

THE ISLAND EIGHTY™

1 MI SWIM * 46 MI BIKE * 13 MI RUN



THE ISLAND FORTY™

1 MI SWIM * 33.5 MI BIKE * 5.5 MI RUN



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TECHNIQUE

This section has been contributed by NCCP Certified top triathlon coach Steve Bentley, who was recently voted Coach of the Year by the Ontario Association of Triathletes.

SWIMMING

To swim faster you need to do two things. Increase your arm resistance and decrease your body resistance. Repeatedly over the years I see these two basic components of more efficient swimming working against each other in most people's swim strokes.

Entry and Catch

Cut into the water leading with your fingertips. Slide your hand then your arm and shoulder into the water following the fingertips. A lot of swimmers reach too high and too far forward for their abilities. They then end up having to put too much energy into pressing down with their hands and forearms to get into the catch position instead of pulling backward. The resulting downward press does very little to pull their body forward through the water and actually increases their body resistance in the water by tipping the front end of the body (shoulders and head) upward (resulting from the downward press of the hands and arms into the water to establish the catch position) which also causes the legs to drop deeper into the water.

I'm not saying don't reach forward, just don't reach any farther forward than you are capable of. Your limit will be determined by how flexible or strong you are as indicated by your ability to get your hand down below your elbow prior to initiating the pull action. Having a more vertical forearm allows you to expose more surface area to the water and will increase your arm resistance. To many people begin the pull action with their whole arm (hand, forearm and upper arm) before the hand has established itself vertically below the elbow. Correct this by delaying the pull of the bicep/upper arm.

Pull

The hands should pull from beneath the body in a motion parallel to the surface of the water, but in a position perpendicular to the surface. Pressing down or up will cause your body to bob in the water and increase body resistance. Although your hands travel beneath your body they should, in relation to your body, be adjacent to your torso. This rolling in the water is to allow you to engage the stronger back muscles during your swim stroke and to bring your hips into the swim stroke.

Accelerate your hands through the water thinking that at the beginning of the stroke at entry and the start of the catch your hands are moving approximately 2-3 feet per second. At the end of the stroke they should have accelerated to 12-14 feet per second.

Once you establish your elbow angle during the catch phase work hard to maintain this angle throughout the pull motion. Bending your elbow to allow the hand to come in towards the chest during the pull sucks energy out of the stroke. Don't forget to finish off your stroke by pushing down to below your hip, extending your arm backwards.

Recovery

The timing of the recovery in relation to the pull should be closer to that of a kayak action than a catch up. I think the catch up stroke (where you leave the hand in the water in place stretched out in front of you while your recovering hand "catches up" before you pull with the under water hand) promotes a slower and weaker turnover. The kayak stroke on the other hand (characterized by the hands being mainly opposite each other throughout the stroke) allows the swimmer to:

- maintain better speed (less accelerating and decelerating),
- establish a faster turnover and
- utilize the hips to pull the stroke using the larger back muscles

Kick

As long as you kick efficiently and don't waste your legs in the swim then kicking with a 2 or 4 beat kick is a matter of personal preference. I prefer the 2 beat kick as it is easier to use your kick to increase your arm turnover without tiring yourself out too much. The 2 beat kick is characterized by having your (for example) left foot kick down into the water every time your right hand enters the water. Your foot actually kicks slightly after your hand actually enters the water. But there is a pronounced downward kick with the leg opposite the hand that is entering the water.

If I use a 4 beat kick I find my arm turnover actually decreases and I find it hard to increase my arm speed without becoming very fatigued. Not good if you are preparing to ride your bike in a triathlon.

Remember to maintain a body position that will promote minimal resistance and do everything you can to increase your arm resistance in the water.

Stroke Rate vs Stroke Length

Once you've managed to get yourself into the proper efficient positions to swim properly then you'll want to focus on improving your stroke rate in the water. A lower stroke rate (# of strokes you take to get through the length of the pool or the number of strokes per

minute) indicates a more efficient stroke. Work had to lower your stroke rate (count both arms). Elite swimmers have a stroke rate in the 13 – 16 strokes per 25m range. Once you are able to establish an efficient stroke (Stroke Length) then your next goal (after a few month of lower stroke rate work) is to increase your Stroke Rate. The faster you can turn your arms over while still maintaining your stroke length, the faster you will go.

CYCLING

Like swimming and running, cycling efficiently is all about force application and reducing wasted energy.

