CROSS-TRAINING

Endurance athletes are diversifying: swimmers are cycling and lifting weights, cyclists are doing more running, and runners are taking up stair stepping, cycling, and resistance training. Can such "cross training" workouts really help athletes in their preferred sports? Does being a better cyclist automatically make you a better runner, too?

There are three ways that cross training might help you:

1. Improved leaness: Doing some cross training can help you burn more calories per week. For example, runners who maintain their usual running schedules and add one 30-minute cycling workout per week can lose one extra pound of fat every 10 weeks, provided they don't increase their food intakes. Over the course of a year, that's about 50 additional cycling workouts and five pounds of lost fat. True, such runners could simply run 30 minutes more per week, but heightened running mileage often leads to injuries, whereas time spent on the bike is seldom damaging. The vanished corpulence that comes from the 30 minutes on a two-wheeler can make a big performance difference. For example, a female runner who trims her percent body fat from about 17.5 per cent to around 16 per cent can carve approximately one minute from her 5-K race time, without making, any other physiological improvements at all!

2. Greater average workout intensity: A runner who is already completing two (or three in some cases) rugged running workouts per week can seldom cavalierly add an extra red-hot running session without increasing the risk of overtraining or getting injured. On the other hand, throwing in a hell-fire bike session produces little trauma to the leg muscles and can often be well tolerated. This upswing in intensity can do two great things: it can make the heart a bigger, stronger pump, and it can hoist blood volume. Blood volume? Sure remember that a 5'10", well-trained endurance runner has about 15-per cent more blood than the sedentary man on the street corner. This extra blood produces performance bonuses, because it allows the heart to send more blood (and thus fuel and oxygen) to the leg muscles during exercise and more blood to the skin for cooling.

Now, bear in mind that the best way to upgrade blood volume is to perk up the intensity not the length of your workouts. You get the picture now: adding a sizzling bike workout when it would be very difficult to add in a demanding running session can produce enhanced increases in blood volume, which would then improve running capacity. Putting in the incendiary bike workouts probably also improves the 'buffering capacity' of runners' leg muscles, making them more resistant to the fatigue-inducing effects of lactic acid.

Those two very positive changes higher blood volume and improved tolerance of high work rates probably represent the mechanism underlying a startling recent study, in which 10 well-trained runners added some scalding bike-interval training to their weekly schedules. Within six short weeks, the runners improved their 5-K times by almost 30 seconds, from 18:16 to 17:48.

3. Greater strength: One form of cross training resistance training adds generalized strength to your leg muscles. As a result, fewer muscle cells need to be activated when you run at your usual race intensity. This saves energy and improves your running economy, a key indicator of running prowess. This is why recent studies have linked weight training with augmented running efficiency and improved running performances. Strength training has also been linked with higher-velocity tennis serves, faster throwing speeds by baseball pitchers, and larger-amplitude jumps among basketball players. It's a form of cross training which really works.

Why cross training CAN'T work

All of that sounds fine, but there's also a key reason why cross training should not work. As you already know, the best workouts are the ones which are SPECIFIC to the demands of the event for which you are preparing. To get ready for 5-K racing, running intervals at 5-K pace is better than long, slow running, for example. Likewise, running is better than biking at preparing for running competitions, and biking is better than running when readying oneself for the Tour de France. In that regard, cross training is a waste of time, since it can never prepare athletes as well as more specific slow running, for example. Likewise, running is better than biking at preparing for running competitions, and biking is better than running when

Note also that the cross-training arguments are definitely biased toward the idea that cross training is a good thing. We have three key positives about cross workouts higher workout intensities, improved leaness, and greater strength and only one real knock against them the lack of specificity.

That's probably why scientific research has been very kind to the concept of cross training. There are now four separate studies documenting improvements in running capacity after runners took up biking. In two of those studies, runners completely substituted cycling for running; in two others, they added cycling to their existing running programs. Other studies have suggested that stair stepping and aqua-running can do a nice job of preserving running capability when it's not possible to run.

