Neuromuscular Training

Article by Sonni Dyer

Here's an 'off-the-wall-question' for us to begin with:

Why don't Kenyan runners dominate cross-country skiing the way that they dominate the world of distance running?

Now the obvious answer would be, "Because there's not much snowfall in Kenya, Sonni….duh." But if Jamaicans can be taught to bobsled, certainly Kenyans could be taught to cross-country ski, right?

So what's the point of all this?

The point is this: The principle of **'specificity-of-movement'** dictates that we become efficient at what we do most often (or most intensely)…….good or bad. The key word in the previous sentence is ***"efficient"***, because it's **efficiency** that we're after here. As fit…and fast… as the Kenyan runners are, they've not trained their movement (running) to be specific to the movement of cross-country skiing.

"Efficiency", in this realm, can be defined as ''performing the highest work (pace) at the least output (effort, heart-rate, etc..).'' In one of our last articles, we spoke of the efficiency of 4 "performance systems" in the body that we use when training and racing in triathlons. To recap, these were:

1-cardiovascular efficiency-how well you supply oxygen to muscles

2-muscular efficiency-how quickly, powerfully, & how long your muscles can propel you

3-metabolic efficiency-how well you absorb and utilize blood-sugar and fat……FUEL

……..…..and then this month's topic:
4-neuro-muscular efficiency-how your ***efficiency of movement*** affects your performance.

In all training programs we (*the Studio7 Coaching staff*) construct, we evaluate not only the benefit of the training, but the ***COST*** of it in terms of recovery. [For instance: a 20 mile run (in 2:40) may be a great endurance builder……..but at what COST? Would a 1:30 bike followed by a 1:00 run have been a better way to spend the 2:30?]

What we're evaluating, here, is the **"Return-on-Investment"** of your training which leads us to the following point:

Neuro-muscular training (or "conditioning" as it's more often called) has a VERY HIGH 'return' on the training time you've invested!

Here's why.

COST: It's VERY low! Mind-muscle workouts actually **enhance** recovery rather than demand it. (….You wouldn't practice the piano effectively @ race-pace heart-rates, would you? It's the same with your swim, bike, & run ''mind/muscle'' sessions.)

BENEFIT: When you practice efficient movement (like stroke-drills in the pool, high rpm or one-legged spinning on the bike, or stride drills or treadmill "over-speed" runs on the run……details on these below), you are engraining into your nervous system's synaps the foundation for higher output-pace at lower work levels. Voila'…..efficiency!

"Great. But what does all this mean to me in a race?" you say. Plenty. Being able to pedals at a higher cadence in a race means spreading out the wattage output over more pedal strokes @ a given heart-rate. Just watch our boy Lances' rpm's in a time-trial vs. the others and you'll see what I mean.

Likewise, efficient movement in the water means having to push less of it out of the way on your way to the transition area. You SLIP through it, instead. When running, a higher heel-lift (yep, closer to the rear-end) means a "lighter" & quicker leg to move through the recovery phase of each stride. Again, speed improves while heart-rate remains the dsame

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These examples of neuro-muscular conditioning also increase efficiency by improving blood flow to working muscles. That, in turn, increases oxygen and fuel delivery to working muscles and improves the removal of metabolic waste (lactic acid) from those muscles.

What to do:

***For the swim*:**
1)-drill, drill, drill…….and drill some more to begin every season. And then, when you're ready to get race-specific, alternate drill intervals into your race-pace sets so that your mind CANNOT differentiate when you're drilling relaxed and when your racing relaxed.

For the bike:
***1)-* one-legged pedaling on a trainer:** my ahtletes are shocked when they discover how 'un-round' their pedal stroke really is……and how much effort it's costing them.

2)-Stratagy # 2 Is to: "sit in" (@ the back, no pulling) on fast pacelines and gear-UP to easier gears. This forces you to turn higher and higher rpms just to stay on…….all the while ELIMINATING the 'dead-spots' in your pedal stroke. Practicing this behind a car is what cyclist call "motor-pacing".

***For the run*:**
1)-downhill strides-(of 100m to 250m)**…** faster turnover @ lower heart-rates**,**

2)-treadmill bricks-(this has been my transition-secret for years) get off the bike and on a treadmill that's "over-speeded" to force leg-turnover ***AFTER*** pushing a big gear. Again, you'll maintain a much higher stride-tempo, @ a given heart-rate, than on the road.

3)-form drills- carefully study the way that *your* foot contacts the ground. If you're 'heel-striking', you're wasting time every stride. Practice drills that encourage a mid-foot plant/take-off. Watch how high you bring (or fail to bring) your heel up to your rear-end in the recovery-phase each stride. The farther your foot is from your trunk, the more it "weighs" at the end of the "*lever"* we call your "leg".

Coach Sonni Dyer

*****For more information on the Studio7Multisport training programs, you can visit our website at **www.Studio7MultiSport.com** or email Sonni at **Sonni@Studio7multisport.com** .