



# MASTER YOUR FREESTYLE

**THIS GUIDE IS FILLED WITH TECHNIQUE AND TRAINING  
TIPS TO HELP YOU IMPROVE YOUR FREESTYLE!**

We know swimming! Think of us as your expert resource. We'll give you the secrets you need to improve your technique, swim farther, and increase your cardiovascular fitness starting with one of the most common strokes, Freestyle. Master this one and you've got it made.

We recognize that you can't do this alone, which is why we're here to support you both in and out of the water. U.S. Masters Swimming has an abundance of online resources and member benefits that can help you achieve a wide variety of your swimming aspirations and goals.

## LET'S DIVE IN!



# 1 CONNECTING YOUR STROKE TO THE REST OF YOUR BODY



## **BREATHING:** Exhaling - The Hidden Secret to Swimming Farther and Faster

### **WHY BREATHING OUT IS JUST AS IMPORTANT AS BREATHING IN... THE CO<sub>2</sub> REFLEX**

Most people think that they feel out-of-breath when they aren't getting enough oxygen. The reality is a bit more complicated. As your body uses oxygen, it creates carbon dioxide (CO<sub>2</sub>) as a waste product.

As CO<sub>2</sub> builds up within you, your body senses it and tells your brain that you need to breathe. Your breathing urges are driven by excessive CO<sub>2</sub>, not by a lack of oxygen. Getting rid of the CO<sub>2</sub> helps relieve the out-of-breath distress.

Swimmers who don't exhale properly will quickly feel winded because of this reflex, even though they probably aren't really suffering oxygen debt. This is why many extremely fit triathletes may feel that they can only swim a few lengths of the pool before needing a long rest break - they're holding their breath.

### **TIPS**

Distance runners and cyclists would never dream of holding their breath during a competition, yet our instincts are to clamp up and stop breathing when our faces are in the water. To become an effective swimmer, we must fight this instinct.

Start blowing out as soon as you finish inhaling, and that you'll more effectively get the CO<sub>2</sub> out of your lungs before turning for the next breath.

Some people find it helpful to count "1, 2," or to silently think the words in and out to create the habit of rhythm. Experiment to find what works for you.

It's also important to blow at least some of the air out your nose to maximize the airflow and avoid getting water in your sinuses. This is especially critical when exhaling while you're upside down during a flip turn or on a backstroke start. Getting water up your nose is a memorably unpleasant experience.

Many experienced and elite swimmers are able to achieve full exhalation primarily through their noses. For less experienced swimmers, this takes practice—the important thing is to exhale completely so that you're ready to inhale during the breathing phase of the stroke.

# 1 CONNECTING YOUR STROKE TO THE REST OF YOUR BODY



## ALTERNATE BREATHING

Many coaches urge swimmers to breathe on every third arm instead of constantly breathing on the same side. This has two primary benefits:

- It makes your stroke more symmetrical and helps you recognize stroke anomalies.
- It makes it easier to switch breathing sides in a race, so you can see your competitors or avoid chaos in open water.

For an alternate-side breathing pattern, you'll have to slightly change your inhale/exhale timing ratio to an "out-out-in" count—but you should still keep air moving at all times.

Once you have mastered breathing every two strokes, then you can then move to trying out alternate or bilateral breathing

## BLOW AWAY PANIC AND KEEP YOUR SPEED

There are times when you'll feel especially out of breath, such as during the madness of a triathlon start, or coming off the wall from a flip turn. In those cases, rather than slowing down to rest, try blowing out a little harder to curtail the CO<sub>2</sub> reflex. You'll often find that you have more energy than you thought after you get rid of the "bad air."

## BREATHING WITH ECONOMY

It seems logical to assume that it's better to take as many strokes as possible between breaths to avoid any drag created by the breathing motion. Well, this might work for some sprinters, but after about 30 seconds of effort, your body switches to metabolic processes that require oxygen. If you want to maintain power past that point, you must breathe and develop a good inhale/exhale rhythm.

