



WCCTC Tri News

Running Mechanics:

Enhancing Biomechanics – Upper Body

- Shoulders relaxed
- Arms bent to ~90° (± 10°)
- Arms travel close to body
- and shouldn't cross bell
- Button (straw test)
- Anatomical/Flexibility differences
- Hands held relaxed – not a clenched fist, not flopping (potato chip test)
- Relaxed face – cheeks and jaw.
- Eyes looking forward (5 ft)
- Running tall – neutral posture
- Chin parallel to the ground

Enhancing Biomechanics – Lower Body

- Stride Length –
There is not one absolute correct stride length! Don't want to overstride – reaching heel far out in front of body
- Stride Length –
Target of 170-180 foot strikes per minute (mostly for overstriders)

Cycling Skills part 1 of 2

Hand Position

Because your hands do a lot of the work while you're riding, they're prone to fatigue, numbness, etc. **Most problems can be prevented by frequently changing hand positions.** Every ten minutes in fact, you should take another hand position.

There are fewer options on mountain-style handlebars and other upright designs. If you have bar ends, use them. And don't rule out gripping portions of the bar just because they're bare metal. If there's a place to rest your hands safely (always maintain a secure grip), by all means move them there occasionally for a change. For both types of bars flexing the hands periodically can also reduce fatigue and numbness.

Pedaling

Ideally, you should relax and let your feet and ankles assume a natural position while pedaling. But there is one tip that may help smooth your pedal stroke: practice to pull straight back on the pedals when each reaches the 3 o'clock point on the stroke. This drill will only work with clip in pedals.

Most people focus on the downstroke. But this part of the stroke is natural. Even if you didn't think about it, you'd manage fine. **The key to smoothing the stroke and making it as round as possible is training yourself to pull back.** The motion is similar to what's used to scrape mud from the bottom of your shoes. If you want to immediately

feel what it can do for you, try it the next time you're riding uphill. Practice makes perfect.

Shifting

Like an auto engine, you're most efficient pedaling at a certain rate, usually from 70 to 90 pedal revolutions per minute. **To maintain this efficiency, shift every time you feel your pedaling rate (called cadence) slow or speed up.** On a rolling course, you'll be shifting almost constantly to maintain that steady cadence. On a flat ride you will remain in just a few gears and on hill ride you will be using all gears like your rolling ride but not changing them as frequently.

How do you know what gear to select? Don't get confused by the many choices. The correct gear is a gear that allows you to pedal comfortably at the moment. **There's no right or wrong gear and there's no proper sequence to follow.**

Shifting the right lever makes it slightly easier or harder to pedal on a gradual scale. Think of this lever as a way to fine tune the effort required to pedal. Shifting the left lever makes it easier or harder to pedal as well but on a more dramatic scale. Think of this lever as a way to make large adjustments to the effort required to pedal for when you are descending or climbing.

Practice with a few sweeps of the levers, you'll get a clear understanding of what's going on back there and should feel more comfortable about shifting a lot while riding. Continued on page 2



The Swim Breath

Breathing must be coordinated with the arm stroke and kick movements. You should incorporate turning your head with your body roll. As you perform your body roll your head should rotate as well with only a slight turn of the neck to bring half of your mouth out of the water to breathe. Many novice swimmers lift their heads to the front and then to the side in order to breathe as indicated earlier. Avoid this, as it will lower your hips in the water and cause more drag thus sacrificing efficiency. As the head re-enters the water begin exhaling the air slowly at a rate such that you have a small amount left before you take your next breath. Bilateral breathing (breathing every third stroke alternating on right and left sides of the body) is the most effective method. This method will allow you to maintain proper body roll positioning and avoid excessive posturing on one side of the body which happens when you breath to one side all the time, without sacrificing the need for oxygen. If bilateral breathing is uncomfortable alternate methods can be used. On such method is to breathe on one side of the body each length of the pool.

Swimming Drills part 5 of 5

Kicking:

Flutter kicking is important to stabilize the arm stroke and help to maintain horizontal alignment in the water. Kicking is also used to propel you forward although for most novice swimmers it can acutely hinder your efficiency.

Kicking begins at the hips. The power is generated through a forceful downsweep of the thigh. The lower portion of the leg follows the lead of the thigh through the downsweep with the knee only slightly bent. The ankle is flexed and the toes are pointed as much as possible. Kicking should be shallow, as the foot, at the end of its downstroke, should only be slightly below the chest or end at a depth of 12-14 inches.

Cycling Skills part 1 of 2 continued

outside, and braking as needed before entering the turn. Then hit the apex on the inside edge of your riding lane, finally exiting again on the outside (always leaving some room for error and unforeseen hazard). The key is to gradually get into position and smoothly follow a line through the corner.

Use your brakes only up to the beginning of a corner on a descent, **NEVER USE THE BRAKES IN A CORNER**. At that point any traction used for braking significantly reduces the traction available for cornering. If you do have to brake after entering the curve straighten out your line before applying the brakes. If the road surface is good use primarily the front brake. If traction is poor switch to the rear brake and begin braking earlier. In auto racing circles there are two schools of thought on braking technique. One advocates gradually releasing the brakes upon entering the corner, the other advises hard braking right up to the beginning of the curve and abruptly releasing the brakes just before entering the curve. A cyclists should probably combine these techniques depending on the road surface, rim trueness, brake pad hardness, headset wear and the proximity of other riders.

When in a corner on a downhill bicyclists should lean their bikes into the corner and keep the body upright. You should also extend the inside knee down, to lower the center of gravity. To pedal through the corners keep the bike upright while the inside pedal is down otherwise the inside pedal should be up through the corner as the bike is leaning into the corner.

Many cyclists experience a terrifying phenomenon on fast downhill called speed wobble. **What happens is, at a certain speed the bike begins to shake, sometimes wobbling violently.** Many things can cause this to happen and it's not always the bike's fault. So it's good to know ways to prevent and stop it should you experience it. Try this: clamp your knees against the top tube, which braces a main frame member, and should stabilize the bike and stop the wobble. Riders who've experienced wobble learn to always rest a knee against the top tube when descending fast as insurance.



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Cycling Drill

#3

Freestyle Stroke Phases part 4 of 5

Cycling drills are designed to improve your pedaling efficiency by improving your neuromuscular engagement during each pedal stroke. The following drill should be incorporated into your training throughout the season emphasized more during the base and building phases of your training.

One Leg –

- Drill: Flat reps at 85+ rpm, HR at long endurance or as indicated.
- Position: In the saddle, focusing on the working muscles, and maintaining an efficient pedal stroke.
- Time: 30 sec right leg and 30 sec left leg.
- Reps: Start with 3 (right and left leg is one set) and build up to 5.
- Frequency: 1-2 times per week.
- Even pressure throughout the entire pedal stroke. Non-working foot is clipped out of the pedal. The foot should move straight forward over the top of the pedal

In order to better understand stroke mechanics the arm stroke is broken down into 6 different phases - entry, catch, down-sweep, in-sweep, up-sweep and recovery. Each arm goes through this cycle in about on second.

In-Sweep Phase - This phase begins at the deepest point of the down-sweep phase. The in-sweep starts outside and below the shoulder and finishes close to the center of the body as you are driving the hips and rolling to the side. As the hand and upper arm begin to travel toward the center of the body, the elbow flexes to allow the hand to rise. During this phase, it is important for the hand to be pressing through the water not slicing through the water. Remember not to lift the head up during your breathing pattern. Many novice swimmers will fist lift their head forward then turn to breathe which again can cause in efficient lateral movement.

