

Comprehensive Golf Program

A male golfer is captured in the middle of a golf swing on a green field. He is wearing an orange polo shirt, khaki shorts, a white belt, a white baseball cap with a logo, and white athletic shoes with black stripes. He is holding a golf club with a silver head. The background is a blurred landscape with trees and a body of water.

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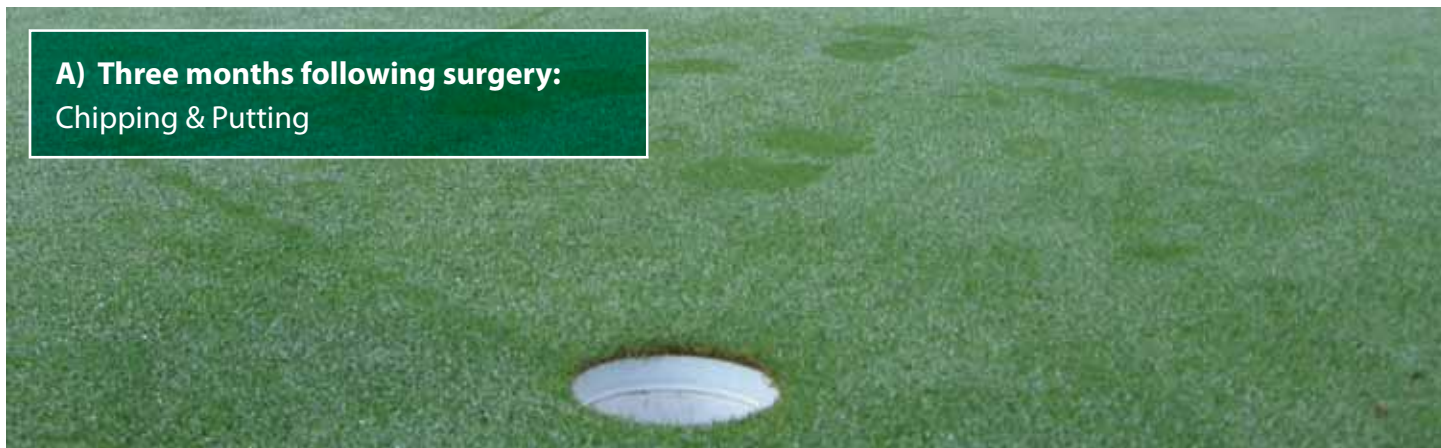
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Return to Golf Program

- Proper Warm-up & flexibility exercises prior to swinging
- Practicing & Playing round of golf the same day is prohibited
- Practicing or playing a golf round must be followed by a day of rest

A) Three months following surgery:
Chipping & Putting



B) Four months following surgery:
100 Yards Out



C) Five months following surgery:
Full Swings All Clubs



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Golf is a sport enjoyed worldwide with an estimated 60 million participants.¹ Although it is considered a low-impact sport, significant injuries do occur in golf. It has been found that over a 2 year period, 60% of professional and 40% of amateur golfers experience a traumatic or overuse golf injury.² Injuries which are considered traumatic typically occur at impact, when the golf club contacts the ground. These injuries can occur via a “Fat” shot, which is an unintentional strike of the ground prior to ball contact, or by accidentally striking solid objects such as hidden tree roots. An injury is termed “overuse” when the identifiable cause is too much participation in sport. Injuries in golf are multifactorial. Overuse, including too much play or practice, has been cited as the most common cause of injury.³ Other reported causes include poor swing mechanics, poor conditioning, and inadequate warm-up.^{3,4}

The back has been reported as the most common injury site in golf, followed by the shoulder, elbow, and knee.⁵ Back pain in amateur golfers has been contributed to poor conditioning and faulty swing mechanics while in professionals it is generally considered an overuse injury.⁶

Due to the inherent velocity and force generated during a swing, compression forces on the spine reach eight times body weight which is enough to cause injury to tissues.⁶ The shoulder and elbow are other common sites for golf injuries. Shoulder injuries are typically contributed

to excessive play, inadequate warm-up, and poor-conditioning.¹ The two most common elbow injuries are medial and lateral epicondylitis, better known as golfer’s elbow and tennis elbow. Lateral epicondylitis has been found to be five times more likely in amateur golfers than medial epicondylitis⁷ and usually involves the lead arm.^{7,8,9} Repetitive action and gripping the club too tightly are risk factors for developing lateral epicondylitis.¹ Medial epicondylitis is usually caused by the sudden deceleration at ball impact and follow-thru and involves the trail arm.¹ Injuries to the knee are believed to occur overtime with golf. Participants whom have a vigorous swing and golf regularly are believed to be most susceptible to knee injuries.¹² Acute injuries to the menisci can result from the rotation and load on the lead leg as it provides a stable base to generate swing velocity.

Prevention and rehabilitation of golfers should involve specific areas of weakness and injury, sport-specific exercises, and correction of faulty swing mechanics. In general an off-season conditioning program can help reduce the incidence of injury by preparing an individual for the stresses involved in golf. It is in the opinion of the authors that a combination of a flexibility, strength, and aerobic training program will best suit the needs of individuals participating in golf. In addition, golfers with a history of injury may want to analyze their swing for faulty mechanics.



