Pilates Protocols for Person with Kyphosis

Body Arts and Science International

KYPHOSIS (HUMPBACK)
ABNORMAL CURVATURE OF THE SPINE, MOST OFTEN THE THORACIC PART

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Abstract

Balanced posture keeps your body in proper alignment. Poor posture can affect the resting length of muscles and will cause dysfunction in the muscles, joints and bones. When muscles and joints don’t function at their peak there can be pain and or injury over time. When slouching the head tilts forward, the chest and anterior shoulder muscles are shortened, the shoulders are rounded, the breath is constricted, and the back and posterior shoulder muscles are lengthened. These changes can affect the alignment of the shoulders and spinal regions while at rest or during movement. Pilates professionals utilize assessment tools to review posture, the findings help guide in the development of conditioning programs that address deviations, injuries, imbalance and or pain to restore clients bodies and minds.

Kyphosis refers to an exaggerated curve in the thoracic region of the spine.
A kyphotic posture can give someone a hunched over and round shouldered look, and is fairly common among adults who spend the majority of their time sitting at desks. This paper gives details of a case study that explores the effects of the BASI Pilates method on a kyphotic posture. It will conclude that with regular Pilates sessions, the muscular imbalances that cause Kyphosis can be addressed, and the posture improved.
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The spine has 33 bones, Isacowitz and Clippinger state, “that are stacked one upon the other and form a column like structure” (Pilates Anatomy 9). Figure 2 illustrates the 3 primary regions of the spine and the attendant 24 vertebrae within these regions. The cervical spine consists of 7 vertebrae; the thoracic spine consists of 12 vertebrae; and the lumbar spine consists of 5 vertebrae. An article on Web Md states the curves of the spine are designed to support the body’s weight; the upper portion, the cervical spine, supports the weight of the head which can weigh up to 15 pounds.

The middle and lower portions of the spine, thoracic and lumbar spine—allow the mid and lower back to flex, extend, move laterally and rotate. The large movements of the spine utilized in Pilates include: flexion, forward bending; extension, straightening from flexion or backward bending; lateral extension, bending the spine sideways and rotation, rotating the head and or upper trunk so that the head or chest faces right or left.
There are many muscles involved in the movement of the spine as illustrated in figure 2 below when a spine is kyphotic a protruded chin produces shortened neck muscles (sternocleidomastoid); rounding of the shoulders produces shortened chest and anterior shoulder muscles (pectoralis major and minor and anterior deltoids, respectively) and the back and posterior shoulder muscles are lengthened (rhomboid minor & major, trapezius, latissimus dorsi, erector spinae and posterior deltoid respectively). Movement is affected by postural deviation. To assess posture Pilates professionals view clients in stationary positions referred to as static alignment and during movement referred to as dynamic alignment. Isacowitz and Clippinger state, “movement, stability and alignment of the spine are an essential focus in Pilates” (Pilates Anatomy 9). Pilates can develop understanding of alignment during movement or within a given position. Balanced posture is described by Isacowitz and Clippinger as the relative positioning of body segments in relation to one another; for example, the head over the shoulders, shoulders over hips etc. (Pilates Anatomy 9).
Introduction

Thoracic Kyphosis is a fairly common problem in society today. Characterised by a hunched over look, it is often accompanied by rounded shoulders, a forward head rounded upper or mid back and possibly a tilted pelvis when standing. The cause can be either structural or postural. In most cases, Kyphosis is a postural deviation resulting from increasingly sedentary and desk bound lifestyles. Many adults spend the majority of their day sitting hunched forward for prolonged periods of time, causing the thoracic extensors to become weak and the pectoral muscles to become tight and inflexible. This can lead to pain and tension in the upper back and shoulder region. A Pilates conditioning programme can be used to teach correct alignment and correct muscular imbalance, improving posture and alleviating painful symptoms. Back and Neck Pain states postural kyphosis can be also, corrected “with education about proper posture, including some retraining on how to sit and stand correctly. Special bracing or casting is usually not necessary. Strengthening exercises for your back muscles can be helpful in correcting posture” (Kyphosis). BASI Pilates states that correction focuses on strengthening the thoracic extensors and stretching the anterior shoulder muscles and pectorals.
Case Study

Client: Yogi

Age: 52

Gender: Female

Yogi has been working in the office 5 days a week for over 10 years and spends the majority of her working day hunched forward at her desk. She complains of shoulders, neck and lower back pain and tension and has occasional massages to relieve symptoms. In 2015 Yogi added Pilates sessions 3 times a week.

During the BASI Fundamental and Comprehensive Apparatus programs I learned about assessment techniques. I assessed Yogi’s back using the roll-down technique and discovered Yogi has kyphosis of the thoracic spinal region. Shortly thereafter, I began integrating the BASI block system to design workouts. Next, I began using BASI designed and produced equipment.

