



Designing a Program for Swayback Posture

A fuller understanding of swayback posture can help you retrain clients.

Many fitness professionals confuse faulty **lordotic** posture with **swayback** posture (Kendall 2005).

The scientific definition of **swayback** refers to posture in which the hips are swayed forward and the rib cage is swayed backward in the sagittal plane (Kendall 2005). Commonly, people picture the swayback of an older horse—which actually more resembles lordotic posture. Upon closer look at joint positions and at muscle length and strength, it is obvious that these postures are different.

Fitness professionals must understand the differences, because these two faulty postures lead to different injury risks and require different types of corrective exercise.

Those who can correctly identify swayback posture can address clients' muscle imbalances prior to the onset of pain or dysfunction and can then effectively create exercise programs to combat muscle atrophy and overuse injuries or trauma during exercise.

Research

According to Sherrington (1931), "Posture follows movement like a shadow." After extensive study of the ideal posture and its relationship to muscle balance, pain and good body mechanics, it has become increasingly apparent that how we hold our bodies statically (when unmoving or stationary) affects our movement patterns and is also a true reflection of our daily activities. Think of people who swim, run or have a sedentary job. We can imagine their posture by

the activities they do, then view their posture and make an educated prediction about the types of overuse injuries they might sustain in their future.

There is extensive research describing ideal posture and its role in health and wellness. Most physical therapists, sports conditioning specialists and personal trainers have adopted postural evaluations as a tool for exercise program design, whether the goal is pain reduction, improvement of sport performance or overall fitness and wellness.

Swayback Versus Lordotic Analysis

Upon quick comparison, swayback and lordotic postures appear similar, owing to the convex curve in the back. However, upon closer observation it is apparent that in lordotic posture the lumbar spine is convex, while in swayback posture the low lumbar area is actually flattened. In swayback posture the convex curve of the spine is much higher, in the lower thoracic spine.

There are two excellent ways to differentiate between the two (Kendall 2005). The first is to identify the position of the pelvis. In lordotic posture the pelvis is tilted *anteriorly*, while in swayback posture it is tilted *posteriorly*. Second, in both lordotic and ideal postures the greater trochanter is over the lateral malleolus. In swayback posture the greater trochanter is considerably anterior to the lateral malleolus, revealing the forward sway of the pelvis in the sagittal plane (Kendall 2005; Sahrman 2002). >>



Swayback posture is common in runners, ballerinas and sedentary individuals. It is also common in older adults because of the characteristic weakening of the aging gluteals. In addition, those with chronic pain frequently present with swayback posture (Sahrmann 2002).

In my practice I am seeing an increase among 14- to 25-year-olds with swayback. I have two theories for why this is occurring: (1) young adults seem to have

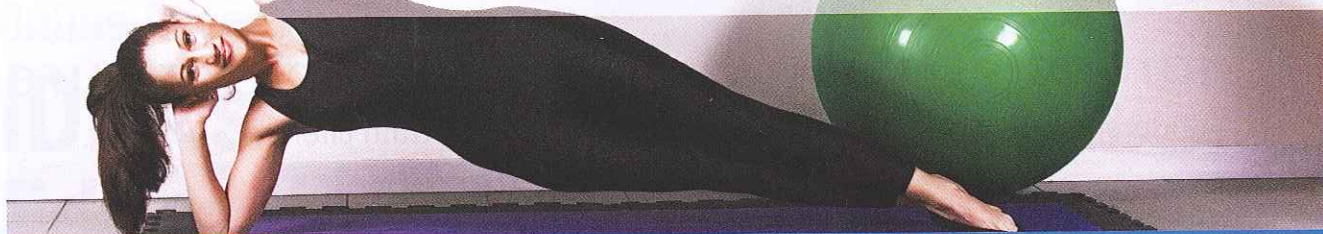
become more sedentary with the increased use of technology; and (2) fashion! I've noticed that youth in low-rise pants stop flexing at the hips, because their clothing is restrictive.

