gently towards chest

- Hold both thighs closely until a stretch is felt in the buttock area
Hamstring Stretch

- Lie on back with one leg flat & the other leg bent at the knee
- With both hands, grasp the bent leg behind the knee while flexing the hip to 90 degrees
- Straighten the knee as much as you can until you feel a stretch
- Hold position for 10-30 seconds and repeat 2-4 times

*NOTE: You should feel a bit of pressure during this stretch but it should NOT be painful*
Psoas Major Stretch

- Kneel down on one knee with the other leg bent at the knee in front of you and foot flat
- Rotate the leg on the ground outward while tightening the gluteal muscles on that side
- Lean forward through the hip joint

www.enhancephysiotherapy.net
Quiz

1. What is kyphosis
2. How many cases of kyphosis are reported each year in the US
3. What is the most common cause of osteoporosis related kyphosis
4. Why shouldn’t those with kyphosis perform high impact warm-ups?
5. Which type of exercises are more helpful to those suffering from kyphosis? Strength or muscular endurance
6. Which muscles are targeted when the “Y” exercise is performed?
7. Which muscles are targeted when the “T” exercise is performed?
8. What type of neuromotor training is believed to prevent and relieve back pain?
9. Which pose helps increase the strength and stability of the core?
10. Which 3 stretches are recommended for those suffering from kyphosis and lower back pain?
References