A general warm-up should be performed prior to engaging in golf activities. A ten minute warm up has been shown to reduce the rate of golf injuries.² In general, a warm up should include ten minutes of a whole body aerobic activity such as walking followed by stretching and movements through sport specific patterns.¹³ It is important that the warm-up raises your internal temperature which has been shown to increase the ability of muscles to contract and produce force.^{14,15}

Training of the core musculature is a vital component of a conditioning program for golf. In addition to generating swing velocity, the core musculature is an important stabilizer of the spine. It has been found that golfers with low back pain have less muscle activity in the muscles that support the spine when compared to pain free golfers.¹⁵ Furthermore, dynamic core exercises have been shown to reduce pain and return golfers to play.¹⁶

Shoulder and elbow exercises should also be incorporated into the conditioning program. Exercises aiming to strengthen the rotator cuff and forearm muscles will help prepare the body for the stresses experienced during golf. Strengthening the rotator cuff will help stabilize the arm throughout the swing and prepare the shoulder for the repetitive nature of golf. Improving forearm strength will help condition the body to deal with a combination of repetitive stress and the forces exhibited on the arm during club impact with the ground.

A lower body strengthening and a general aerobic program will also benefit golfers. Strengthening the muscles of the legs helps to provide a stable base and prevent excessive load on the joints. An aerobic program can help mitigate fatigue which is a risk factor for injury, especially if an individual walks the course. A simple cycling or walking program can be used in conjunction with the exercises provided by this booklet to provide a basic conditioning program for golf.

It is important to note warning signs of injury. Swelling in a joint following golf or activity indicates joint damage or irritation.¹² The presence of swelling is troublesome because it reduces the strength of muscles, preventing their ability to act as shock absorbers and reduces their capacity to control joint motion.¹² Both of which can contribute to injury. Pain is another warning sign of injury. Many overuse injuries begin as a subtle onset of pain and progress to the point where pain significantly limits function.

This comprehensive golf book has been designed to help guide an individual in the development of a proper conditioning program including warm-up and exercise selection. The specific exercises chosen for this booklet are based off the authors' clinical expertise in regards to sport specific patterns and injuries. In the event that you do experience a golf related injury, it is recommended that you seek guidance from a physician, physical therapist, and golf professional to help address your specific needs and return you to play.

Warm Up

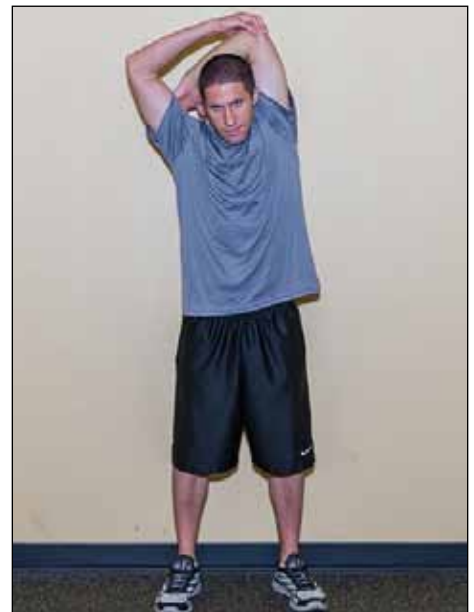
The initial warm-up should begin with 10 minutes of low intensity aerobic activity such as walking or biking.

A flexibility program should follow the initial warm-up and include:

- Static stretching which consists of holding a position for a minimum of 10 seconds.
- Dynamic stretching which consists of active movements through functional movement patterns and sport specific patterns.
- The warm-up concludes with golf swings beginning at a low intensity and building up to full intensity.
- Flexibility: Included in this booklet are basic static and dynamic stretches designed to help guide you in developing a pre-golf warm-up and conditioning program.
- Static Stretching: Hold each position for 10 seconds and repeat 3 times on each side.

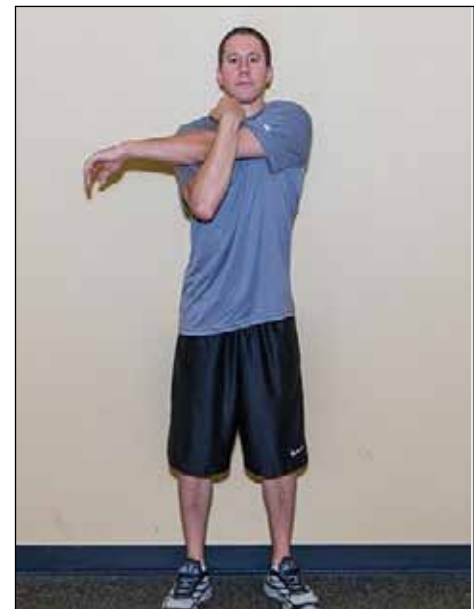
Single Arm Overhead

- Step 1.** Place one arm behind your head.
- Step 2.** Place your free hand on your elbow to apply additional stretch.
- Step 3.** Repeat on opposite arm.



Cross-body

- Step 1.** Place one arm across your body
- Step 2.** Use your free arm to apply additional stretch
- Step 3.** Repeat on opposite arm



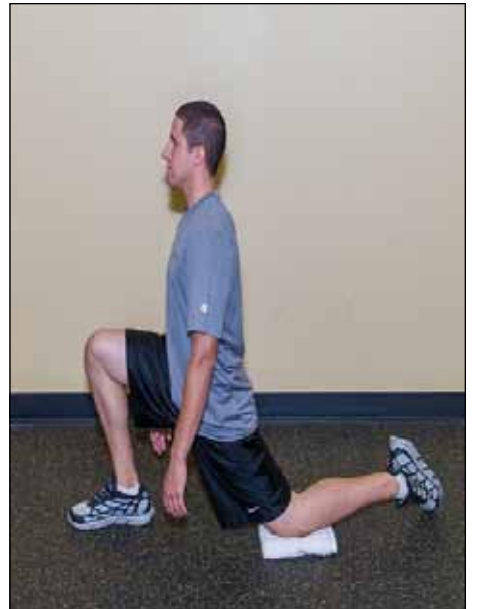
Arm Extension

- Step 1.** Place both arms on the golf club
- Step 2.** Extend your arms backwards until a stretch is felt on the front of your arms and chest
- Step 3.** Repeat three times