*About the Author: Terry Heggy has been swimming for more than 50 years. He won his age group in the 10K Open Water Championship in 2006, competed in the National Championship Olympic Distance Triathlon in 2014, and qualified again for USAT Nationals in 2015. The 2019 Jack Buchanan Service Award winner is the head coach of Team Sopris Masters in Glenwood Springs, Colo., a USMS-certified Level 3 Masters coach, and an NASM Certified Personal Trainer.*

# 1 CONNECTING YOUR STROKE TO THE REST OF YOUR BODY



## KICKING: Synchronizing Kick and Stroke

### FIND THE RIGHT RHYTHM FOR YOUR BODY

Many swimmers have found success by moving the hips and shoulders together as one piece, rather than rotating the shoulders and keeping the hips flat. Rotating just the upper torso while keeping the hips flat requires a lot of flexibility, and that becomes more difficult with age.

Most seasoned swimmers want to swim fast and efficiently, even if they don't have the training or physical capabilities to perform like the elite swimmers, and the secret might be in figuring out how much and when to kick.

Conventional wisdom in coaching has always meant a strong six-beat kick for fast freestyle. But a six-beat kick doesn't work for everyone. Below are some key drills and tips to help you figure out your ideal rhythm and frequency for kicking.

### DRILL NO. 1: ZERO TO SIX

This drill, which can be performed during a 200 or as a set of 4 x 50s. It will help you figure out how many kicks not only just feel right, but also help produce the fastest swims.

- **First 50:** Swim without kicking at all—pulling, but without a pull buoy.
- **Second 50:** Add a two-beat kick, which is usually one kick per arm stroke, and is opposing (when the right arm is stroking, the left leg is kicking).
- **Third 50:** Add two more kicks to your stroke cycle, so you're swimming with a four-beat kick. This usually means one kick when your hand enters and one during the propulsive phase (when you are pulling back) but see what feels best for you.
- **Fourth 50:** Swim with a full six-beat kick, three kicks per arm stroke.

Complete the drill several times, making sure to get adequate rest so you can properly evaluate your kick without worrying about excess fatigue. Which kick causes you not to wiggle, twist against yourself, or feel unbalanced? Which kick, a two-, four-, or six-beat kick feels the most natural to you?

# 1 CONNECTING YOUR STROKE TO THE REST OF YOUR BODY



## DRILL NO. 2: TOE-TAP SIX

This drill will help you figure out common body position problems. Go through the same drill as above, only this time, think about tapping your toes on the top of the water. This might help you adjust your body position and make your kick more propulsive.

## DON'T FORGET EVERYTHING ELSE

When concentrating on one skill or another, many swimmers will forget to breathe through the process. This makes for a difficult transition and can cause some swimmers to abandon trying. But don't give up! Here are a few things that might help:

- Use a snorkel—removing the motion of turning your head to breathe makes it easier to focus on the coordination between your arms and legs. Add the breathing back in when you've mastered your kick cycle.
- Concentrate on the movements and doing it right rather than doing it fast.
- Be patient with your progress. Learning a new movement takes time and will feel awkward.
- Keep your legs close together and loose. Wide kicking slows you down, even if it feels like you're moving a lot of water.

Whichever kick is right for you, finding it will make you more connected and efficient in the water, which will result in faster swimming.

*About the Author: Scott Bay is a USMS-certified Masters coach and an ASCA Level 5 coach and has been actively coaching and teaching swimming since 1986 to swimmers of all ages. The Masters swimmers he currently coaches include national champions, All Americans, and world record holders, who have swum to more than 300 Top 10 swims and 30 world records in just the past 5 years.*

# 1 CONNECTING YOUR STROKE TO THE REST OF YOUR BODY



## STROKE: Focus on Force

### APPLYING ARM ACCELERATION FOR MAXIMUM VELOCITY

Science defines swimming speed (S) as the result of propulsive force (F) multiplied by the turnover rate (R) minus the amount of drag (D). As a simple math equation, it looks like this:

$$S = FR - D$$

You want the value of S to be as large as possible, so you need to increase force and rate while decreasing drag.

Drag is the biggest factor in our equation, which explains why swimmers who are smooth and streamlined almost always outpace muscular brutes who flail away with fast cadences and flawed form.

### PROPERTIES OF PROPULSION

You apply propulsive force with movements of your arms and legs. Your hands and forearms work together as paddle assemblies that push backward through the water to generate thrust.

Breaststroke kick applies force in a similar way, while flutter and dolphin kick create thrust with up and down motions that force water backwards, more like a boat propeller would.

While a propeller can create thrust by cycling at a constant speed, paddles don't work that way. A paddle must continually accelerate to apply propulsive force.