Lordotic posture is common in athletes with iliopsoas tightness; for example, gymnasts and football offensive linemen. It is also seen in majorettes, aerobics participants and pregnant women (Kendall 2005). Interestingly, it is the first posture acquired by children learning to walk and

is generally present until the abdominal muscles mature around the age of 12 (Kendall 2005).

Swayback Posture in Detail

Kendall (2005) provides a detailed description of the faulty swayback posture. The posterior tilt and anterior deviation of the pelvis and thighs create a neutral ankle joint with hyperextended knees and hips. The lower lumbar spine is flattened, and there is a long kyphosis (back-



Swayback Posture: Exercise Program Goals

Specific exercises for swayback posture should include movements that achieve the following:

- Increase mobility at the hips, specifically hip flexion.
- Increase strength of the gluteus maximus.
- Decrease length of the external obliques, and decrease dominance of the rectus abdominis.
- Strengthen the short hip flexors (psoas).

For best results, incorporate as many of these goals into one functional activity as possible, rather than doing individual activities. The goal is to include exercises that promote co-contraction of the muscles about the spine with increased power for hip flexion and extension, which would happen simultaneously. Avoid traditional curl-ups, as they continue to build dominance of the rectus abdominis. To incorporate abdominal strengthening, do core exercises that maintain a neutral spine and pelvis and produce stiffening of the core.

Here are several Pilates exercises that are beneficial for swayback posture. Side plank

and leg pull variation effectively shorten and strengthen the external obliques while maintaining length in the internal obliques and rectus abdominis. Bridging and single-leg march strengthen the gluteals and psoas while increasing hip mobility.

Side Plank

Setup. Sit on side of hip with legs extended slightly out in front. Cross top leg over bottom leg, resting ball of foot on floor. Bottom leg will take your body weight, while top leg is for balance. Place lower hand on floor aligned comfortably under shoulder. Align spine, and draw shoulder blades down by lifting rib cage to prepare for movement.

Movement. Lift hips from floor in one movement as top arm sweeps upward. Bring entire body to rest on one hand and on side of lower foot. Align body so ribs are directly in line with pelvis and you are completely in frontal plane. Square shoulders and hips to front of body. Hold for a set of breaths and then lower to floor while keeping body aligned. Repeat on other side.

Breathing. Inhale to prepare, exhale as you lift into side

plank, inhale at top and exhale to return to setup position. Be sure to keep weight-bearing elbow soft without hyperextending elbow joint.

Leg Pull Variation

Setup. Lie on stomach, propped up on elbows, as if reading a book. Align elbows directly beneath shoulders, heels below ischial tuberosities. Curl toes so you will be able to bear weight on balls of feet.

Movement. Draw ribs up and away from floor and then follow by lifting pelvis and placing weight on elbows and on balls of feet. Be sure to keep head and neck in line with spine and to maintain neutral pelvis. Once you are in this elbow plank position, you can add challenge by reaching one foot at a time up and off floor.

Breathing. Inhale as you lift ribs, and exhale as you lift into elbow plank position. Hold position for three breaths, or inhale and exhale as you alternate reaching legs for 8 repetitions.

Bridging

Setup. Lie on back with feet flat on floor and heels directly in line

with ischial tuberosities. Position spine and pelvis in neutral. Place arms at sides and lengthen neck.

Movement. Draw navel toward spine and begin peeling one vertebra at a time up from floor, starting at tailbone. Stop to rest on shoulder blades, then return to floor, one vertebra at a time.

Breathing. Inhale to prepare, and exhale on movement. Inhale at top, and exhale as you return to starting position.

Single-Leg March

Setup. Lie on back with feet flat on floor and heels directly in line with ischial tuberosities. Position spine and pelvis in neutral. Place arms at sides and lengthen neck.

Movement. With bent knee, lift one leg up to tabletop position. Be sure to maintain neutral pelvis and spine as you lift. Return to setup position and perform movement on other side.