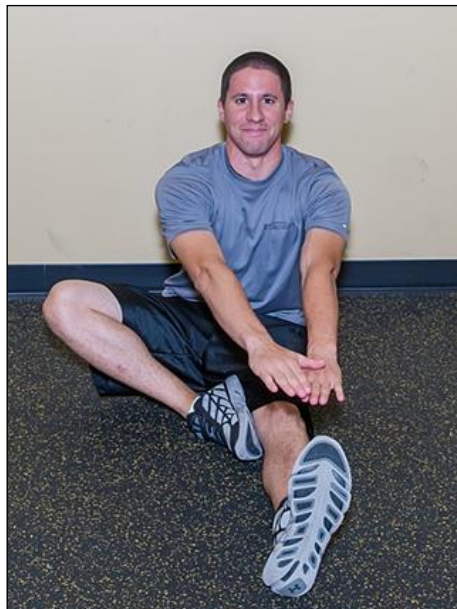
Hip Flexor Stretch

- Step 1.** Begin in the half-knee position
- Step 2.** Lean your body forward until a stretch is felt on the front of your hip
- Step 3.** Repeat on opposite leg



Hamstring Stretch

- Step 1.** Fold one leg into a figure four while leaving the other leg extended
- Step 2.** Reach arms forward until a stretch is felt on the back of your leg
- Step 3.** Repeat on opposite leg



Hip Rotation Stretch

Step 1. Cross one leg over your body until a stretch is felt on the back and side of your hip

Step 2. Repeat on the opposite leg



Hip Towel Stretch

Step 1. Place one leg in a figure four position on the opposite knee

Step 2. Place a towel under one leg

Step 3. Pull your leg towards your head with the towel

Step 4. Repeat on opposite leg



Prone Press-Up

Step 1. Begin on your stomach

Step 2. Position your arms as if you were going to perform a push-up

Step 3. Press up with your arms while allowing your hips to stay on the floor



Thoracic Spine Mobilization

- Step 1:** Place piece of foam on the floor
- Step 2:** Align foam where it is near the bottom of your shoulder blades
- Step 3:** Begin in a crunch type position with arms positioned behind the head
- Step 4:** Lay back and spread your elbows



Dynamic Stretching

The goal of dynamic stretching is to emulate the sporting movements, improve tissue flexibility, and increase body temperature. Instead of holding a set position, these stretches are active movements performed through the pictured motions. Movements are generally performed for 3 sets of 10 repetitions.

Shoulder Mobility 1

- Step 1.** Place each hand on opposite ends of the golf club
- Step 2.** Use the club to assist you in taking your arm out to the side and over your head



Active Rotation

- Step 1.** Place golf club behind your head on your shoulders
- Step 2.** Twist your shoulders and back while keeping your legs in place
- Step 3.** Repeat to the opposite side

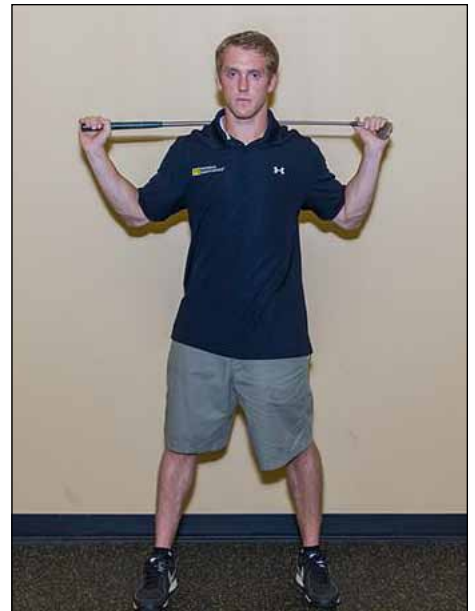


Hip Rotation

Step 1. Place the golf club behind your head on your shoulders with your hands positioned at each end

Step 2. Rotate your hips and pelvis in each direction without moving your trunk

**Note only a small amount of motion is achieved*



Dynamic Full Body Mobility

Step 1. Place both hands on the top of the golf club.

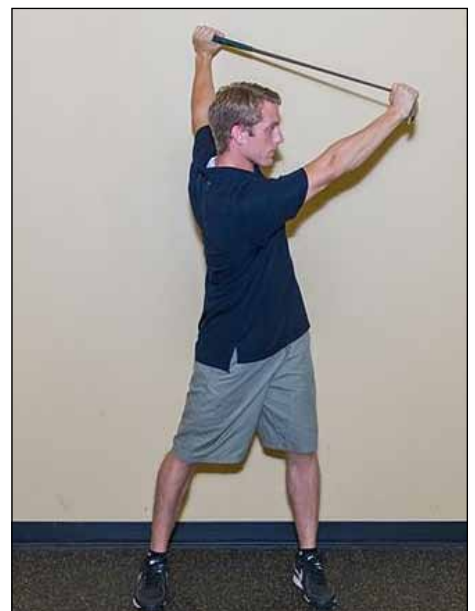
Step 2. Extend your hips as far back as possible while maintaining your hands on the top of the club



Upper Body Rotation

Step 1. Place hands at opposite ends of the club

Step 2. Rotate your arms and torso through a typical swing pattern finishing with your arms overhead as pictured



Lower Body Rotation

- Step 1.** Place both hands on the top of the golf club
- Step 2.** Swivel your hips and lower body imitating the finish of a golf swing