The following example is a simplification of the actual physics, but it works well to help us visualize the process:

- Water is a fluid; when you push it, it moves.
- Once water is moving, anything moving in it at the same speed simply floats along, with no additional force created.
- Therefore, if you want to generate thrust throughout your entire stroke, you must move your paddle faster and faster as the water you're pushing speeds up. Your hand speed must remain greater than the speed of the water it's pushing, which means you must accelerate (i.e., continually increase your hand speed throughout the duration of your pull.)

# 1 CONNECTING YOUR STROKE TO THE REST OF YOUR BODY



In other words, an effective swimming arm stroke will not move at a constant rate like the second hand of an analog clock, or like the pedal of a bicycle. There are three distinct speed zones during a complete stroke revolution:

- The recovery and entry, which is a relaxed effort at a constant speed.
- The catch, which is a brief interlude without movement as you establish your position to begin the pull.
- The power phase, which is where your hand and forearm explosively accelerate from the catch position throughout the pull to the beginning of the recovery.

## TURNOVER TRADEOFFS

At first glance, our speed equation implies that the fastest possible stroke cadence would always result in the quickest swim. If force and drag remained constant at all turnover rates, this would be true – but the fact is that speeding up your arm stroke can cause a reduction in force and an increase in drag. Pitfalls of overclocking the cadence include:

- Sloppy hand entry that creates turbulence (bubbles) during the catch, resulting in thrust reduction during the pull
- Alterations in body position and alignment from angular momentum created during the recovery, resulting in additional drag from distorted posture
- Pulling-motion form failure because of the muscles' inability to hold proper paddle configuration at the higher speed.

You want to find that optimal cadence where you can achieve the highest stroke rate while maintaining your best form and force production.

## ENHANCING THE EQUATION

When you're tired or in the middle of a long distance set, it's easy to fall into the "clock movement" turnover trap; you go through the stroke motion at a constant rate with very little force applied on the back half of the pull.



# 1 CONNECTING YOUR STROKE TO THE REST OF YOUR BODY



That's why it's important to regularly perform specific activities to establish the recovery-catch-acceleration speed zones as deeply-ingrained habits.



*About the Author: Terry Heggy has been swimming for more than 50 years. He won his age group in the 10K Open Water Championship in 2006, competed in the National Championship Olympic Distance Triathlon in 2014, and qualified again for USAT Nationals in 2015. The 2019 Jack Buchanan Service Award winner is the head coach of Team Sopris Masters in Glenwood Springs, Colo., a USMS-certified Level 3 Masters coach, and an NASM Certified Personal Trainer.*



## KICK TIMING 101

### DISCOVER UNTAPPED POWER IN AN OFTEN-OVERLOOKED ASPECT OF FREESTYLE

Kick timing is an important but often-overlooked aspect of freestyle. But when a swimmers find the right kick pattern, they can tap into previously unavailable core power to push themselves forward.

### COUNTING TWO-, FOUR, AND SIX-BEAT KICKING PATTERNS

Regardless of whether a swimmer prefers to use a two-, four-, or six-beat kick, one downward kick should always be timed with the recovery of the opposite arm as it slices in to forward extension. This will aid both rotation and help the swimmer drive his momentum forward.

- **Six-beat kick:** You can think of this common kick pattern as being similar to the timing of a waltz: Count “One-two-three—one-two-three” or “Right-two-three—left-two-three” and so on. In short, your swimmer should complete six kicks per stroke cycle or three kicks per single arm stroke. The first kick is down, timed with the opposite recovery arm spearing to forward extension.

So, in this pattern, the right leg kicks down (one) and rotates the torso to the left skating edge, which is followed by a downward kick on the left side (two). The third beat comes with the right leg kicking down (three), then the left leg kicks down (one).

Next, the torso rotates to the right skating edge, which is followed by another downward right kick (two) and finally a downward left kick (three). That’s one complete six-beat kick cycle.

- **Four-beat kick:** The four-beat kick pattern has the same timing as the six-beat kick but uses two fewer kicks. But unlike its six-beat counterpart, the four-beat kick is asymmetrical, with three kicks on one side and one kick on the other side making a total of four kicks per stroke cycle.

This pattern would sound like, “One-two-three-one—One-two-three-one.” The first kick aids rotation. As the right leg kicks downward (one), the torso rotates to the left skating edge, which is then followed by a left kick downward (two) and another right kick down (three). Finally, the cycle completes when the swimmer kicks the left leg downward again on the count one, rotates torso to the right skating edge. That’s one complete four-beat kick cycle.

