

Speed, Strength and Power in the Water

Resident swim coach Wayne Goldsmith takes a look at the importance of developing speed, strength and power in the pool.

Words: Wayne Goldsmith | Images: Delly Carr

Hey, you! Yes, you, the person who just thought: 'I'm an endurance athlete. Why do I need to read an article about speed, strength and power development in swimming?' Why? Because you want to improve your swim leg and set yourself up for your best triathlon race ever. That's why.

It's not long-distance swimming, it's swimming fast for as long as possible.

One of the great myths of triathlon swimming – and indeed for all of the sport of triathlon – is that it is all about endurance. Sure, endurance is a major factor in the sport; however, your capacity to succeed in triathlon is just as limited by speed, strength and power as it is by your endurance.

Try to think differently. It's not all about swimming longer and longer distances. It's about learning to swim fast with great technique for as long as possible.

Pacers vs Racers

There are two types of triathletes: pacers and racers.

Pacers are those triathletes who grind out the long, hard, monster miles day after day after day and, over a period of weeks, months and years, develop a huge aerobic motor – an endurance capacity that they believe will underpin their triathlon racing success.

Racers on the other hand do their fair share of the hard yards, but mixed in with their endurance training is a smart blend of speed, strength and power training, which gives them a decided advantage in a wide range of competitive situations.

Why is this important?

There are eight times during a triathlon swim leg when speed, strength and power are important competitive weapons to possess.

1. The start – when you're trying to position yourself in the pack for a great race
2. Passing other swimmers. When you pass another swimmer, it's a good move to go straight past them and not allow them the chance to get 'onto your legs' and draft
3. Getting 'onto the legs' of another swimmer or pack so you can draft
4. Breaking away from another swimmer or pack without allowing them the chance to respond or counterattack

5. Change directions or race tactics during a race – sometimes you make errors navigating and you've got to be able to change directions quickly and get back on course as soon as possible
 6. Rough weather conditions. Dealing with wind and rain demands a higher level of strength in the water to maintain your TRP (target race pace)
 7. Dealing with rips, currents, swells and tides. Similarly, dealing with the challenges of different water conditions often requires strength and power to overcome the forces of nature
 8. The finish – nothing destroys the confidence of a competitor like the sign of you sprinting the final 50 metres of your swim leg, ripping up the exit ramp and disappearing out of the T1 before they know which way you've gone
- So, how do you develop speed, strength and power in swimming?

Speed Development

When it comes down to it, it's all about speed. You can teach anyone to survive a 1500-metre swim, but the name of the game is how quickly you can swim your race distance with the lowest possible energy cost: speed plus efficiency.

The general principles of speed development in swimming are:

1. Short distances – so you don't accumulate too much lactic acid (which will affect muscle contraction)
2. Plenty of rest – as a general guide, use a work-to-rest ratio of 1:5 or greater, e.g. swim fast for 20 seconds, then rest for at least 1 minute 40 seconds
3. Don't do too many – limit the number of speed development repeats to 6-to-10 maximum
4. Focus on technique PLUS speed – it's not just about how fast you go – it's how fast you can go with the most efficient technique.

Examples of speed development sets in swimming include:

- 6 x 30 metres explode, then easy 20 metres swim or drill – on a 2:30 cycle.
- 8 x 25 metres at maximum speed, then an easy 25 metres recovery – on a 3:00 cycle
- 10 x 20 metres at maximum speed, easy swim to the wall – on a 2:00 cycle.

Strength

There are several methods for developing strength in swimming. Towing, for example, is a technique that's been utilised by swimming coaches for many years to overload swimming muscles to a greater degree than is possible by swimming alone.

When considering towing devices, it is important to think about three things:

1. Size – avoid the temptation to use a large towing device in an attempt to shortcut the strength development process. As a guide, if the towing device affects your swimming stroke so that you have to compromise your technique just to tow it, then it's too big
2. Floatation – the ideal towing device sits high in the water and doesn't drag your hips or body lower in the water when you swim
3. Ease of use – and like all training equipment it must be easy to use, simple to put on and take off and above all it has to actually work.

Some examples of towing devices include:

1. A bucket – find a cheap, plastic bucket and cut a few small holes in the bottom with a sharp knife – be careful! Attach a short length of rope to the handle of the bucket and the other end to your waist. As a general guide, the length of the rope should be approximately one-and-a-half times your overall body height to ensure the bucket doesn't get tangled around your feet
2. Parachutes – some of the swimming equipment manufacturers make towing products that resemble parachutes designed to overload your swimming muscles and develop swimming strength
3. Sponges – Sponges are great towing options. They're light, easy to carry and they float. The Swim Tow Sponge (designed by the author and developed and manufactured by Hart Sport Australia) is an innovative swimming strength development tool that takes the concept of the towing sponge to another level. It floats, it's easy to use, it's durable and it is designed to allow the swimmer to swim freely with their normal swimming technique while they develop real swimming strength.

Power

Power can be defined as speed-strength – i.e. it's your capacity to generate real strength at high speed. For example, any of the speed sets listed in this article can be converted into power development

sets by adding a towing device and/or a set of swim paddles – i.e. speed plus strength. However, here's the catch – excuse the pun.

An important characteristic of all great freestyle swimming is an early catch – i.e. keeping your elbow high and close to the surface of the water while you commence your swim stroke.

It is difficult for swimmers without a long training background to be able to maintain an early catch position while engaging in power-developing training activities.


Also, without real attention to stroke technique, many swimmers will finish their stroke too early and 'slip' their hands through the water as they lack the capacity to 'hold' the water during power development sets.

To avoid these common problems, combine technique and drills activities with all your power work.

For example:

- 8 x 50 'power-pull' on 2:00.
- Put on your paddles and your towing device.
- Swim the first 25 metres slowly, concentrating on feel and maintaining pressure on the water throughout your stroke.
- Over the next 25 metres, progressively build your speed while maintaining pressure on your hands and paddles and remaining focused on your distance per stroke (DPS).
- Rest – and repeat.

Summary

1. Developing speed, strength and power in swimming is a critical aspect of your training for the triathlon swim leg as it gives you the capacity to effectively manage a wide range of competitive challenges and situations that endurance training alone can't
2. Base most of your swim training on endurance and the development of 'staying power' but spend time in every training session working on speed, strength and power – be a racer, not just a pacer.
3. And, of course, it's all about technique no matter what speed you're going. There are many ways of developing speed, strength and power in swimming but all of them demand excellence in stroke technique and a commitment to swimming skills. 



Wayne Goldsmith is a triathlon coach who has worked with both Triathlon Australia and Swimming Australia

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