Limitations and goals:
--- Yogi has a kyphotic curve in her thoracic spine so she needs to be taught correct alignment. Her spinal extensors are weak and lengthened so she needs to work to strengthen them.
--- Conversely, her pectoral muscles of the chest are short and tight as are her intercostal muscles, so she needs to stretch them and to increase thoracic flexibility.
--- Her shoulders tend to round forward so she needs to strengthen her scapular stabilizers, (mid and lower trapezius, rhomboids, and serratus anterior).
--- Yogi complains of tension in her upper back and shoulders so needs to lengthen and stretch her overactive upper trapezius and levator scapula
--- She has tight and overactive hip flexors so she needs to stretch them and strengthen her abdominals.
--- Stronger abdominals will also help bring her pelvis into neutral as she is slightly lordosis in the lumbar region of her spine. ae.

**Conditioning Program**

The conditioning program utilizes the Block System from the BASI approach focusing on the whole and highlights exercises that emphasize strengthening and stretching the trunk accordingly. The conditioning program is designed for Yogi and includes fundamental and Intermediate level work, which encompasses the BASI approach to balance. Also included are activities for daily living, Yogi has agreed to do some additional work while working and at home.

I asked Yogi to consider adding the following activities to her daily living. While Yogi is at the office I recommended that she:

1. Take frequent breaks, stepping away from the computer. Stretch out, move and breathe.
2. Become mindful of posture while seated.

We start with the roll down to focus mind and body, to coordinate breath and movement, and for Yogi to particularly focus on correct alignment of her spine. Engaging lateral breathing will stretch the intercostal and encourage thoracic mobility.

**Warm Up**

- Pelvic Curl
- Spine Twist Supine
- Chest Lift
- Chest lift with Rotation

*This compliment of exercises provides abdominal strength, pelvic lumbar stabilization, trunk stabilization, and abdominal strength with oblique emphasis.*
Foot Work

Reformer

- Parallel Heels
- Parallel Toes
- Small V position toes
- Open V Heels
- Open V Toes
- Prances
- Calf raises
- Single leg heels
- Single leg toes

Lying supine will support Yogi’s spine and align head and neck. I cued to maintain a neutral pelvis throughout.

Abdominal Work

Reformer

- Round back
- Flat back
- Tilt
- Twist

This series strengthens the abdominals and engages the back extensors while avoiding excessive flexion.

Hip Work

Cadillac

- Frog
- Circles down
- Circles up
- Walking
- Bicycles
This series will strengthen Yogi’s adductors and hamstrings with a strong focus on pelvic stability.

**Spinal Articulation**

**Cadillac**
- Monkey Original

The monkey original muscle focus is the abdominals; the objectives are abdominal control, spinal stretch and mobility and hamstring and calf stretch.

Good abdominal control is a required ingredient for successful spinal articulation. Furthermore, the TA has a particularly profound role in facilitating efficient spinal articulation.

**Stretches**

**Reformer**
- Kneeling lunge

This is good for Yogi’s hip flexor and hamstring stretch that she needs. I cued her to keep her focus on activating the abdominals and tilting the pelvis posteriorly, activating the upper-back extensors, extending the thoracic spine, and creating an arc shape from the back knee through the thigh, pelvis, trunk, and head.

**Full Body Integration**

**Reformer**
- Up stretch 1
- Elephant

Up stretch 1 and Elephant will encourage back extensor and abdominal strength, both so important for Yogi. It will also give her a hamstring and shoulder stretch, while allowing her to practice shoulder stabilization.
Arm Work

Reformer
- Extension
- Adduction
- Up Circles
- Down Circles
- Triceps

The arms supine series will enable Yogi to strengthen and increase the mobility of the shoulders with a supported spine.

Leg Work

Wunda Chair
- Leg Press Standing

The leg press standing muscle focus is hamstrings; the objectives are balance, hip extensor control and knee extensor control. The balance objective will help Yogi center and concentrate on her postural alignment.

Lateral Flexion and Extension

Wunda Chair
- Side Stretch

This exercise will engage Yogi’s back extensors, and strengthen her abdominals with a heavy focus on the obliques.

Reformer
- Mermaid

The mermaid will develop Yogi’s spinal mobility, elongation of the spine and scapular stabilization.

Back Extension
Wunda Chair

- Swan basic

The swan basic muscle focus is back extensors; the objectives are trunk stabilization and back extensor strength. This exercise provides a great opportunity for Yogi to develop abdominal and hip extensor strength too.

Conclude session with roll-down allowing Yogi to relax and center.

Conclusion

After the tenth regular session Yogi has already felt the benefits of the BASI Pilates method. She has gained good alignment more flexibility across the chest and her shoulders are becoming more mobile. Yogi’s back extensors are getting stronger and she has become aware of using them while sitting at her desk. She has gained and more flexibility in the thoracic region of her spine. Through the use of the Pilates conditioning program based on the BASI block system, Yogi has started to address the muscular imbalances of her body. Her posture has improved, and she feels less tension in her neck and shoulders. In summary, Pilates protocols for Kyphosis allow the Pilates professional to re-educate movement patterns, improve the quality and precision of movement through strength, flexibility and balance. This wonderful compliment of mind-body work restores balance to the client. Yogi is beginning to experience the benefits of greater chest and shoulder flexibility. Her back is stronger with greater extension. Yogi is excited to continue to work with the BASI Pilates method and equipment.
Bibliography