## 2 FOCUS ON THE KICK! KICK! KICK!



- Two-beat kick: The two-beat kick also mimics the timing of the six-beat kick pattern, just with four fewer kicks. As with the six-beat kick pattern, the two-beat kick is symmetrical, but the swimmer takes only a single kick per arm stroke or two kicks per stroke cycle. This is the most economical kick and it's most similar to walking or running on land. However, this kick pattern requires the most balance of the three patterns since there are no stabilizing kicks between rotational kicks.

The two-beat kick is often used for long distance events. The four- and six-beat kick can be used for virtually any distance.

Elite swimmers sometimes change up their kick patterns, depending on the event they're swimming. Michael Phelps and Sun Yang use mostly a four-beat kick in their events. Sun Yang also changes his pattern depending on his breathing pattern; he mixes in a two-beat kick when he's breathing on threes, a four-beat kick when breathing on twos, and finishes the last 100 meters of his 1500-meter freestyle with a six-beat kick.

The choice of which kick to use is personal and swimmers may stick with one pattern or prefer come combination. The key is finding what works best for each individual swimmer and what is sustainable for whatever distance they're swimming.

Most importantly, the kick is timed with the opposite arm, which aids body rotation and engages the large muscle groups of the core. If you want to swim from your core and get the most power, start by refining your kick timing first.

*About the Author: Stuart McDougal: A USMS Level 3 coach and Total Immersion Master coach, Stuart McDougal is the head swim coach of SoCal Tri Masters and LA Tri Club in Los Angeles and co-founder of Mind Body and Swim Inc. in San Francisco.*

## FULL - LEG KICKING

### THINK YOU'RE A BAD KICKER? MAYBE YOU'RE DOING IT WRONG.

Ask yourself: "Am I a bad kicker?" Do kick sets exhaust you? Don't despair: You can fix this problem. Kicking is a skill and you'll likely notice that good kickers always:

- Kick from the hip.
- Keep the legs long and loose, almost as if the power comes from the core and the leg finishes it.
- Kick symmetrically (up and down).

### LEARN THIS MAGIC

Long-leg kicking is the key. When you kick with a long leg, the power comes from the core and is driven by the hip. You'll know you're doing it right when you feel the effort in the tops of your thighs, glutes, lower abs, and lower back. When working on your kick, remember that good kicking always:

- **Comes from the hip and uses the core.** If you're working on this and feel your hips rock a little, that's a good thing! Drive or initiate the kick with the hips and let the legs finish it. Try it slowly at first!
- **Keep the legs long and loose.** Many of us were told to point our toes as kids. This makes the leg very stiff and mechanical and is not very efficient. Instead, think of curling your toes as if trying to pick up a penny off the deck with your toes. This will put your foot in the proper position without making the leg rigid and allowing the knee and ankle joints to remain loose.
- **Keep your kick symmetrical.** You can do this very well while kicking under water. When you kick under water or even on your back, you have to put pressure on the bottom of your feet as well as the tops. Focus on feeling pressure on the bottom and the top of the feet.



