Second wind – an essential tool

Normally in the first few minutes of exercise the muscles want to start using glycogen stored in the muscle. With McArdle’s we cannot convert that glycogen to glucose in order to use it as fuel. So instead we have to use glucose and fat which is delivered to the muscle in the blood supply. Our liver starts to release glucose from its store of glycogen, and fat is released from our fat stores. Switching to these fuel sources enables us to enter a “second wind”, a period of more effective and less difficult exercise, after the initial period during which pain is likely and needs to be avoided.

The benefits of second wind

The main benefit is that you can undertake activities and exercise with less or no pain. However, a very important secondary benefit is that it enables you to undertake sustained exercise which will ‘train’ the muscles and improve their aerobic capacity. This will make all activity and exercise easier in the long term. Ideally we should get into second wind and then continue exercising for another 45 minutes, and do this most days. Exercise is proven to make you feel better and helps to keep your weight down, both of which are very helpful in McArdle’s.

Universal to all McArdle people

A few people with McArdle’s feel that they do not get second wind. It can be difficult to recognise in your everyday life as there are many external factors affecting the situation. However, studies have shown that when a person is exercised in a controlled manner, wearing a heart pulse monitor, it is possible to demonstrate the onset of the second wind. Hundreds of people, in different centres, have been exercised in this way and the second wind phenomenon has been found to be universal to McArdle patients. So if you don’t feel you experience it, it is well worth asking for some help to discover it. Once you have learnt to achieve it and recognise it you can make use of it.

Getting into second wind

It takes approx. 8 to 10 minutes of exercise to get into second wind. This should be the same for everyone, but what you can do in that time will vary depending on your current condition. The objective is to keep exercising but to avoid any significant pain. If you start to experience pain, slow down, if the pain doesn’t abate slow down more or even stop for a rest. As long as you stop soon enough the pain should fade off within about 20 seconds and you can then start again. Keep juggling your efforts and the pain in this way whilst you continue exercising and after about 8 minutes you should start to find that you can comfortably do more than you could at the start. We have a talk about getting into second wind - on video here.

Be wary of pushing on when you feel pain start. This pain is as a result of damaging the muscles, and repeated damage will cause problems in the long term. But also this is counterproductive - it will stop you from getting into second wind. By pressing on despite the pain you start your protein metabolism which then effectively blocks your glucose and fat metabolism. If ever you get into this situation you need to stop completely for 45 minutes or more and then start the whole process again.

Recognising second wind

Unfortunately achieving second wind is not like flicking a switch, the change comes about gradually. The main signal is that you can carry on free of pain at a rate which would have given you pain at the start. But your heart rate (pulse) is also a very useful signal. In McArdle’s our heart rate tends to increase in what is called an ‘inappropriate’ manner, that is after the start of exercise it increases much more quickly than would be expected in someone unaffected by McArdle’s. Once in second wind the heart rate slows again.

In this graph from Prof. John Vissing the heart rate of McArdle people is shown as black dots and the heart rate of normal (control) people is shown as white dots. People were exercised on a stationery bike at a steady work rate of 65% of the their theoretical maximum. You can see how the heart rate of McArdle’s people increases dramatically more than the controls. At about 7 minutes it starts to reduce again and by 10 minutes has stabilised, although still higher than the controls. Ratings of perceived pain (not shown) echoed the same curve as the heart rate. In real life you would not press on with your heart rate peaking so much, but this is a very clear illustration of the second wind effect.
Each muscle has to be ‘switched on’

The process of getting into second wind isn’t systemic to your whole body, but most aspects of it apply to each muscle you use. So, for example, if you walk until you are in second wind your legs will be able to do more without problems than they did at the start, but your arms will not be in that improved state. If you are walking in second wind and the gradient changes significantly, you will start to use some different muscles - these need to be got into second wind as well.

If you walk for several hours over different gradients you can end up with all your walking muscles in second wind. You are likely to feel great and begin to wonder if your McArdle’s has been cured. But unfortunately this state is only temporary!

How long second wind lasts

Once in second wind it will keep working whilst you continue exercising that muscle. If you stop it doesn't disappear straight away, but will fade off. It will be largely gone in about 30 minutes, certainly it is unlikely to be functioning at all by 45 minutes. It is best to limit yourself to short stops. For example, if on a day’s walk you take a lunch break of more than about 20 minutes you are at risk of having to work at getting back into second wind.

Because the second wind applies to each muscle, if you do a downhill section for more than half an hour your uphill muscles will lose the second wind, so if you do another uphill section that has to be got back again.

Conclusion

If you don’t already experience “second wind”, hopefully you can learn to get into it. Use it to make your life easier, improve your fitness and feel better.

Summary

- Achieving second wind makes exercise easier and improves your aerobic capacity.
- Second wind applies to everyone with McArdle’s.
- It is achieved about 8 minutes after start of exercise.
- Avoid pain during warm up by slowing and/or stopping and starting.
- Second wind is not systemic, it has to be achieved in each muscle used.
- A break of more than about 30 minutes will lose your second wind.

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