

How Much Work Are Kicking Sets Really Worth?

By: Terry Laughlin

In my last article I raised the question of how much payback is produced by the countless hours swimmers spend pushing a kickboard up the pool. If there were kickboard races in meets, then the quantity of kickboard training coaches give might be justified. The main issue for me isn't really whether kick sets are a waste of time, but whether there might be some better use of the precious time spent doing them...particularly in high school programs where there are usually fewer than 100 hours of practice in a typical season. So here are some thoughts on how to develop an efficient kicking action in each stroke and some alternatives to kickboard training.

Long-Axis Kicking

How do you develop a good kick? Nearly 30 years of coaching have convinced me that a swimmer's kick isn't nearly as susceptible to "molding" or skill-improvement as other parts of the stroke. In almost every case, the kicking ability I've seen a swimmer display in their first year of training has been little changed 5 or 10 years later. Coaching has often helped smooth out the rough spots, but it really never resulted in a swimmer with a middling kick eventually developing a great one.

So, as a coach I have mainly tried to help swimmers find their own best way to kick, and then to coordinate that kick as smoothly as possible with the overall stroke. Kickboard training, particularly in the long-axis strokes, has never been an effective aid to that process. The flutter kick used on a board is so different from the way swimmers kick when they swim freestyle or backstroke that kickboard sets have next to no value for developing an efficient kick (i.e., one that properly assists the kinetic chain, with the lowest energy cost, and without increasing drag).

"Well," you say, "if the kickboard doesn't teach me to kick, what does?" By now, you're probably able to anticipate my answer: "drills." For the kind of kicking you practice in drills helps your balance and rotation, and allows much more dynamic movement than is possible on a kickboard. And if you're concerned about conditioning, don't be. The kicking you do swimming at moderate, sustainable speeds readies your legs to do that same kind of kicking in longer races. And when you swim faster, you condition your legs for the demands that sprinting places on them.

When I coached the sprinters at West Point, we never did a single lap with a kickboard in three years. Yet none of my swimmers ever complained that their legs "died" in a race. They simply trained, with fluent swimming at a variety of speeds, to use their bodies as efficiently integrated units. Their legs provided just the help that was needed at each speed and, as they did, became conditioned for the demands of racing..

So if conditioning isn't a concern, what about execution? Is there a "gold-standard" kicking style for long-axis strokes? No, there isn't. Backstrokers favor the steady, unbroken 6-beat kick, while freestylers may use anything from 6-beat to 2-beat kicks. Among fitness and lap swimmers, the 2-beat is much more common. Different strokes, as they say, for different folks.

When it comes to the top freestyle sprinters, a strong 6-beat kick is almost universal. But there's more at work here than the beat. The best sprinters in the world (who also tend to be among the tallest swimmers) almost always have large, supple feet, great ankle flexibility, and consequently a great kick. The primary danger among sprinters is emphasizing the kick *too much*, which increases drag and energy cost and decreases coordination and control. An overkick is just as bad as too slight a kick when sprinting, and in both cases the remedy is the same: to make whatever kick you have fit in as seamlessly as possible with the overall stroke. Whenever I see someone swimming with a kick that's too visible, too apparent, it shouts "wasted energy" to me. So I tell them, "Just make the kick fit the stroke." The best kick is usually one where all parts of the stroke simply harmonize seamlessly. As the swimmer goes faster, the kick also speeds up. But

remember: You don't swim faster just by kicking harder or faster. That will usually just waste energy, impede the development of a natural rhythm, and overwhelm the movement of the other parts of the stroke.

Butterfly Kicking

In the summer of 1999, Jenny Thompson swam :57.8 seconds for 100-meter butterfly to break the oldest world record in swimming and culminate an eight-year process of learning to swim butterfly the right way. It had been a relatively long haul. When she arrived at Stanford University in the fall of 1991, she was already one of the fastest high-school butterflyers. But she was no threat to the world record. Just one year later broke the world record in 100-meter freestyle, but she was still over 3 seconds—a yawning gulf, by world record standards—away from the butterfly mark.

And she might have stayed there, had Jenny not eventually learned one of the most important lessons in the stroke: to stop *kicking*. For while the Stanford women's team gets the cream of high school swimmers every year, Coach Richard Quick says that *every* freshman has to be taught not to *kick* in butterfly, at least not in the sense they're used to. What Jenny and all of her teammates learned is that butterfly kicking is really done with the core body, not the legs. By practicing short-axis rotation drills, first in a head-lead position (arms at the sides) and then in a hand-lead position (arms extended) [both illustrated on the video [Butterfly and Breaststroke: the Total Immersion Way](#)] they gradually learn to move efficiently through the water with rhythmic, effortless undulation (we call them body-dolphins.)

As the movement begins to feel more natural through practice, they realize they are “kicking butterfly” *without* using their leg muscles. Simply by rhythmically pulsing their chests down and maintaining a long, supple body line, they create a body wave much like the ripple that flows through a garden hose when you snap one end. The “kick” is the last wave in that body dolphin, but the core body does most of the work.

After they have imprinted this new skill, they begin doing short swims with the whole butterfly stroke. But the emphasis continues to be on rhythmically undulating the core body (initiated each time by pressing on the chest) and allowing the arms and legs to simply become extensions of core-body movement. The rhythm and power are in the core. When they want to move faster, they move the core faster. In butterfly, as in the long axis strokes, the legs are part of the kinetic chain when they're used properly, and the kinetic chain in turn takes the burden off the leg muscles and saves them from fatigue. Drills teach the swimmer the new movement habit of “not kicking.” Then slow, controlled, fluent swimming integrates that habit into the whole-stroke and helps make it permanent.

Breaststroke Kicking

If you were hoping to find a place in swimming where the legs actually *do* have a starring role, you've found it. In all the other strokes, the pull creates more propulsion, more economically, than the kick ever could. In breaststroke, the reverse is true. And breaststroke kick is also somewhat less fully integrated with core-body rotation.

Considering strictly what part of the stroke makes you go, the breaststroke kick is a major part of the propulsion system—the body is moving faster at the end of the kick than it is at any other time in the stroke cycle. Because the body is moving faster, it is also encountering more drag than at any other time in the stroke cycle. So here's the most important lesson on the breaststroke kick: *It's absolutely essential to have everything forward of your hips streamlined into a needle-like position as you kick.*

But there's one way in which the breaststroke kick is *not* an exception to the rule. When you want to swim faster in breaststroke, you do it by increasing the tempo of your short-axis rotation, not by kicking (or pulling) faster.

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