AAOS
American Academy of Orthopaedic Surgeons

Prepared for: _____

Prepared by: _____

OrthoInfo
Your orthopaedic connection to expert information about bones, joints, and muscles
www.orthoinfo.org

Spine Conditioning Program

Purpose of Program

After an injury or surgery, an exercise conditioning program will help you return to daily activities and enjoy a more active, healthy lifestyle. Following a well-structured conditioning program will also help you return to sports and other recreational activities.

This is a general conditioning program that provides a wide range of exercises. To ensure that the program is safe and effective for you, it should be performed under your doctor's supervision. Talk to your doctor or physical therapist about which exercises will best help you meet your rehabilitation goals.

Strength: Strengthening the muscles that support your spine will help keep your back and upper body stable. Keeping these muscles strong can relieve back pain and prevent further injury.

Flexibility: Stretching the muscles that you strengthen is important for restoring range of motion and preventing injury. Gently stretching after strengthening exercises can help reduce muscle soreness and keep your muscles long and flexible.

Target Muscles: The muscle groups targeted in this conditioning program include:

- Cervical spine (neck)
- Trapezius (neck and upper back)
- Latissimus dorsi (side and middle back)
- Back extensors and erector spinae (middle and lower back)
- Quadratus lumborum (lower back)
- Abdominals
- External oblique rotators (side and lower back)
- Internal oblique rotators (side and lower back)
- Piriformis (buttocks)
- Gluteus maximus (buttocks)
- Gluteus medias (buttocks)
- Hamstrings (back of thigh)

Length of program: This spine conditioning program should be continued for 4 to 6 weeks, unless otherwise specified by your doctor or physical therapist. After your recovery, these exercises can be continued as a maintenance program for lifelong protection and health of your shoulders. Performing the exercises two to three days a week will maintain strength and range of motion in your back.

Getting Started

Warm up: Before doing the following exercises, warm up with 5 to 10 minutes of low impact activity, like walking or riding a stationary bicycle.

Stretch: After the warm-up, do the stretching exercises shown on Page 1 before moving on to the strengthening exercises. When you have completed the strengthening exercises, repeat the stretching exercises to end the program.

Do not ignore pain: You should not feel pain during an exercise. Talk to your doctor or physical therapist if you have any pain while exercising.

Ask questions: If you are not sure how to do an exercise, or how often to do it, contact your doctor or physical therapist.

AAOS does not endorse any treatments, procedures, products, or physicians referenced herein. This information is provided as an educational service and is not intended to serve as medical advice. Anyone seeking specific orthopaedic advice or assistance should consult his or her orthopaedic surgeon.

Spine Conditioning Program
STRETCHING EXERCISES

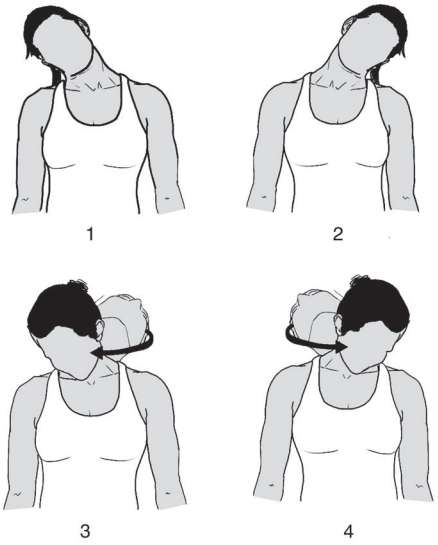
1. Head Rolls

Repetitions
3 sets of 3

Days per week
Daily

Main muscles worked: Cervical spine muscles, trapezius
You should feel this stretch all around your neck and into your upper back

Equipment needed: None



Step-by-step directions

- Sit in a chair or stand with your weight evenly distributed on both feet.
- Gently bring your chin toward your chest.
- Roll your head to the right and turn so that your ear is over your shoulder (1). Hold for 5 seconds.
- Gently roll your head back toward your chest and to the left. Turn your head so that your ear is over your left shoulder (2). Hold for 5 seconds.
- Slowly roll your head back and in a clockwise circle three times (3).
- Reverse directions and slow roll your head in a counterclockwise circle three times (4).

Tip	Do not shrug your shoulders up during this exercise.