And we still haven't mentioned the possible mental benefits of cross training. If you can learn to mentally tolerate a super-tough bike workout, you can probably better cope with the pain of running fast, too. Plus, it's important to consider the 'muscle-trauma scenario'. Let's face it, most runners do a great job of battering their legs. They run when they're tired, run when they're hurt, run so much that they never really let their leg muscles recover completely. Switching over to bike workouts can at least produce partial recoveries, because it prevents the damage which can accrue to leg muscle cells when a tired runner decides that a 20-miler is just the thing to improve fitness.
Which other sports are best for runners?

Many runners aren't sure which alternative forms of exercise are best for their running. For that reason, we've listed some popular sports or activities below, ranking them from best for your running (no. 1) to least beneficial (no. 8).

(1) Deep-water running (aqua-running): It's a strange and boring activity, but slipping into a life preserver and running in place in the water can actually help your running, especially if you're too injured to run on terra firma. In a recent study, deep-water runners who totally abstained from regular running for six weeks were able to perfectly preserve their racing ability. Aqua-running actually mimics real running more closely than cycling, but the tedium of spending time in the pool makes the activity a real challenge – however – if you can survive the tedium of aqua-running, then it can only enhance your running concentration powers.

(2) Cycling: Narrowly edging out resistance training, cycling comes in no. 1 because of the large number of scientific studies which have shown that cycling helps runners. These investigations have shown that cycling can improve 10-K race times by 9 per cent, quicken 5-K race performances by 3 per cent, upgrade two-mile times by 1 per cent, or boost VO2max by 15 per cent! Cycling allows runners to attain all three goals of cross training: heightened workout intensities, improved leaness, and greater strength.

(3) Resistance training: Easy choice here. Recent scientific research has linked strength training with a 4-per cent improvement in running economy, reduced heart rates while running, and improved race times at distances ranging from the SK to marathon. Older research linked weight training with a 20-per cent uptick in endurance (at intensities which could be sustained for a little over an hour) and a 13-per cent spike in endurance when running at about one mile race pace. Resistance training probably also protects runners against injuries, and circuit training provides a decent cardiovascular workout, in addition to hiking muscle power.

(4) Soccer: A bit of a surprise here, but soccer competitions can give your running a real boost. During a typical game, soccer players travel from 9000-11000 meters, which includes 4000 meters of jogging, 2000 meters of running at a high but not maximal speed, 800-1000 meters of sprinting, 2500 meters of walking, and 600 meters of moving backwards. Soccer players' heart rates are above 150 beats per minute for most of a game, and blood lactate levels often rise to 6-10 millimoles per liter, comparable to the concentrations commonly observed during 5-K and 10-K running competitions. Overall, a soccer competition is like an excellent, prolonged interval workout. It's not surprising that many of the top Kenyan runners were originally excellent soccer players.

(5) Stair climbing: Stair stepping sends your quadriceps muscles' aerobic capacities into the stratosphere and transforms you into a hillclimbing demon. In a recent study, individuals who participated only in stair-climbing workouts for nine weeks improved their running performances as much as athletes who engaged in regular running sessions. If there's a negative to stair climbing, it's that actual stride rates are seldom very high even during maximum exercise, so it's hard to learn to run fast on a stair-stepper.

(6) Cross country skiing/Nordic Track: Very much like running, but without the hard impacts. Great for losing weight, hitting high intensities, and raising muscle strength around the hip areas.

(7) Aerobic dance provides an outstanding cardiovascular workout, boosts quadriceps and hamstring strength, improves coordination, and can make runners quicker on their feet. Plus, the upper-body movements used in aerobic dance may even tone up runners' torsos a bit.

(8) Swimming: It's nice for your ticker, may improve your flexibility, and gets you off your feet for a day, giving your leg muscles a bit of recovery.