Powercranks

I often do the majority of my cycling training using Powercranks. They are hard to use, frustrating and very good at getting you to pedal efficiently. When I refer to efficient pedaling I'm talking about your ability to pull up with your back leg at least enough to unweight the rear leg across the back part of the cycle stroke. When I first started using the powercranks I thought I was a good cyclist. However, my first time using the powercranks I couldn't ride for longer than 30". My hip flexors were so fatigued from riding that I had to stop.

Hip Flexors

What I had to do to be able to ride for hours with them is develop the strength and endurance of my hips flexors. Doing so improves your ability to pull your leg up across the back part of the pedal stroke and keep perfect timing with the downstroke leg. Doing so prevents the rear leg from weighing down the forward (downstroke) leg which in effect sucks power out of the downstroke, instead of allowing that power to go into driving the bike forward.

Doing this initially though is very hard. So much so that I had to decrease my cycling cadence into the low 70s in order to be able to ride for any appreciable length of time. Riding for longer periods with good timing is important as it better allows your musculature to develop good muscle patterning and adaptive changes (angio-genesis).

Once your ability to ride smoothly and with good timing (pulling the rear leg up in time with the forward downstroking leg) then you can gradually increase your cadence.

You will find it easier to do this if you sit up as tall as possible on your bike (i.e., not in the aero position) in order to open up your hip angle as much as possible. Having an open hip angle will allow you to better activate the hip flexors.

As you develop the ability to ride with increasingly higher and higher cadences for longer and longer then you can (for triathletes) begin to get more and more into the aero

position. Doing so too quickly though will shut your hip flexors down and reduce the efficiency of your cycle stroke.

Glutes

It is very easy to ride with the focus on your quads. However, you should be learning to activate the glute (butt) muscles in order to bring in top power to your cycling stroke. It's hard to explain how to activate them. You can try by lying on the floor on your back and squeezing your butt repeatedly. Best way after that though is to get on your bike and ride. Feel like you're pulling the lower inner portion of your butt inwards towards the seat of your bike. It will feel tough at first but should give you lots of power once you get accustomed to it.

Hamstrings

Across the bottom part of the cycle stroke you should feel like you are pulling your foot out of the back of your cycling shoe. Don't get fancy, just pull back using your hamstrings.

RUNNING

So you want to run a bit faster, or maybe you want to run a lot faster. Where to begin. First it may help to understand that two factors determine your speed; stride rate (the frequency of your stride, or how often you take a stride) and your stride length (the length of each stride across the ground. As you'll see later this isn't the same as how far your legs move in relation to your body). You could take the combined approach of trying to increase both your stride rate and stride length at the same time. However, you may find the combined effort of this approach too severe (at least initially). You'll likely run quicker, but not for very long. You need to allow your body to adapt to the stresses of running faster and do it in a way that incorporates good technique.

Stride Rate

I like to work on stride rate first with my athletes as this establishes both proper running mechanics and aerobic efficiency. Aerobic efficiency is critically important as that allows you to hold on to your new speed for longer periods of time. How does stride rate affect running mechanics? Running with a higher turnover (stride rate) allows you to do the following:

- establish a slightly forward leaning body position,
- produce a footstrike position closer to the centre of your foot,
- use less energy per stride,
- rebound quicker off your ground-contact leg,
- decrease vertical oscillation,
- increase forward propulsion

I'll break each of these down in the following paragraphs but focusing on stride rate forces you to abandon premature thoughts of speed and instead establishes a good foundation for future running speed gains. You will run slower initially until you adapt to the new running stride. Increasing stride rate first allows your cardio-respiratory system to become accustomed to the increased aerobic demands of turning your legs over quickly. This mimics the base-building phase of your entire training program. Get your system used to working out at a higher frequency (despite how small your stride length may be initially) and then increasing your stride length is a simple matter of increasing strength and then range of motion.

A Higher Cadence

As I indicated above, turning your legs over faster will lead to many positive changes in your running form. To begin with taking more steps in the course of a minute (without a corresponding increase in ground speed) will have to shorten your stride length, which is exactly what we want to happen when establishing this new running pattern. Initially, I find people do very well running on a treadmill to establish the feel for an increased stride rate. Once you set the speed of the treadmill you don't need to worry about increasing your stride length along with your increased stride rate. If you did you would run off the front of the treadmill. The constant speed in effect ensures that an increasing stride rate will result in a shorter stride length. As mentioned this shorter stride length will bring your foot strike more beneath your body. This will allow you to run over top of your feet rather than onto them.

