

Avoid the Back Pain Bunker



Approximately 60 million people around the world play golf, sometimes into their 80s and 90s. This is great news, because the sport has many health and wellbeing benefits. The problem, though, is despite its perception as a low-impact sport, golf can be very demanding. It requires strength, endurance, explosive power, flexibility and athletic ability to perform a movement that produces some of the fastest club head and ball speeds of any sport. The golf swing produces average compressive loads on the back equivalent to 8 times your body weight; in comparison, running produces spinal compression forces equal to approximately 3 times your body weight. The effect of these repeated large forces on your body can lead to pain and injury.

Low back pain is by far the most common problem experienced by golfers. It accounts for over a third of all golfing injuries and happens to players regardless of age or ability. The lower back is often the source of pain, but rarely the cause of pain. The leading cause of pain is poor swing mechanics associated with a lack of mobility in the ankles, hips, thoracic spine and shoulders. These issues result in the lower back being over-stressed and eventually breaking down.

When your back does breakdown, you could experience one of the following injuries:

- 1 Muscle Strain or Ligamentous Sprain** - A muscle strain, or "pulled muscle," and an injured ligament will usually resolve itself in 2-4 weeks. Symptoms may range from a minor ache to a sharp debilitating pain. Most sprains and strains are localised in the lower back region, meaning pain does not radiate into the buttocks or leg.
- 2 Disc Injury** - The lumbar intervertebral disc acts as a spacer between adjacent vertebrae and works as a shock absorber. If excessive or abnormal stressors are placed on the disc, tears can occur, and the inner

jelly-like substance can bulge out of the disc or even rupture the disc. Discs degenerate with age and lose their shock absorbing ability. Disc problems can irritate or compress spinal nerves causing pain, often radiating pain into the buttocks or the leg (sciatica).

3 Altered Joint Mechanics or Motor Control - The brain can completely change the lumbar spine's ability to move just by changing which muscles are firing and in what order. This can occur in the absence of any visible injury. These altered motor control or joint mechanics can begin as a protective mechanism, but can lead to chronic problems over time.

4 Degenerative Arthritis - With over-use, abuse or ageing, spinal joints can become arthritic. Bone spurs and osteophytes can develop. Stenosis, the narrowing of the canal that houses the spinal nerves, is a very common problem with arthritic changes.

5 Bone Fracture - Stress fractures and pedicle fractures (spondylolysis) are common problems seen in the lumbar spines of rotational athletes.

To avoid these injuries, good body mechanics should be one of your top priorities when playing golf. Proper posture, balance, flexibility, and strength work together to support a good swing and correct golf stance. Below, we'll discuss more details to help you protect your lower back.

WHAT CAN BE DONE TO HELP MANAGE THESE BACK PROBLEMS?

If you're currently experiencing pain or potentially even an injury, you can manage it in a few ways.

- 1. Hands-on physical therapy** treatments can help mobilise the joints and soft tissues around the lower back.
- 2. Massage therapy** can relieve tight structures and muscle spasm.
- 3. Electrotherapy** and/or **dry needling** can

provide lower back pain relief.

4. Kinesio-taping and hold/cold therapy can also be successful in pain relief.

5. Exercise therapy can improve flexibility and strengthen any muscle weaknesses.

There are a couple of things you should keep in mind when dealing with pain or injury. Firstly, continuing to play golf through an episode of low back pain can further stress inflamed muscles and joints. Taking time off will allow your back to heal more quickly. Secondly, you should continue to stretch and strengthen your back between golf sessions, along with a low-impact aerobic exercise programme, such as walking or cycling. Finally, after the low back pain has subsided, return to playing golf slowly and apply the prevention tips below to help avoid future occurrences.

As with so many health conditions, a little effort to prevent injury goes a long way. Address these three key areas to stay out of the 'back-pain bunker': Your Body, Your Technique, Your Bag.

YOUR BODY

The first area you can address to prevent injury is your body. These three key recommendations are a great place to start.

Hips and Thoracic Spine: The golf swing requires great rotational mobility to develop and transfer energy to the club. That mobility should come from the joints in the body that are designed to rotate: the hips and the thoracic spine. Creating optimal movement in these areas, which are directly above and below your lumbar spine, should be your first line of defence against lower back pain. If the lower back is forced to repeatedly rotate it's only a matter of time before an injury will occur. It is important to remember that the hips and thoracic spine do not operate in isolation. Ankle mobility can affect the hip joint and the shoulders work with the thoracic spine in rotation – so you can't neglect those joints either.