The five rules of cross training

Cross training shouldn't be approached haphazardly. Use the following rules to guide your cross-training efforts:

1. Being in great running shape does not mean you're ready for prolonged exercise in another sport, so approach new activities cautiously. An hour on a stair stepper or two hours of tennis if you've never tried those sports before may leave you too sore to complete a running workout you've planned for the following day. When you try an alternative sport, limit your first workout to no more than 20 minutes.

2. Don't immediately add an alternative workout to an already strenuous running schedule. If you run five times per week, adding a cycling workout (to give you six workouts per week) might transport you into a zone of fatigue and poor performances. At least initially, it's far better to SUBSTITUTE an alternative workout for one of your running sessions. You can increase your total number of weekly workouts later.

3. Avoid activities which might aggravate running injuries. For example, runners with sore quads or Achilles tendons sometimes find that cycling aggravates those conditions, and runners with plantar fasciitis or lower-back stiffness often don't respond well to long-distance walking or court sports.

4. To achieve maximal fitness benefits, match the duration of your alternative workouts with the length of your usual running sessions and also try to do something hard during the alternative workout. For example, if you usually run 45 minutes a day, let your cycling workouts last for 45 minutes, too, if you've had previous experience with cycling (see rule no. 1 above). Within the 45 minutes, throw in a couple of tough two-minute intervals, increasing the number (and length) of the intervals gradually over time.

5. Whenever you feel tired during an alternative workout, stop! Fatigue is a sign that your body needs rest, not extra work. Remember that the whole idea behind cross training is to keep your fitness and interest in exercise high over the long term not to leave your body drastically depleted.
Getting the Right Fit:
It is important to correctly position and secure the AquaJogger onto your body. A snug fit will help you maintain good posture and perform the exercises correctly. If your AquaJogger is riding up on your body and interfering with your movements, review the following guidelines.

- Remove slack from the AquaJogger belt. Position the non-adjustable end of the buckle (without the prongs) directly on the foam. Work all the extra length of the black elastic back through the slots of the AquaJogger over to the adjustable end. This simple process will allow for greater adjustability and a truly secure fit.
- Position the AquaJogger on your lower waist with the narrow "arms" of the AquaJogger just under your rib cage. Adjust the elastic belt until it is tight around your waist. The belt should be positioned across or just below your navel as shown in the figure.
- Adjust the strap until the belt feels almost "too tight." The tight fit feels more comfortable after you enter the water and helps prevent the AquaJogger from riding up during your workout.

Alternative: You can reverse the AquaJogger and wear the large area in front, with the buckle in back. This works especially well if you are swimming on your stomach or snorkeling. You can also change the center of flotation by turning the AquaJogger upside down with the foam hump pointed down rather than up the back. This position is comfortable for shorter individuals with smaller back areas.

Correct Vertical Posture:
The key to any safe, effective exercise or movement is correct body alignment. Initially, as you adjust to the buoyancy you may find yourself hunching over in the water. To adapt to this new environment and attain correct body position, lean back slightly and try a small flutter kick with your feet directly under you.

Do not compensate other body parts in order to perform a movement. As you exercise, aim for an even counterbalance between your arms and legs, as when you walk. Vertical body alignment not only protects against back strain, but also strengthens your back, abdominals, and surrounding muscles.

Checklist for vertical body alignment:
- Head Up
- Chest Lifted
- Shoulders positioned directly above hips
- Abdominals tight (don't hold your breath!)
- Buttocks squeezed together and slightly tucked under (pelvic tilt)
AquaJogger® - Water Exercise Guide

Legs

**Running and Walking:**
Position your body with your head, shoulders, hips, and feet vertically aligned. Using a modified running/marching motion, coordinate your leg and arm movements as in running.

**Cross Country Ski:**
Body is vertically aligned and legs and arms are straight. Scissor legs forward and backward from the hip, leading with your toes. Coordinate the arms and legs as in Cross Country Skiing.