Running onto your feet creates minute braking actions at every footstrike, not what you want when trying to go forward. This forward position also allows you to get off your feet quicker and thereby shorten the time your foot is in contact with the ground. By decreasing the ground contact time you'll be able to generate more power to be used later in increasing your stride length. In fact, once you start this you'll probably find that your shorter stride and the resulting power generation will have you feeling like you want to just open it up. Go easy though, maintaining that higher stride rate is quite aerobically challenging. You need to focus on your new higher stride rate on ALL your runs in order to ingrain it into your new running form. Your aerobic system will also have to adjust to the increased load due to the higher turnover. Once that is established though you'll be able to increase the strength component of the stride and eventually the length of your stride.

Work on getting your running cadence (number of times one foot hits the ground in 1 minute) as close to the low 90s (or higher) as possible. If your stride rate is higher than this then you're doing well already. As an aside, all top runners have stride rates in the 90s. It doesn't matter how tall you are, if you want to run fast you have to get your stride rate up. The winners of all the top running races in distances from 1 mile to the marathon are (including triathlons) between 92 and 104 strides per minute.

Now counting your strides for a whole minute is tough. I have a hard time counting and keeping track of numbers when running/racing. To make it easier to count your strides,

time yourself for 20 seconds and try to get to 30 or 31 strides for one leg. Don't worry if getting your stride rate up takes a few weeks to feel comfortable with. It's a fundamental part of running fast so keep at it. At the start of this process you will need to shorten your stride because you shouldn't be running faster right now. Starting your high cadence work on the treadmill is ideal as it maintains a constant speed and ensures that you don't take a longer stride along with your higher stride rate. If you did, you would run off the front of the treadmill. I only want you to work on one speed variable at a time right now, so stick with the stride rate. Let the hill work you'll do later in the training cycle boost your ability to increase stride length.

Shorten That Leg

Your feet should have the sensation of moving up and down as you run and not really forward and back. By bending your knee as you drive your leg forward you will reduce the effort required to return your leg forward (don't shuffle with feet low to the ground). Try this exercise. Stand upright with nothing around you. Stand on your left leg and with a straight right leg swing your right leg forward and back, increasing the speed of the swing till you're swinging your leg as fast as you can. Take note of all the force that's being put through your body. Feel the torque and the resulting requirement for your arms and other body parts to have to shift around constantly to counteract this swaying force (not something you want to be doing while actually running). Now, without decreasing the effort level of your swing, bend your right swinging leg at the knee. Feel 1) how much more quickly you can now move your leg, and 2) how much easier it is to move your leg back and forth (less torque through your body). So if you're out on a run and shuffling along, you're likely putting a whole lot of unnecessary energy into moving your legs forward. Bend them a bit more and you'll be able to get them forward quicker (which will help your stride rate) and with less required energy.

Shorter Impact Duration

This is a great one. Studies out of the UK have shown that reducing the time your foot is in contact with the ground by only 100ths of a second can shave minutes off your race times. Of course the time saved depends on how efficient you are to begin with. The bottom line though is if you do nothing else but get off your foot faster while running you'll be able to generate more power in your stride and ultimately increase your stride length. So the quicker you can get on and off your feet the more force you will be able to direct into the ground which will in turn allow you to move forward faster. So think quick light steps.

Stay Smooth

Run smoother and you'll direct more energy towards moving you forwards rather than up and down. My Dad was a pro cyclist back in England and into form and efficient movement. I remember him telling me years and years ago about a Russian running coach who would have his athletes run through a tunnel that was just barely taller than his athletes (only an inch or so over their heads). As they learned to run through the tunnel

without bouncing up and down too much he would gradually lower the height of the tunnel for each athlete, till the tunnel was just barely above their heads. They would have to run smoothly or they would take the top of their heads off. Running smoothly basically allows you to conserve energy, as you aren't directing energy to move up and arrest your resulting plunge back to earth. The saved energy is therefore available to allow you to run longer, faster, or both. To run smoother focus on driving forward as you push off with your rear foot rather than pushing up. Because you'll be taking shorter strides, at least initially, you won't need to jump as high into the air to allow for your leg to get forward to catch you for your next stride. Think SMOOTH=SPEED.

Use Your Hands

You can use your hands to control the speed of your legs. If you move your hands in a relatively large range of motion then it will take a correspondingly long time for your hands to travel that distance. Shortening your hand movement pattern will allow you to speed up your hands as you will be able to move through their range faster. Once you do this then your legs will also increase their turnover in order to maintain synchronization with your hands. So faster hands means faster feet.

One Other Thought

Keep your upper body as smooth and quiet as possible. This starts from the hips and works it's way up. Stay relaxed and smooth and try to move your arms more forward and back rather than across your torso. Along with that, try as much as possible to keep your hips and core area firm. Don't let your hips sway from side to side or dip down as the associated hip strikes the ground.

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