

## Monthly Manager Moments

### Article #9 Sculling & Winging/Finning

Sculling, winging and finning are often confused as to which is which; and people wonder what the heck are they for anyway? This month's article will take a stab at clearing up the mystery that shrouds these three skills. I'll start with sculling, since it has the most components.

Sculling is essentially a waving pattern of the hands that produces propulsion through primarily lift forces (similar to an airplane's wings). Lift is produced perpendicular to the direction of the motion, so as the hand is waved back and forth, lift is produced at 90° to the wave. By properly pitching your hand, a lift force will be produced against the palm of your hand, moving you in the opposite direction. The lift force is always against the palm, never against the back of the hand; so pitch is critical to create the correct force. Sculling types are many, because there are a variety of possibilities for how to wave your hands and create the lift force. We'll cover the most commonly used types. Of those types, most are dynamic sculling, done with no kick. Your legs are straight and toes are pointed.

- Standard scull – Head first, in a supine position – the most common dynamic sculling pattern. Body position is straight, with toes pointed and arms close by the thighs. The waving/sculling pattern is with palms pitched toward the feet. Arm motions are sweeping out and in, with NO recovery; only a change in direction from out to in. Sculling is a continuous power stroke, that's the beauty of it. Don't be tempted to recover on the way out and power stroke on the way in. You'll be wasting ½ of the motion. Power stroke is BOTH directions. You'll need to move your elbow out to do the stroke to the outside, then move your elbow in to do the stroke back to the inside. Feel the water pressing against the palm of your hand in both directions. The stroke is quite small and fast. If you lead with your wrist both ways, you'll be doing it right. The wrist should be hyper-extended to almost 90°. This type of sculling is used extensively in synchronized swimming, but is very useful for any swimmer to maneuver in a supine position with no splash, or just to work out the arms.
- Reverse/snail scull – Reverse scull, also called snail scull, is again on your back (supine) but feet first. There is no kick, and legs are straight, with toes pointed, feet together. Here, you'll pitch your hands the opposite way, with your wrists flexed to about 90°, and leading with the tips of your fingers, not your wrists. In this pattern, your elbows are held much straighter and the hand motion is kind of a continuous scooping, to pull yourself backward. Remember – NO recovery, and continuous power stroke both out and in. Used for splashless maneuvering and for synchronized swimming; also used for a fun drill in competitive swimming.
- Canoe scull – Canoe is head first in a prone position. Your legs are straight, feet together, toes pointed – no kick. Hold your head up slightly, so your chin rests on the surface, but your mouth is clear of the surface. Your hands will likely be just outside your thighs. Pitch your hands with palms toward your feet, as in standard scull; but you may have to pitch them somewhat down too, so you can keep your body position and support your head. This will depend upon your buoyancy, of course. A muscular person will need more downward pitch than a person with a higher fat/lean ratio who is more buoyant. The legs of a muscular person will also pose a problem with canoe scull, since they'll be sinking, and your hand pitch/position will have to be adjusted to support them and keep them close to the surface. This scull is more difficult than

the first two because of the balance required to maintain steady body position. Swimmers will need to adjust their hand placement and pitch until they obtain balance and effective forward motion. This skill and the next are used mostly in synchronized swimming.