**Sit Kicks:**
Sit as if in a straight back chair with your thighs stabilized. Alternating legs, kick out from the knee, then pull your heel back as if trying to kick your buttocks. Try to make the water boil in front of you.

**Straight Leg Toe Touch:**
Body is in a vertical position. Keeping legs straight, bring each leg near the surface and return it to the starting position. Alternating left and right, reach for toes with your opposite arm and bring the other arm behind you. This is a strong movement and is not recommended for people with back pain.
**Tires:**
This move is similar to the football drill of running through two parallel lines of tires. The body is open and vertical. Have your legs turned out and feet flexed as you alternate pushing down with each leg.

**Open and Close:**
Begin with vertical posture, arms and legs straight and toes pointed down toward the bottom of the pool. Open and close arms and legs by extending straight limbs out to the sides of your body and returning to the starting position.

**Rock Climb:**
A full-body exercise similar to running except the movement is like climbing a ladder diagonally. Reach forward with one arm into the water and then pull it through past your hip. Bring your opposite knee toward your chest and, at the same time, push the other leg straight back until it is fully extended.
AquaJogger® - Water Exercise Guide

Arms

Sweep In:
With DeltaBells just below the water surface and arms held out to the sides, sweep arms forward and pull DeltaBells® straight back toward chest. Extend arms out to your sides and repeat.

Breast Stroke Arms:
Begin with DeltaBells just below the water surface and arms relaxed at your sides. Extend arms directly in front of your body and sweep out to the sides. Return DeltaBells back to the starting position and repeat.

Bicycle Arms:
With elbows bent and DeltaBells submerged in front of your chest, vigorously roll DeltaBells® in a bicycle motion. Reverse direction.

Punch Out:
With body slightly leaning forward, punch arms downward and away from chest. Alternate arms back and forth like a pair of pistons.
**Punch Down:**
With elbows bent and DeltaBells held in at your sides, alternate pushing DeltaBells down into the water. Keep movements close to your sides.

**Touch in Front/Touch in Back:**
With DeltaBells submerged at your sides, bring both DeltaBells together touching the front of your body. Bring DeltaBells around your body, touching in back.

**Scoop Under:**
With DeltaBells near to the water’s surface and arms held to your sides, flex and extend at your elbows as you pull DeltaBells® in towards arm pits.

**Curls:**
With elbows bent and arms held tightly at your sides, alternate pulling equipment down into the water. Vary moves by gripping DeltaBells palm up or palm down.

**Cross Country Ski:**
With DeltaBells held close to your sides, alternate swinging straight arms in front and in back of your body. Keep arms close to your sides.
Abdominals

**Jack Knife:**
Assume a reclined position with hips submerged and lower legs at the surface. Using your abdominal muscles, curl forward lifting chest toward knees. As you gain strength in your abdominals, focus on keeping your legs straight and maintaining lower leg position.

**Double Knee Crunch:**
Assume a reclined position with hips submerged, knees bent, and lower legs at the surface. Using your abdominal muscles, curl forward reaching chest and knees toward each other. Extend and repeat.

**Obliques:**
Assume a reclined position with legs together and knees bent. Twist knees to one side. Keeping legs together, twist to the opposite side.

**Cross Over Crunch:**
Lie on your side with knees drawn in toward chest. Focus on crunching in at your side as you pull both upper and lower body in toward your waist. Change sides and repeat.
**Diamonds:**
Begin with body in a vertical position, bottoms of your feet pressed together, and knees turned out from the hips. Lift and lower heels, squeezing buttocks on the lowering motion.

**Double Knee Tuck:**
This move is similar to double knee crunch except the body is positioned with the front facing down. Holding your DeltaBells at your sides, pull bent knees up to your chest, tightening your abdominal muscles. Extend legs while squeezing your buttocks tight.