

Pedaling Exercise for Rehabilitation

Pedaling a bicycle or exercycle is one of the best exercises available for lower limb rehabilitation. It is a non-impact exercise that has the added advantage of improving our fitness, assisting weight loss and helping our general sense of wellbeing.

It is important to get the technical aspects correct in order to gain the full benefit. With poor technique, pedaling can actually make an injury worse. The following guidelines are designed to help make pedaling more enjoyable and more effective.

Seat Height.

The simple way to set your seat height is to sit square on the saddle with the pedal at the very bottom of the pedal stroke. Lock your knee out straight and in this position you should just be able to touch the pedal with the heel of your shoe.



Figure 1: The heel of the straight leg can just touch the pedal.

Foot position on the pedal

The ball of your foot should be placed over the pedal such that the bump on the inside of your foot at the base of the big toe lines up with the pedal axle. If possible the foot should be fixed to the pedal either with a strap as is often seen on stationary bicycles or with a bicycle shoe and pedal system that attaches the rider to the pedal. The reason for this is that it allows the hamstring muscles to be more involved in the pedaling action. The rider can apply power through a greater proportion of the pedal cycle.

Cadence

Cadence refers to how many times per minute your feet rotate. Simply count over the course of one minute how many rotations your right foot performs. Aim for around 90 revolutions per minute. This may seem very fast and uncomfortable at first but you will soon adapt. Competitive cyclists usually keep their cadence at around 100 revolutions per minute.

Intensity

Often we mistakenly believe that if it doesn't hurt we are not pedaling hard enough. This is not true!. You should be able to carry out a conversation in normal sentences while you are pedaling. After ten minutes you may start to perspire lightly. If you are gasping for breath you are trying way too hard.

Duration

The minimum amount of exercise required for the health giving effects is around three or four times per week for a minimum of 20-30 minutes. If you are recovering from surgery, you may need to start with only 5-10 minutes. A good rule of thumb is that you should increase your duration by about ten percent per week. The body can easily adapt to this rate of increase.

There is no real defined maximum amount. Competitive cyclists train up to 40 hours per week with no ill effects. It is usually our family and work commitments that determine the maximum amount we can do.

Bicycle fit

If you choose to do your pedaling on the road, it is very important that your equipment fits you properly.

A bicycle needs to be sized to your body proportions just as your pair of shoes need to fit you properly for comfort. Bicycle frames increase in

increments of 1-2 cm and it is important that your bicycle is the right size. The best way to achieve this is to visit a reputable specialist bike shop to check your bike fit. Even if you are a bit older or new to cycling, do not be intimidated. There are plenty of friendly service staff in excellent bike shops around Auckland who will be willing to help. You don't have to be the next Lance Armstrong to appreciate a good quality, well fitting bike. Just as you don't have to be Michael Schumacher to enjoy driving a good quality car.

Resistance

Resistance is provided on the exercycle by electro magnetic force and on the road by hills. Keep the resistance very low when you are starting out so that it is easy for you to spin your legs at 90 revolutions per minute. As you get stronger you can increase the resistance but never by so much that it forces you to reduce your cadence. When starting out on the road avoid the big hills. As you get stronger and start to ride hills, remember to select a small gear so that you can continue to spin your legs.

Safety on the road

It is now almost 20 years since I began long distance training and competing on a bicycle. Through that time I have come to learn several safety measures that will help you cope with traffic.

- Always ride at least one car door width from parked cars. Motorists often do not look behind them when they open the driver's door.
- Always slow down and if necessary, stop, when a car is pulling out of a sidestreet or turning in front of you. The safest way to ride is to imagine that the motorists can not see you because at least once or twice every year this will prove to be true. Only proceed when the motorist has made eye contact with you.
- Always ride in a predictable straight line. Often motorists will pass only 2-3 feet on your right. If there are intermittent parked cars always stay slightly to the right of them rather than weaving in and out which can make you invisible to motorists.
- Be careful with painted road surfaces in the wet, and loose metal as both can prove very slippery!
- Wear bright colours and use flashing lights front and back early morning and evening.
- Don't abuse bad drivers...it will simply harden their attitude towards the next cyclist they happen to see.

I hope you will get as much pleasure from your riding as I do and please do not hesitate to contact me if you have any questions.

Dr Mat Brick