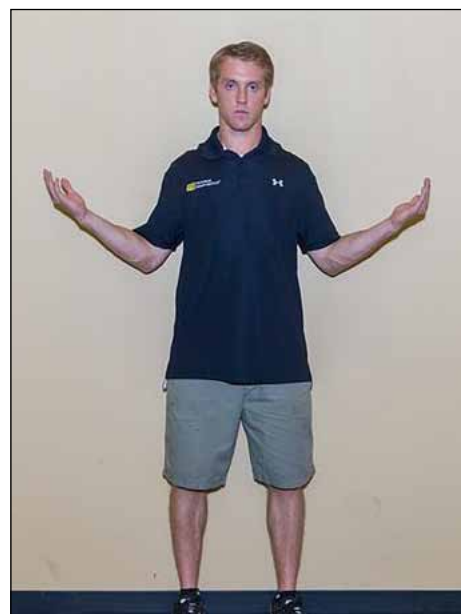
Squat

- Step 1.** Place both hands on the top of the golf club
- Step 2.** Bend your knees and sink your hips until your arms are positioned straight out in front of you



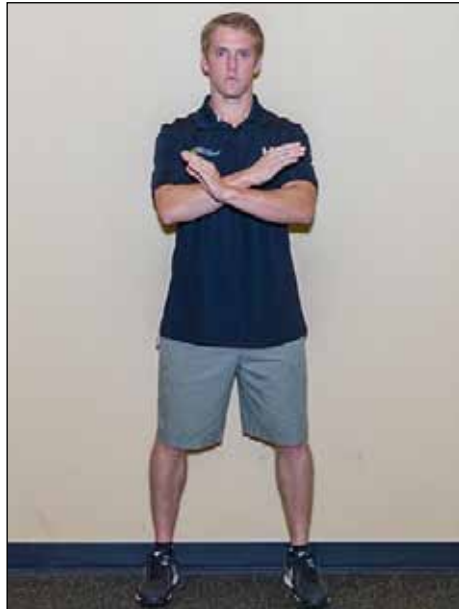
Arm Swings 1

- Step 1.** Begin with your arms crossed at torso level
- Step 2.** Swing arms outward into a W position
- Step 3.** Alternate hand placement with each rep (which hand begins on top)



Arm Swings 2

- Step 1.** Begin with your arms at chest level and positioned in an X pattern
- Step 2.** Swing your arms outward
- Step 3.** Alternate hand positioning at the beginning of each rep (which hand is closest to you)

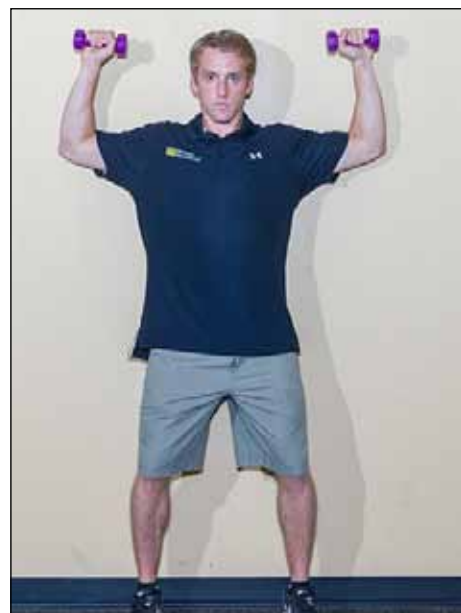


Shoulder Conditioning

The goal of the shoulder program is to help an individual develop a rotator cuff and overall shoulder strengthening and conditioning routine. Strengthening the rotator cuff will help prepare the shoulder for the repetitive forces encountered during golf. Shoulder exercises should be performed 2-3 times per week for 2-3 sets of 10-15 repetitions per exercise using 1 lb to 5 lb dumbbells.. If you are returning from an injury it is recommended that you seek professional opinions on what exercises you can perform.

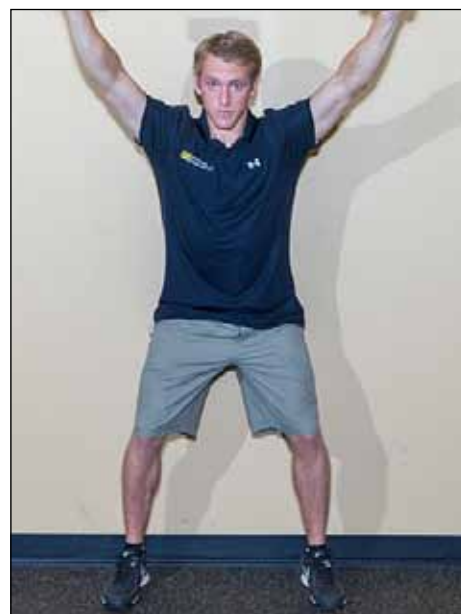
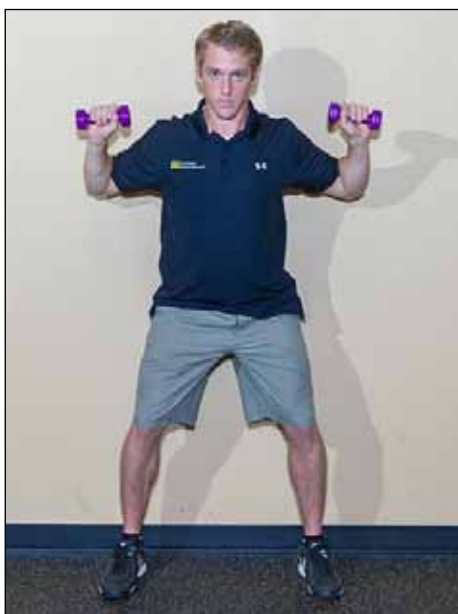
90/90's

- Step 1.** Begin with your arms at shoulder height with your arms bent
- Step 2.** Rotate your arms backwards until even with your ear
- Step 3.** Return to starting position