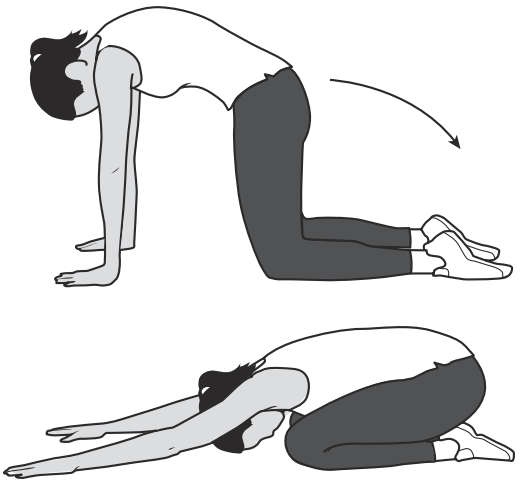
2. Kneeling Back Extension

Repetitions
10

Days per week
Daily

Main muscles worked: Quadratus lumborum, erector spinae
You should feel this stretch in your lower back and your abdominals

Equipment needed: None



Step-by-step directions

- Begin on your hands and knees with your shoulders positioned over your hands.
- Rock forward onto your arms, round your shoulders and allow your low back to drop toward the floor. Hold for 5 seconds.
- Rock backward and sit your buttocks as close to your heels as possible. Extend your arms and hold for 5 seconds.

Tip	Look down on the floor to keep your neck in alignment with your spine.

AAOS does not endorse any treatments, procedures, products, or physicians referenced herein. This information is provided as an educational service and is not intended to serve as medical advice. Anyone seeking specific orthopaedic advice or assistance should consult his or her orthopaedic surgeon.
© American Academy of Orthopaedic Surgeons

Spine Conditioning Program
STRETCHING EXERCISES

3. Sitting Rotation Stretch

Repetitions
2 sets of 4

Days per week
Daily

Main muscles worked: Piriformis, external oblique rotators, internal oblique rotators
You should feel this stretch in your buttocks, as well as at your sides

Equipment needed: None

Step-by-step directions

- Sit on the floor with both legs straight out in front of you. Cross one leg over the other.
- Slowly twist toward your bent leg, putting your hand behind you for support.
- Place your opposite arm on the side of your bent thigh and use it to help you twist further.
- Look over your shoulder and hold the stretch for 30 seconds. Slowly come back to center.
- Repeat on the other side. Repeat the entire sequence 4 times.

Tip	Sit up tall and keep your sit bones pressed into the floor throughout the stretch.

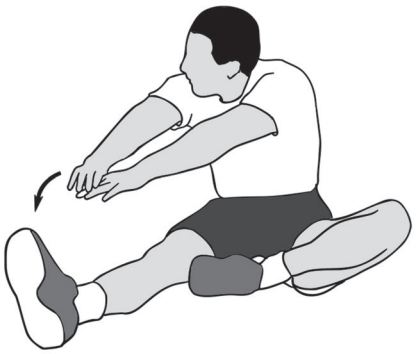
4. Modified Seat Side Straddle

Repetitions
10 each side

Days per week
Daily

Main muscles worked: Hamstrings, extensor muscles, erector spinae
You should feel this stretch in the back of your thighs and into your lower and middle back

Equipment needed: None



Step-by-step directions

- Sit on the floor with one leg extended to the side and the other leg bent.
- Keep your back straight and bend from your hips toward the foot of your straight leg. Reach your hands toward your toes and hold for 5 seconds.
- Slowly round your spine and bring your hands to your shin or ankle. Bring your head down as close to your knee as possible.
- Hold for 30 seconds and then relax for 30 seconds.
- Repeat on the other side. Repeat the sequence 10 times.

Tip	Keep your extended leg straight as you bring your head down.

AAOS does not endorse any treatments, procedures, products, or physicians referenced herein. This information is provided as an educational service and is not intended to serve as medical advice. Anyone seeking specific orthopaedic advice or assistance should consult his or her orthopaedic surgeon.
© American Academy of Orthopaedic Surgeons

Spine Conditioning Program
STRETCHING EXERCISES

5. Knee to Chest

Repetitions
3 sets of 10

Days per week
Daily

Main muscles worked: Quadratus lumborum
You should feel this stretch in your lower back, as well as in the front of your hip and inner thigh

Equipment needed: None

Step-by-step directions

- Lie on your back on the floor.
- Lift one leg and bring your knee toward your chest. Grasp your knee or shin and pull your leg in as far as it will go.
- Tighten your abdominals and press your spine to the floor. Hold for 5 seconds.
- Repeat on the other side, then pull both legs in together. Repeat the sequence 10 times.