Core Strength: The abdominal muscles may be both the most important

and the most neglected muscles for golfers. These muscles promote posture and balance and provide support to the spine. Core weakness results in increased strain on the lower back during the rotational movements associated with the golf swing, and can also make it hard to maintain good posture throughout the swing. Increasing pressure in the abdominals helps protect the back from injury. Your therapist can assess your joint flexibility and muscle strength and give you exercises to improve both.

Warming Up: Going directly to the tee at 7:00 a.m., pulling out the driver, and then proceeding to try to hit the cover off the ball is probably the quickest way to strain your back. Instead, a thorough warm-up before starting to hit balls — including stretching and easy swings — is critical for your muscles to get ready for the game. Overall, muscles that have been stretched and gradually loaded are much less prone to being injured and can take more stress before being strained.

YOUR TECHNIQUE

Perfecting your technique won't just improve your game; it'll also help prevent injury.

The objective of a golf swing is to develop significant club-head speed, and to do this a lot of torque (force) and torsion (twisting) is applied through your lower back. A smooth, rhythmic swing produces less stress on the lower back, minimising muscular effort and load on the spine.

With a proper swing, the shoulder, pelvis (hip), and thoracolumbar segments (chest and lower spine) rotate to share the load of the swing. You can achieve good balance while golfing by slightly bending your knees and keeping your feet approximately shoulder-width apart. Your spine should be straight, and you should bend forward from the hips with your weight evenly distributed on the balls of your feet.

As most golfers will agree, developing an easy, fluid swing is often easier said than done. Working with a golf pro for a few sessions is a great way to improve your swing and avoid lower back injury, especially since most aspects of a golf swing are not natural or intuitive.

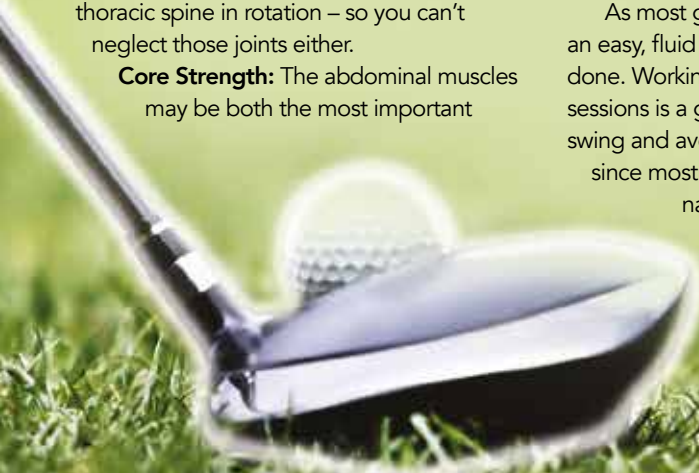
YOUR BAG

Repeated bending over to pick up your golf bag can stress the lower back, so we've put together a list of recommendations for your bag that will help prevent lower back injury.

- 1. Invest in an integrated golf bag stand** that opens when the bag is set on the ground. This can eliminate the need to bend over.
- 2. Use dual straps** (like a backpack) on the golf bag to evenly divide the weight across your back. Bag straps that place all the pressure on one shoulder can be hard on your back. Even better add some wheels.
- 3. If your bag is on wheels, push rather than pull your bag.** Pushing your cart allows for better alignment and less rotational loading on your back compared to pulling your cart with one hand behind you.
- 4. Do some walking in between holes.** Riding on a motorised golf cart may benefit you in not having to physically carry the weight of your clubs; however, sitting and driving over rough terrain could increase spinal compression forces in your back and aggravate pain.
- 5. When bending over to place or retrieve a golf ball it is important to:**
 - Stand with one foot in front of the other;
 - Use your golf club to support the weight of your upper body;
 - Gently tighten your abdominal muscles; and
 - Bend from the knees and hips. Never bend over at the waist with straight legs.

IN SUMMARY

You can still enjoy playing golf even if you're experiencing chronic lower back pain. Don't forget - golf requires much more athletic ability than many people imagine, and ignoring the physical demands of the sport often leads many people to suffer from injuries because of poor general conditioning, lack of warm up, poor technique and limited practice. With regular exercise, including specific strengthening and stretching, and better swing technique, you can experience a significant improvement in performance and reduction in injuries. Your physical therapist and massage therapist can help you treat any current injuries and pain, and support your prevention efforts in the future.