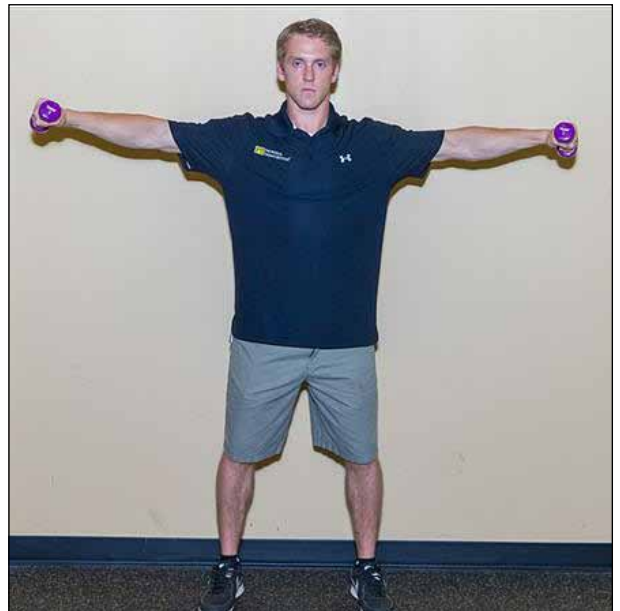
W's

- Step 1.** Begin with your arms in a W pattern and your torso slightly leaned forward
- Step 2.** Extend your arms overhead
- Step 3.** Return to starting position



Abduction

- Step 1.** Begin with your arms placed at your side
- Step 2.** Raise your arms until shoulder level
- Step 3.** Return to starting position



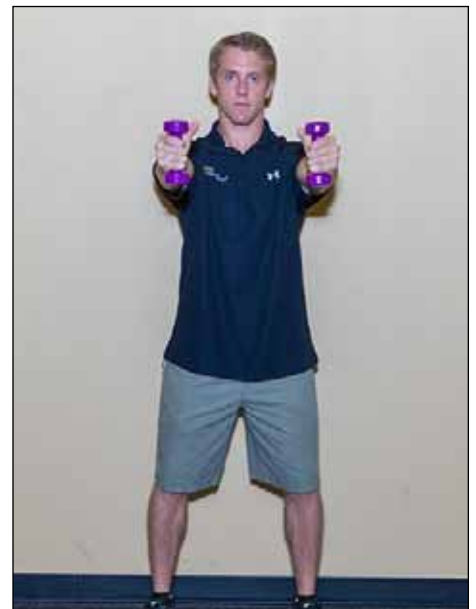
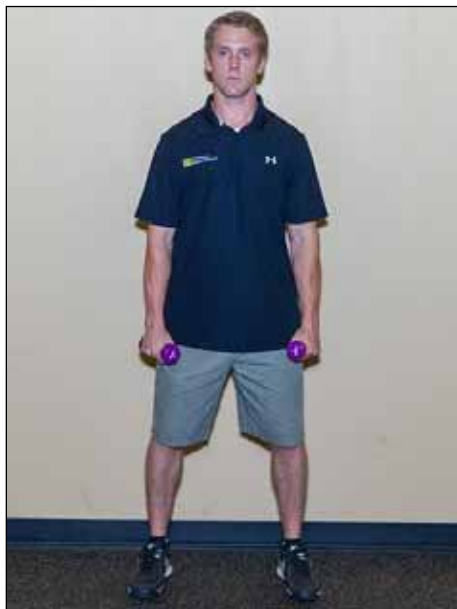
Full Can

- Step 1.** Begin with your hands at your hips and with your thumbs towards the ceiling
- Step 2.** Raise your arms to shoulder height
- Step 3.** Return to the starting position



Front Raise

- Step 1.** Begin with your hands at your hips and with your thumbs towards the ceiling
- Step 2.** Raise your arms directly in front of you until you reach shoulder height.
- Step 3.** Return to the starting position

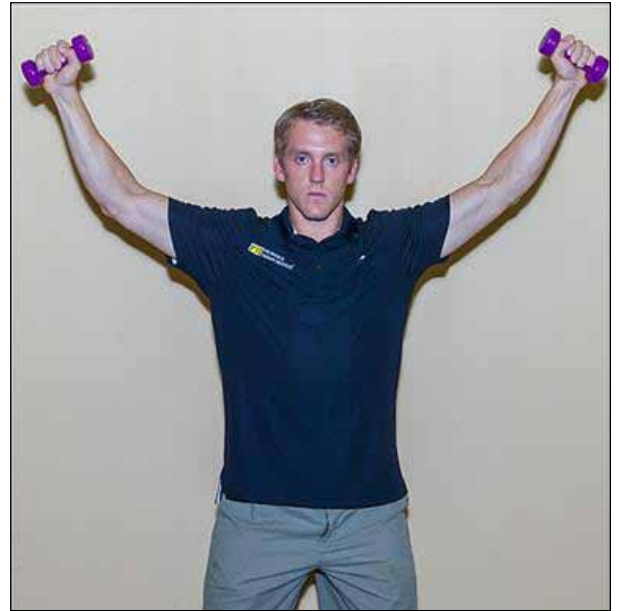
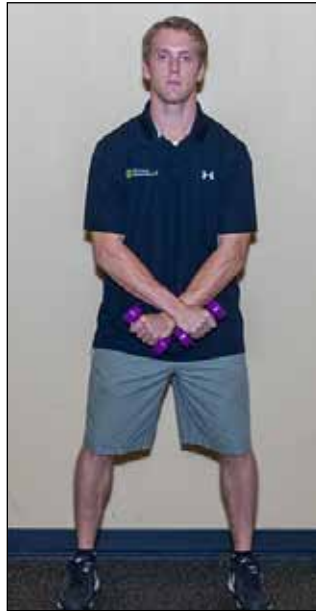


X's

Step 1. Begin with your arms crossed and your torso slightly leaned forward

Step 2. Move your arms in a diagonal pattern across your body forming an X

Step 3. Return to the starting position



Core Conditioning

Training the core musculature may help a golfer generate greater swing velocity, return from injury, and prevent new injuries from occurring. Core exercises in this booklet are designed to be either performed for a set amount of time or number of repetitions up to 3 times per week. An extensive list is provided below and we recommend picking 2-4 exercises per session. Exercises are generally listed from easiest to hardest. If you are returning from an injury it is recommended that you seek professional opinions on what exercises you can perform.