Breathing. Inhale as you lift leg, and exhale as you bring it back to floor.

Source: Romani-Ruby, C., & Clark, M. 2004. *Pilates Mat Work: A Manual for Fitness and Rehabilitation Professionals*. Tarentum, PA: Word Association.

ward curve of the thoracic spine, known also as “hunchback” or rounded upper back) in the posteriorly displaced upper trunk. The muscle imbalances related to this scenario include short and strong hamstrings and internal oblique muscles with lengthened psoas and external oblique muscles.

Sahrmann describes the dominance of the rectus abdominis over the external obliques, for the posterior tilt, as a significant cause of the caving of the chest in swayback posture. Because of the shift of the upper torso backward and the pelvis forward, the swayback curve might be incorrectly described as a lordosis (Kendall

2005). This posture reveals a caved chest, rounded shoulders and flattened buttocks, with atrophy of the gluteals.

One of the dangerous movement patterns in swayback posture is use of the hamstrings to extend the hip. Because the hip is in full extension in this posture, the gluteals are inhibited and the hamstrings take over as the prime movers for hip extension. Unfortunately, because of the origin and insertion of the hamstrings, the extension they create at the hip puts a torque on the femur, causing the head of the femur to move forward in the hip socket (Sahrmann 2002). This can produce significant wear and tear on the

anterior area of the hip joint and undue strain on the hamstring tendon.

Common overuse injuries related to faulty swayback posture include labral tears at the hip, low-back pain, plantar fasciitis, iliopsoas bursitis and tendinopathy, recurrent hamstring strain and shoulder impingement (Sahrmann 2002).

Retraining for Activities of Daily Living

When working with swayback clients, it is important to emphasize corrective exercise and focus on retraining for activities of daily living. Swayback clients often “cheat” during traditional exer-

video web
extras!

The four following video clips show a client with swayback posture working to learn new patterns through corrective exercises and functional movement.



Standing Posture (www.idealife.com/swayback-1).

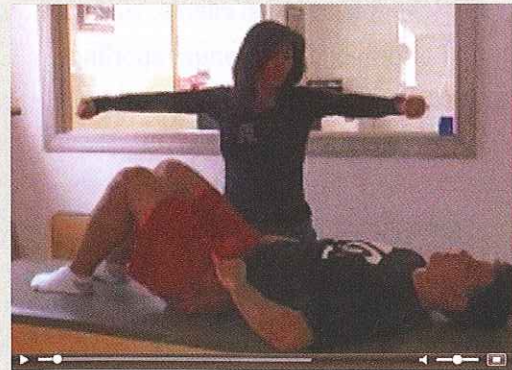
To correct this client's swayback posture, trainer encourages slight flexion at the hip. With your own client, cue him or her to “bend at underwear line.” Client will feel weight shift to heels and may become off balance. Then cue client to draw abdomen up and in: “Zip your jeans.” Finally, cue client to contract gluteals and bring torso back over lower body.



Sit-to-Stand (www.idealife.com/swayback-2). This client is performing corrected standing posture with improved awareness and ability to bring torso over lower body with no forward sway at pelvis. Proper sit-to-stand movement is important for improving gluteal function. Cue nose over toes, ischial tuberosities (sit bones) pointed toward chair, and bend at hips as client sits on chair.



Side Plank and Elbow Plank (www.idealife.com/swayback-3). This client with swayback posture is learning side plank and elbow plank. The client must practice moving just the torso and engaging the shoulders before proceeding to full-body lift.



Bridge Mat (www.idealife.com/swayback-4). This client with swayback posture is learning how to perform an articulating bridge. It can be difficult for new clients to keep neck long while tilting pelvis at beginning of bridge, owing to shortness of paraspinals. Also, be alert for open knees and weight shift to outside of foot as clients move to top of bridge position; this is caused by shortness of iliotibial band.

cise, so knowing the issues surrounding this faulty posture will help you cue for proper alignment in order to make each exercise more challenging and effective.