GOLFER'S BACK

Optimal mobility above and below the lower back is essential for a 'safe' golf swing that will not over-load the lower back. This includes mobility exercises for the thoracic spine and hips. Core strength is also crucial to protect the spine during rotational movements like the golf swing as well as maintain a good golf posture through the swing.

YOUR REHABILITATION PROGRAMME

This exercise programme has specific exercises to strengthen muscles around your lower back and core. It is important to ensure

the exercises are performed with good technique. Poor practice may place potential strain on your back. The following leaflet includes some exercises to help in your rehabilitation.

PROGRESSION SPEED

Your therapist will advise you on the speed you should progress. Progression is not just about being able to do the exercise but to do it correctly, with appropriate control. If at any time you feel pain or discomfort stop the exercises and consult your therapist.

GOLF CLUB ROTATION

Sit upright on a chair, with your feet flat on the floor. Place a golf club or broom over your head, with it resting comfortably on your shoulders, hold onto the bar with both hands. Twist to one side as far as you can go. Keep your hips still and your spine upright. Repeat on the other side. This exercise is a mobility exercise for the spine, and especially useful as a warm-up prior to rotational sports such as golf. is a mobility exercise for the spine, and especially useful as a warm-up prior to rotational sports such as golf.



SETS	REPS
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 **Video:** <http://youtu.be/8qSSzsQIRIO>

PLANK

Rest on your forearms and your toes. Hold this position. Keep good straight posture, and do not let your back arch too much. This is a core strengthening exercise.



SETS	REPS
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 **Video:** <http://youtu.be/noeBzOJoW-4>

SIDE PLANK

Lie on your side, and form a bridge between your feet and forearms (by lifting your pelvis). This exercise works the abdominal and Oblique muscles.



SETS	REPS
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 **Video:** <http://youtu.be/vQKLvMTYA9Q>

HIP MOBILISATION LYING

Lie face down, and bend your knees to 90 degrees. Keep your feet together, and drop your feet outwards, and then cross them inwards, as far as feels comfortable. Repeat as required. This is a mobility exercise for your hip joints..



SETS	REPS
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 **Video:** http://youtu.be/RAMZ0Q_wF5s

HORSE-STANCE HORIZONTAL

Go on to all fours, and keep good posture. Draw your tummy inwards (towards the ceiling). Straighten your arm in front of you, and your opposite leg behind you. Repeat each side. This is a great core stability and core control exercise to work the deep abdominal muscles. The exercise will also strengthen the lumbar erector and gluteal muscles.



SETS	REPS
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 **Video:** <http://youtu.be/BTaCXKy53wc>

OBLIQUE CRUNCH

Lie on your back with your knees bent, and perform a crunch by sitting-up and reaching for the outside part of your knee. You should make sure your shoulder blades just lift off the floor. This exercise helps to strengthen the abdominal and Oblique muscles.



SETS	REPS
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 **Video:** <http://youtu.be/98eXOndm7Z4>

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Golf Injury Cheat Sheet

62% of amateurs will sustain a significant golf injury, typically because they are out of shape, have poor swing mechanics, or don't adequately warm-up. For the professionals that number is even higher at 85%, but their injuries tend to come from overuse ie. hitting 200 to 500 balls a day.

Here are some tips and changes you can address in your technique to reduce your injury risk.

Having a friend video your golf swing may be helpful, or a few lessons with a coach could keep you out of the injury bunker. The following cheat sheet assumes you are a right-handed golfer and therefore your lead arm/side is the left (the same principles would apply vice versa for left-handed golfers).

The Injury

Lead Wrist

Hold your lead hand (left for right handed players) in front of you, thumb up, make a fist. There is a natural cup or angle at the back of the wrist – this is the power position for the joint.