Multi-Directional Plank

- Step 1.** Begin with a front plank with your elbows on the ground
- Step 2.** Hold this position for a set amount of time
(Start with 10 seconds)
- Step 3.** Switch to a side plank (pictured) and hold for a set amount of time
- Step 4.** Perform side plank on opposite side
- Step 5.** Progress by adding more sets or holding for more time



Alternating Arm & Leg

- Step 1.** Begin on your hands and knees
- Step 2.** Extend R arm and L leg and hold position pictured for one second
- Step 3.** Return to starting position and repeat with opposite arm and leg
- Step 4.** Perform 10 repetitions on each arm/leg
- Step 5.** Progress by adding more sets, ankle weights, or more repetitions



Superman

- Step 1.** Begin positioned on your stomach with your arms and legs on the floor
- Step 2.** Lift your arms and legs off the floor and hold position for 1-2 seconds
- Step 3.** Return to starting position and repeat for 10 repetitions
- Step 4.** Progress by adding more sets, ankle weights, or more repetitions



Abdominal Crunch

- Step 1.** Begin positioned on your back with your knees bent and your arms placed at your side
- Step 2.** Flex your torso while sliding your hands on the floor
- Step 3.** Return to starting position and repeat for 10 repetitions
- Step 4.** Progress by adding more repetitions or more sets



Half-Kneel Rotations

- Step 1.** Begin in a forward lunge position with your arms bent and at shoulder height
- Step 2.** Rotate to one side
- Step 3.** Rotate to the opposite side
- Step 4.** Repeat 10 times on each side
- Step 5.** Progress by adding more sets or repetitions



Rotational Hold

- Step 1.** Grab elastic band and position your arms directly in front of your body
- Step 2.** Hold this position for a set amount of time (begin with 10 seconds)
- Step 3.** Repeat on opposite side
- Step 4.** Progress by holding for a longer time period or by stepping further away from where the band is anchored



Rotation with Elastic Band

- Step 1.** Begin by holding the elastic band directly in front of your body at chest height
- Step 2.** Rotate to the side
- Step 3.** Return to starting position and repeat 10 times
- Step 4.** Repeat in opposite direction
- Step 5.** Progress by increasing reps or sets, or by moving further away from where the band is anchored



Rotational Chop

- Step 1.** Position yourself in a half-knee with both hands grasping the band at approximately shoulder level
- Step 2.** Pull the band in a diagonal across your body
- Step 3.** Return to starting position and repeat 10 times
- Step 4.** Repeat in opposite direction
- Step 5.** Progress by increasing reps or sets, or by moving further from where the band is anchored



Rotational Lift

- Step 1.** Begin in the half-kneel position while gripping the band in both hands at approximately waist level
- Step 2.** Rotate and lift the band in a diagonal pattern across your body
- Step 3.** Return to the beginning position and perform 10 repetitions
- Step 4.** Repeat in opposite direction
- Step 5.** Progress by adding more reps, sets, or by moving further from where the band is anchored



Med Ball Twists

- Step 1.** Begin in a half sit-up position with the medicine ball held directly in front of you
- Step 2.** Rotate the medicine ball to one side
- Step 3.** Rotate the medicine ball to the other side
- Step 4.** Repeat for 10 repetitions on each side
- Step 5.** Progress by increasing reps, sets, or by increasing weight



Rotations on a Physio-Ball

- Step 1.** Begin positioned on your back with the medicine ball held directly in front of you
- Step 2.** Rotate to one side
- Step 3.** Rotate to the other side
- Step 4.** Perform 10 repetitions per side
- Step 5.** Progress by adding more sets or repetitions, or by increasing weight of the medicine ball



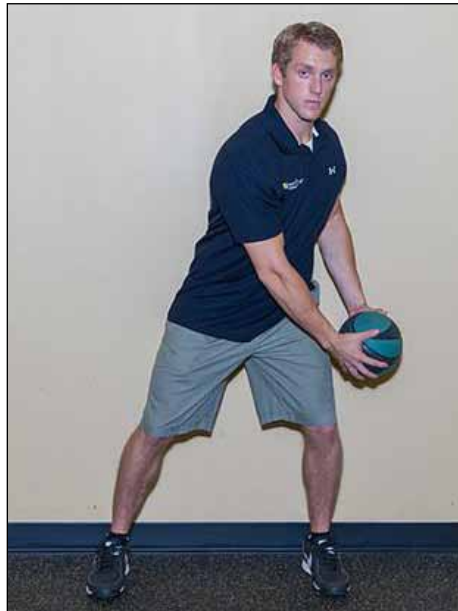
Medicine Ball Sit-Up

- Step 1.** Begin on your back with the medicine ball held at chest level
- Step 2.** Simultaneously sit-up and reach out
- Step 3.** Repeat for 10 repetitions
- Step 4.** Progress by adding more sets or repetitions, or by increasing weight of the medicine ball



Med Ball Rotational Lift

- Step 1.** Begin with the medicine ball placed on one side of your body at approximately hip height
- Step 2.** Rotate and lift the medicine ball in a diagonal pattern
- Step 3.** Repeat for 10 repetitions
- Step 4.** Progress by adding more sets or repetitions, or by increasing weight of the medicine ball