The first and most important lesson is correcting the standing swayback posture. For those in pain this will calm the muscles and remove the effects of the spine's poor position (McGill 2007). For those with no pain, correcting the standing alignment will prevent flawed movement patterns.

To correct swayback posture, begin by teaching clients the bony landmarks of the lateral malleolus and greater trochanter. Next, teach them how to flex slightly at the hip joint to move the greater trochanter back over the lateral malleolus. They will feel their weight transfer to the heels and notice their pelvic floor and gluteals engage. Next, ask clients to draw up and in at the "lower abdomen," while pulling down with the ischial tuberosities (sit bones). Be sure they lengthen the torso out through the top of the head and elongate the spine. This will begin to reset the relationship between the external obliques and the dom-

inant hamstrings. A good tip is to remind clients that people with swayback posture tend to stand with feet far apart and arms crossed over the chest, and they should try to catch themselves doing this.

Also review daily activities, such as moving from sitting to standing. Clients with typical swayback posture will get in and out of a chair using the hamstring muscles rather than the gluteals. As these clients sit down, they will tuck the pelvis into a posterior tilt and avoid the natural forward lean of the torso. As they stand up, they will shift their pelvis forward and hyperextend their knees to "put on the brakes" at the top of the motion.

Review the sit-to-stand motion with them, encouraging "nose over toes" and "sit bones pointing at the chair." Avoid internal rotation of the hips or medial collapse at the knees. There should also be deliberate hip flexion during the movements of sit-to-stand and stand-to-sit.

Swayback posture is a common faulty posture that can inhibit normal exercise function and lead to pain and dysfunction. Identifying this posture is critical in the design and success of an exercise program.

Trainers and instructors who can correctly identify this posture will be able to teach new functional movements and provide exercises to effectively resolve the postural faults before any damage occurs. ■

Christine Romani-Ruby PT, MPT, ATC, is a licensed physical therapist and a Pilates Method Alliance (PMA) gold-certified Pilates instructor. She is an associate professor in the exercise science program at California University of Pennsylvania and practices clinically at PHI Pilates Studio in Pittsburgh. She is the owner and founder of PHI Pilates and has trained instructors and rehabilitation professionals internationally for 20 years.

References

- Kendall, F.P., et al. 2005. *Muscles: Testing and Function, With Posture and Pain*. (5th ed.). Baltimore: Lippincott Williams & Wilkins.
- McGill, S. 2007. *Low-Back Disorders* (2nd ed.). Champaign, IL: Human Kinetics.
- Romani-Ruby, C., & Clark, M. 2004. *Pilates Mat Work: A Manual for Fitness and Rehabilitation Professionals*. Tarentum, PA: Word Association.
- Sahrmann, S.A. 2002. *Diagnosis and Treatment of Movement Impairment Syndromes*. St. Louis: Mosby.
- Sherrington, C. 1931. Hughlings Jackson lecture on quantitative management of contraction for "lowest-level" co-ordination. *British Medical Journal* (Feb.), 7.

The Ultimate Personal Trainer Software Suite

Exercise, Fitness Assessment, Nutrition, Meal Plans, Scheduling, Billing, Retention

Management : maker

- Schedule trainers, clients, classes
- Perform billing/revenue reporting
- Marketing tools
- Retention management



One
Integrated
Suite

or

Four
Separate
Programs

Exercise EXPERT

- Create exercise handouts
- Create fitness programs
- Use for post-rehab
- Email programs

nutritionmaker

- Assess daily calorie requirements
- Print dietitian designed meal plans
- Analyze diet and eating habits
- Print meal plan shopping list

Fitness Maker

- Maintain fitness assessment results
- Provide physiologic age service
- Perform health risk screens
- Print complete fitness reports

For free demo call 800-750-2756 or download your free demo at www.BioExSystems.com

BioEX
SYSTEMS, INC.