Tip	Keep your spine aligned to the floor throughout the sequence.

AAOS does not endorse any treatments, procedures, products, or physicians referenced herein. This information is provided as an educational service and is not intended to serve as medical advice. Anyone seeking specific orthopaedic advice or assistance should consult his or her orthopaedic surgeon.
© American Academy of Orthopaedic Surgeons

Spine Conditioning Program
STRENGTHENING EXERCISES

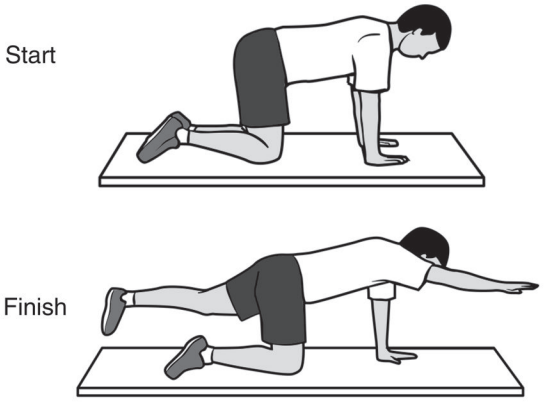
6. Bird Dog

Repetitions
5

Days per week
Daily

Main muscles worked: Back extensors, erector spinae, gluteal muscles
You should feel this exercise in your lower back and into your buttocks

Equipment needed: None



Step-by-step directions

- Begin on your hands and knees with your shoulders positioned over your hands and your hips directly over your knees.
- Tighten your abdominal muscles and raise one arm straight out to shoulder-height and level with your body. Hold until you feel balanced.
- Slowly lift and extend the opposite leg straight out from your hip.
- Tighten the muscles in your buttocks and thigh, and hold this position for 15 seconds.
- Slowly return to the start position and repeat with the opposite arm and leg.

Tip	Keep your stomach muscles tight and your back flat to stay balanced.

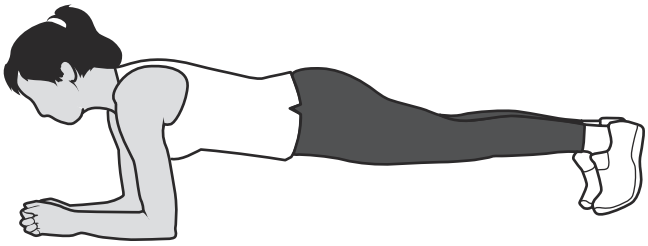
7. Plank

Repetitions
5

Days per week
Daily

Main muscles worked: Back extensors, erector spinae, quadratus lumborum, abdominals
You should feel this exercise in your middle to lower back, abdominals, and gluteal muscles

Equipment needed: None



Step-by-step directions

- Lie on your stomach with your forearms on the floor and your elbows directly below your shoulders.
- Tighten your abdominal muscles and lift your hips off of the floor.
- Squeeze your gluteal muscles and lift your knees off of the floor.
- Keep your body straight and hold for 30 seconds. If you cannot hold this position, bring your knees back to the floor and hold with just your hips lifted.
- Slowly return to the start position and rest 30 seconds. Repeat.

Tip	Do not let your pelvis sag toward the floor. Keep your stomach muscles tight.

AAOS does not endorse any treatments, procedures, products, or physicians referenced herein. This information is provided as an educational service and is not intended to serve as medical advice. Anyone seeking specific orthopaedic advice or assistance should consult his or her orthopaedic surgeon.
© American Academy of Orthopaedic Surgeons

Spine Conditioning Program
STRENGTHENING EXERCISES

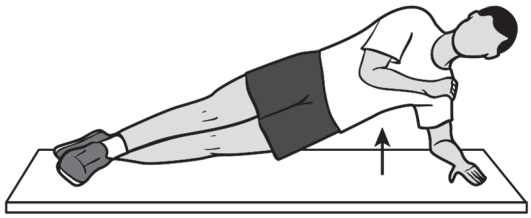
8. Modified Side Plank

Repetitions
5

Days per week
Daily

Main muscles worked: Quadratus lumborum, external oblique rotators, internal oblique rotators
You should feel this exercise in your lower back, waist, and abdominals

Equipment needed: None



Step-by-step directions

- Lie on your side on the floor with your bottom leg slightly bent and top leg straight. Your elbow should be directly under your shoulder with your forearm extended on the floor in front of you.
- Tighten your abdominal muscles and raise your hip off of the floor.
- If you can, straighten your bottom leg and lift your knee off of the floor as shown.
- Keep your body straight and hold this position for 15 seconds.
- Slowly return to the start position and repeat on the other side.