Med Ball Slams

- Step 1.** Maneuver medicine ball overhead
- Step 2.** Forcefully slam medicine ball into the ground
- Step 3.** Allow medicine ball to bounce
- Step 4.** Repeat for 10 repetitions
- Step 5.** Progress by adding more sets or repetitions, or by increasing weight of the medicine ball



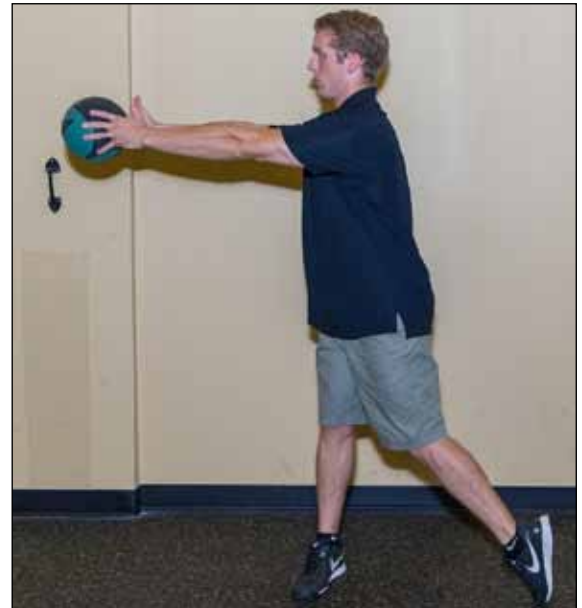
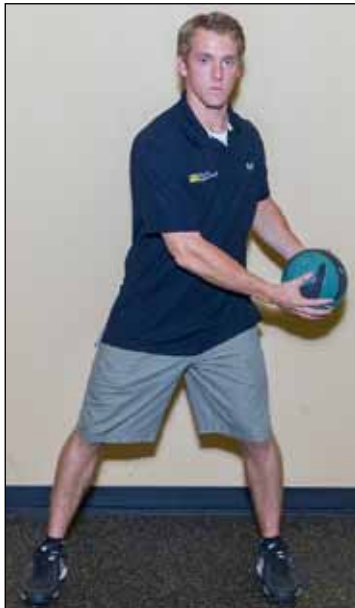
Med Ball Diagonal Slam

- Step 1.** Maneuver medicine ball in a diagonal pattern over your shoulder
- Step 2.** Forcefully slam medicine ball in a diagonal pattern
- Step 3.** Allow medicine ball to bounce
- Step 4.** Repeat for 10 repetitions
- Step 5.** Progress by adding more sets or repetitions, or by increasing weight of the medicine ball



Rotational Med Ball Throw

- Step 1.** Begin with med ball held directly in front of you
- Step 2.** Shift the medicine ball and your weight onto one leg
- Step 3.** Shift weight onto opposite leg while simultaneously rotating and throwing medicine ball
- Step 4.** Repeat for 10 repetitions
- Step 5.** Progress by adding more sets or repetitions, or by increasing weight of the medicine ball

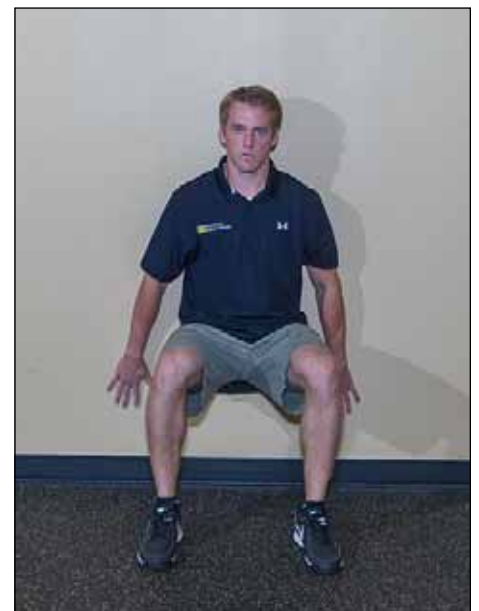


Lower Body Conditioning

Strengthening the lower limbs can help prepare a golfer for the torque and stress on the knee associated with a vigorous golf swing. In addition, strengthening the muscles surrounding the knee provide a stable base. Creating a stable base is important as it helps transmit forces generated from the lower body to the upper body when producing swing velocity. Lower body conditioning exercises are designed to be completed 2-3 times per week for 2-3 sets of 10-15 repetitions per exercise. If you are returning from an injury it is recommended that you seek professional opinions on what you can and cannot perform.

Wall Squat

- Step 1.** Begin by positioning yourself against the wall with your feet out in front of your body
- Step 2.** Squat down and create approximately a 90 degree at your knee
- Step 3.** Return to the starting position and perform 10 repetitions
- Step 4.** Progress by adding weights in the hands, increasing reps, or increasing sets



Forward Lunge

- Step 1.** Begin in a standing position
- Step 2.** Lunge forward and allow your back knee to bend
- Step 3.** Return to starting position and perform 10 repetitions
- Step 4.** Progress by adding weights in the hands, increasing reps, or increasing sets



Step Down

- Step 1.** Place one foot on an elevated surface and one foot on the ground
- Step 2.** Raise the foot off the floor by straightening the knee
- Step 3.** Slowly lower the leg and touch the floor gently
- Step 4.** Repeat for 10 repetitions
- Step 5.** Progress by adding weights in the hands, increasing sets, or increasing repetitions