- If left hand in a 'weak position' – thumb down the top of the handle - you risk a flat or bowed wrist on impact and possible injury
- Inadequate arm and wrist strength to lead the club through impact in this position
- Tend to over-extend and cock wrist for power, stressing the extensor tendons and overloading ligaments, especially if hitting the ground frequently

The Solution

- Rotate left hand away from the target about 30° from the weak position. So your thumb is at about 1 on an imaginary clock.
- This creates a slight cup in the wrist and a better power position

Lead Elbow

- Extensor tendons on outside of forearm are overloaded by jarring impact of poor stroke, mishitting ball and ground
- Results in muscle strain and tendonitis on the outside of the elbow called 'tennis elbow'
- Exacerbated by excessive tight gripping of the club

- Avoid locking arm and elbow for more power. Keep it straight but relaxed, arms 'soft' from start to finish
- Momentum of downswing will pull the left arm straight
- This allows better absorption of impact forces and decreases load through tendons and ligaments

Trail Elbow

- Flexor tendons on the inside of the forearm are strained and overloaded by flexing and rotating the wrist during the impact and follow-through phase
- Strain results in tendonitis on the inside of elbow called 'golfer's elbow'

- Power from the body not the wrists
- Avoid flicking (flexing) and cocking your wrist on and after impact.

The Injury

The Problem

The Solution

Lead Shoulder

- Keeping left arm too tight to the chest and straight during backswing and impact – overloads the joint with impact forces causing labral (cartilage) tears
- In backswing and follow through rotation from shoulders causes impingement and damage to AC (acromioclavicular) joint
- Rotator cuff muscle strain or tear when overloading them to power the swing
- Keep arms loose and relaxed slightly forward/away from body
- Rotation comes from thoracic spine (upper body) NOT from shoulders
- Turn more with upper body, swing less with arms. Arms should 'follow' upper body rotation, not lead the rotation
- Improve upper spine (thoracic) mobility and shoulder joint flexibility through exercise
- Power from the body, not the shoulder or arm muscles

Lead Knee

- As you shift weight forward onto your left knee for swing through, all torque (rotational forces) and compression forces focused on inside of left knee
- Golfers often square the foot and lock knees – this increases shear forces on the knee, causing ligament strain and meniscus (cartilage) damage
- The knee should shift in front of the hip very early on in the downswing
- Avoid having hips slide past the knee towards the target as this increases knee stress
- Focus on hips and pelvis rotating rather than sliding
- Line of left thigh should be vertical or leaning away from target on downswing
- Maintain a soft squat at the knees approximately 25° flexed
- Angle the left foot 20 or 30° outwards towards the target at address to promote hip rotation rather than sliding off loading the knee

Lower Back

- Power swing focuses on rotation of pelvis through swing
- Torque (rotational force) created through the pelvis and lumbar spine can overload and strain muscles, ligaments and tendons of lower back
- Control and conditioning of lower back critical for injury prevention
- Shearing effect can damage vertebral discs
- Avoid 'popping' after impact, arching your back overloads your spine
- Power swing requires separation between rotation of the pelvis and trunk – greater separation means greater speed - this requires immense core strength and control to avoid injury
- Back strengthening exercises for core, pelvis, hamstring and glute muscles are crucial, as well as hip mobility exercises
- At address, hinge at the pelvis DON'T flex (slump) the lower back, this will increase load on your back
- Hips and spine must extend (straighten) together during the follow through
- Reduce injury risk by turning in unison – the hips and shoulders turn together on backswing and follow through – you sacrifice power but may save your back!

5 STRATEGIES FOR SIDESTEPPING A GOLFING INJURY

1

Fitness

Basic cardiovascular fitness is essential. Regular walking, running or cross training on a stair machine, elliptical trainer, swimming, cycling are all ways to improve general fitness. This will help prevent fatigue which subsequently increases your risk of injury.

2

Improve Mobility

Flexibility and rotation of the upper spine, shoulders and hips is critical to avoid injury. Regular stretching and dynamic exercises prescribed by your physical therapist can improve mobility. Hands-on massage and myofascial release will improve flexibility in muscles and spine. Exercise to focus on turning upper back segments with hips and pelvis to follow, rather than twisting the lower back.

3

Power and Control

Strength training is crucial to prevent injury. Strengthen core, pelvis, hamstrings and glutes to ensure the power of the drive comes from the body. Proprioception, balance and control of the lower leg - ankle and knee - will provide a stable base for the golf swing.

4

Warm Up

Prepares your body for work. A brisk walk or short jog warms up the cardiovascular system. Follow this with dynamic stretches of the hips and thoracic spine. Then practice some shots at the driving range before starting the game.

5

Finish Without 'Popping'

'Popping' at the end of the swing to try and generate more power increases injury risk. Popping can include: straightening the knees just before or after contact, coming up on to your toes, arching or overextending your back. All of these can increase the loads in your knee, hip and lower back causing injury.