Tip	Keep neck in alignment with your spine and do not shrug your shoulder up to your ear.

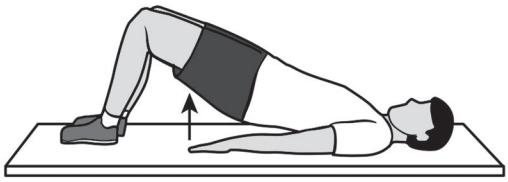
9. Hip Bridge

Repetitions
5

Days per week
Daily

Main muscles worked: Lower back extensor, erector spinae, gluteal muscles, hamstrings
You should feel this exercise in your lower back, buttocks, and back of your thigh

Equipment needed: None



Step-by-step directions

- Lie on your back on the floor with your arms at your sides, your knees bent, and your feet flat on the floor.
- Tighten your abdominal and gluteal muscles and lift your pelvis so that your body is in a straight line from your shoulders to your knees.
- Hold this position for 15 seconds.
- Slowly return to the start position and repeat.

Tip	Center your weight over your shoulder blades. Do not tense up in your neck.

AAOS does not endorse any treatments, procedures, products, or physicians referenced herein. This information is provided as an educational service and is not intended to serve as medical advice. Anyone seeking specific orthopaedic advice or assistance should consult his or her orthopaedic surgeon.
© American Academy of Orthopaedic Surgeons

Spine Conditioning Program
STRENGTHENING EXERCISES

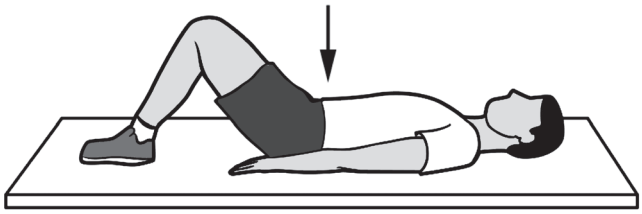
10. Abdominal Bracing

Repetitions
5

Days per week
Daily

Main muscles worked: Abdominals
You should feel this exercise in your stomach muscles

Equipment needed: None



Step-by-step directions

- Lie on your back on the floor with your knees bent and arms at your sides.
- Tighten your abdominal muscles so that your stomach pulls away from your waistband.
- Hold this position for 15 seconds.

Tip	Flatten your lower back into the floor.

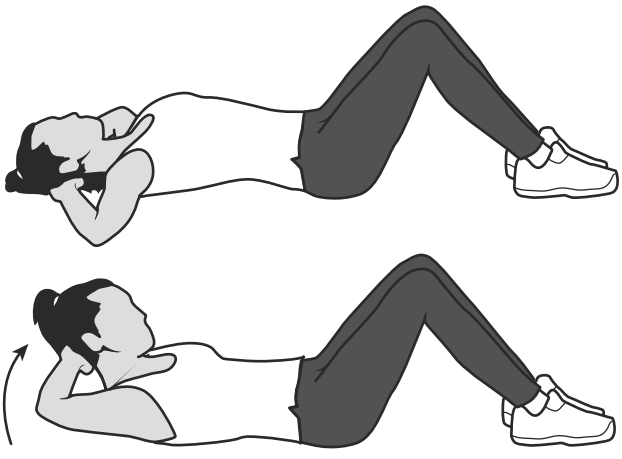
11. Abdominal Crunch

Repetitions
2 sets of 10

Days per week
Daily

Main muscles worked: Abdominals
You should feel this exercise in your stomach muscles

Equipment needed: None



Step-by-step directions

- Lie on your back on the floor with your knees bent and hands at the back of your head with your elbows open wide.
- Tighten your abdominal muscles and lift your head and shoulder blades off of the floor.
- Keep your back flat to the floor and hold for 2 seconds.
- Slowly lower and repeat.

Tip	Relax your neck and do not pull on your head with your hands.

AAOS does not endorse any treatments, procedures, products, or physicians referenced herein. This information is provided as an educational service and is not intended to serve as medical advice. Anyone seeking specific orthopaedic advice or assistance should consult his or her orthopaedic surgeon.
© American Academy of Orthopaedic Surgeons