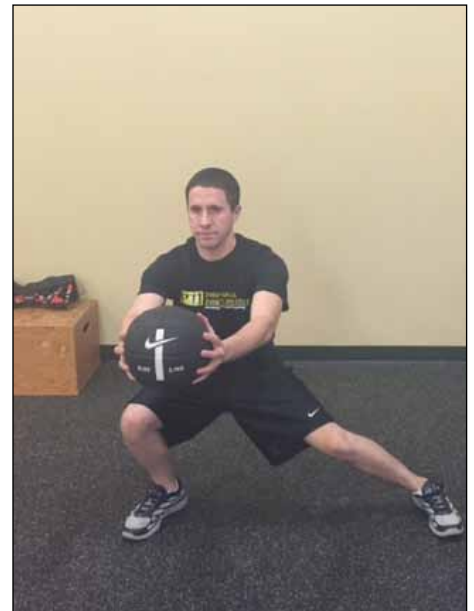
Windmills:

- Step 1.** Stand on one leg in an upright position with your arms raised out to the side in a "T" position
- Step 2.** Hinge at your hips and lean forward until your upper body is parallel to floor
- Step 3.** Place one hand in front of your foot on the ground. Hold position for three seconds, then repeat with opposite hand
- Step 4.** Perform 2 sets of 10 repetitions



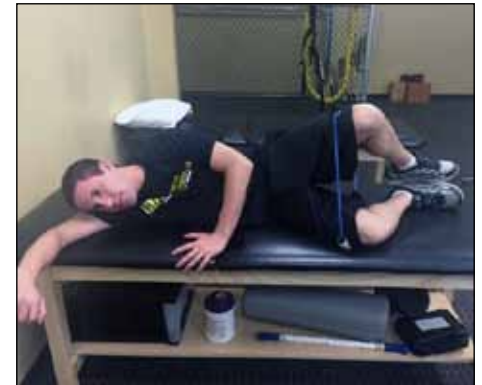
Med Ball Side Squat

- Step 1.** Hold Medicine ball at chest level and stand with feet shoulder width apart
- Step 2.** Step to side 8 inches and bend knee to 90 degrees
- Step 3.** Return to starting position and repeat with opposite leg
- Step 4.** Repeat 10 times



Clam Shells

- Step 1.** Lie on your side with knees bent at 60 degrees and place elastic band above the knees
- Step 2.** Keep ankles together and lift knee apart 6-8 inches
- Step 3.** Hold 3 seconds and return to starting position.
- Step 4.** Repeat 10 times



Bridging

- Step 1.** Lie on your back with your knees bent
- Step 2.** Squeeze your buttocks and raise your hips off the table until your trunk is in a straight line.
- Step 3.** Hold 3 seconds and return to starting position.
- Step 4.** Repeat for 10 repetitions



Single Leg Squat

- Step 1.** Stand on single leg holding a med ball at chest level
- Step 2.** Squat on leg until ball touches ground
- Step 3.** Return to starting position and repeat 10 times with each leg



Single Leg Squat Rotation

- Step 1.** Stand with feet shoulder width apart while holding med ball chest level
- Step 2.** Squat to 90 degrees and rotate trunk to left
- Step 3.** Return to starting position and repeat with opposite leg
- Step 4.** Repeat 10 times



Meet Our **Staff**



Glenn Holland, PT, MS, ATC, SCS, CSCS, FAAOMPT is currently co-owner and Director of Sports Medicine for the Physical Therapy Institute in Warrendale, PA. He also serves as rehabilitation consultant for the Washington Wild Things Professional Baseball

Team. Glenn attended the University of Pittsburgh and graduated with a degree in Physical Therapy in 1995.

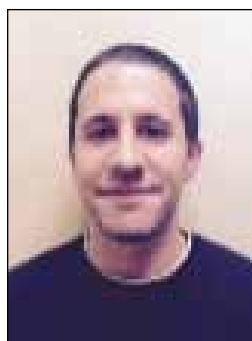
During the past 18 years, Glenn has had the opportunity to train with some of the leading sports medicine physicians, physical therapists, athletic trainers and strength and conditioning specialists in the Pittsburgh area. Under their mentorship, he has been able to obtain certifications in athletic training, strength and conditioning, and manual physical therapy. Glenn also had the opportunity to work at UPMC Sports Medicine, California University, and the Washington Wild Things Professional Baseball Team. He has specialized in evaluation and treatment of the overhead athlete with a primary emphasis on baseball players. During the past 10 years Glenn has served as a physical therapy consultant for with Dr. James Bradley, physician for the Pittsburgh Steelers, and Dr. Pat McMahon, Orthopedic Specialist for the shoulder, elbow, and knee for treatment of the overhead athlete. In 2012, he initiated an internship for high school and college students who want to pursue a career in sports medicine.

After completing a fellowship with the American Academy of Orthopedic Manual Physical Therapy and Dr. Richard Erhard, Glenn obtained his certification in mobilization and manipulation of the Spine in 2005.



Brett Holland, DPT, CSCS graduated Thomas Jefferson University in 2013 with his Doctorate in Physical Therapy. Dr. Holland is also a Certified Strength and Conditioning Specialist through the National Strength and Conditioning Association. He attended

Monmouth University for his undergraduate studies (biology) and was a part of their division one baseball team which made two regional appearances: '07 Arizona State and '09 Ole Miss.



Steven Labate –MS, ATC, EMT-B graduated from California University of Pennsylvania in 2008 with a bachelor's of science degree in Athletic Training. During his time there he also completed two NFL internships with the Cleveland Browns and Buffalo Bills. He then went on to pursue a

Master's degree in Exercise Science from South Dakota State University. While at South Dakota State he served as a graduate assistant athletic trainer for their football team. Steven is a board certified athletic trainer by the Board of Certification, a performance enhancement specialist by the National Academy of Sports Medicine and a certified EMT-B.



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