- Reverse canoe – A very difficult scull, especially for the person with muscular legs. Reverse canoe is feet first in a prone position. Again your head is at chin level, legs straight, toes pointed, no kick. Your hands are in front of your body, with palms facing away from your head. The motion is the same as in standard scull, leading with the wrist in both directions. Here, the balance is very challenging indeed, even for a person with average buoyancy. Exact hand position will need to be varied to obtain balance, and still provide effective propulsion backward. Muscular people may simply refer to this skill as “drowning with style.” The depth of your hands will also need to be varied, depending upon buoyancy of your legs. You may need to arch your back a little to achieve balance, but don’t overdo it. It will hurt (speaking from experience on that one!)
- Torpedo scull – This is unique in that torpedo is FEET first, supine; yet is not considered “reverse torpedo” as you might expect from the previous types. Torpedo is like a human torpedo, where you put your hands above your head and use the wrist-leading out/in motion to propel yourself backwards. Although much easier than reverse canoe, this scull is also difficult for persons with non-buoyant legs. Float first, then propel yourself – that’s the rule for this skill (and really ALL dynamic swimming skills). Once you’ve mastered this scull, it can be quite fast. Be sure to maintain your body position as horizontal as you can to prevent your legs from diving you down. If they sink, so do you! This scull is also used extensively in synchro, but has other applications as well.
- Reverse torpedo – As expected from the above, reverse torpedo is head first, supine, with hands above the head. Although not as difficult to maintain a horizontal body position as torpedo, it is quite challenging to produce effective propulsion with your hands. They are fingertips leading out/in motion, as in reverse/snail scull. As in reverse/snail scull, you’ll move your elbows just a little. Feel the pitch of your hands to pull yourself forward, and as always, power stroke in both directions.
- Flat scull/stationary scull – Some may argue that this is simply a modified hand pitch of the other types, so that there is no movement (static sculling). I prefer to use the terms here because they’re more descriptive. Holding position is a critical skill for ANY swimmer, so this type of sculling is essential to learn. It’s used for treading water, lifeguarding, polo, synchro, etc.
  - Treading water – treading water is stationary/flat scull in a vertical position; actually more of a sitting position, with your legs directly under you. It is unique because the arm motion is MUCH larger than any other type of sculling pattern, and has an accompanying kick of your choice. The sculling pattern is much like standard scull, with a wrist-leading out/in motion; only the motion is way out to a spread eagle position, and back in to an overlapped arm position in front of your chest. The principle is to go as SLOWLY as possible by applying constant downward pressure against the water. Your hands should be just below the surface. Here, you can feel the lift force when your hand is pitched properly. Proper pitch will be mostly down and slightly diagonal. When treading, resist the temptation to go fast and little. Keep it big and slow! The most efficient kicks for treading water are probably modified flutter, and rotary kick.

- Another application of flat scull/stationary scull is to hold position while lying flat either prone or supine. You'll use a quick out/in pattern near your hips in either case. The hand pitch will be essentially neutral, to prevent any propulsion forward or back and directly primarily downward to support your legs and head (if prone).
- Winging vs. finning – As mentioned in my article on backstroke, winging is the first stroke that any swimmer should learn. It's the easiest swimming stroke to learn, and can save your life, as long as you remain calm in deep water and can get yourself leveled off to begin winging & kicking. No breathing pattern is needed, only the ability to maintain a horizontal body position on your back.
  - Winging -is NOT sculling, because it uses paddle propulsion (action/reaction force) rather than lift to provide the propulsion. Winging and finning are very similar and often confused. Winging is a motion like a bird flapping its wings; elbows are in close and arms/hands are out to the sides pushing the water back. Your wrists are in a straight, neutral position when in the catch, and are flexed as they push toward your feet to push the water back forcefully. Winging and finning both have recoveries, whereas sculling has none. The recovery for winging is done by drawing your hands up your sides, kept in tight to avoid drag. At about the level of your waist, your elbows stay in tight as you extend your forearms and hands out to catch and push the water back. In both winging/kicking and finning/kicking the kick is a continuous flutter.
  - Finning – is more like the small lateral fins of a fish that push back on the water. It also uses primarily paddle propulsion. The motion is all close to the body, with the hands hyper-extending at the wrists during the power stroke; and the elbows coming outside the hands during the recovery. Drag is formed by the elbows and upper arms during recovery, but is probably less than the drag created in winging by the recovery of the forearms and hands. The finning motion is more awkward feeling than winging, due to the unnatural flexion of the wrist relative to the elbow- out position during the catch. Similar to winging, slide your hands up your sides to about your waist, hyper-extend your wrists to about 90° to catch and push straight back. Your hands remain very close to your body and your elbows are out a little to accommodate the hand position.

Both winging and finning have a definite finish with arms straight and at the sides. Both recover by sliding the hands up the sides of the body to about the waist, and then move into the catch position. Both have a continuous flutter kick and both are in the same nearly horizontal supine position.

Happy sculling!!

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