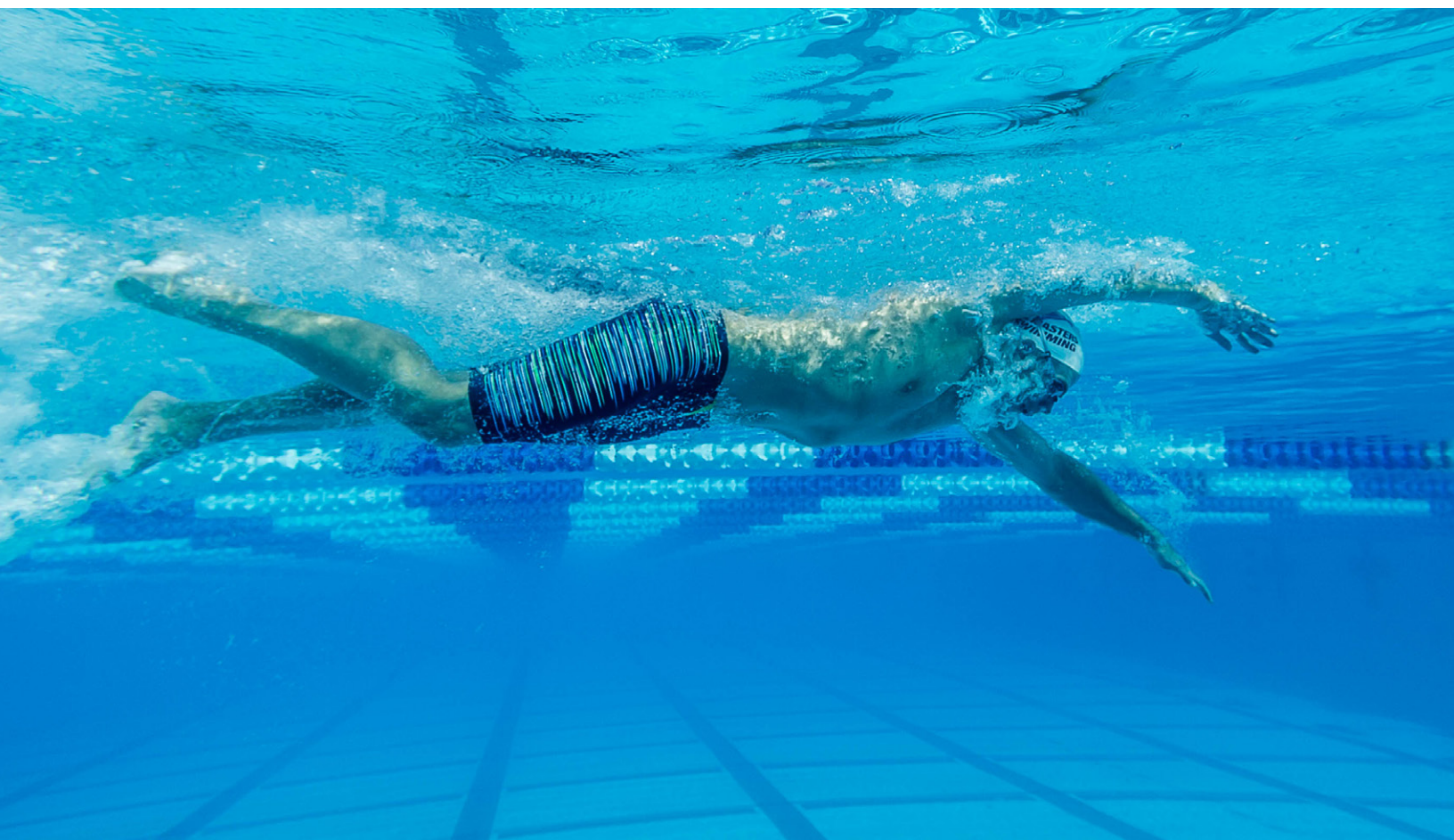
## 2 FOCUS ON THE KICK! KICK! KICK!



### **PRACTICE, PRACTICE, PRACTICE**

It's a great idea to practice kicking by yourself first, without the pressure of a set or clock. Don't worry about the time or the velocity but rather how it feels. Experiment with how wide your kick should be. A good way to start is with fins.

You'll need to be mindful of where you feel the effort. Being a good kicker alone is not the key to faster swimming, but it's an important component alongside catching, pulling, and body position. Keep working at it and you'll likely see some improvement, at the very least during those kicking sets you used to hate to do.



*About the Author: Scott Bay is a USMS-certified Masters coach and an ASCA Level 5 coach and has been actively coaching and teaching swimming since 1986 to swimmers of all ages. The Masters swimmers he currently coaches include national champions, All Americans, and world record holders, who have swum to more than 300 Top 10 swims and 30 world records in just the past 5 years.*

## FIVE DRILLS TO IMPROVE YOUR FEEL FOR THE WATER AND BODY BALANCED

### TRY PUTTING YOURSELF IN DIFFERENT SITUATIONS TO DEVELOP THESE TWO KEY AREAS OF SWIMMING

There's one thing that no coach can teach but is talked about all the time: a swimmer's feel for the water. You know it when we see it, but it's almost impossible to explain and even harder to teach.

Feel cannot be described, and it cannot be coached through words. The closest thing a coach can do is to put a swimmer in different situations to try and experience it firsthand. It may take multiple attempts to get this (and not everyone will develop a good feel), but when it clicks the change is immediate and powerful.

Here are five drills you can do to train your body to better feel the water. Most of them will feel extremely awkward, which is exactly the point. With feel comes another important element of swimming fast: balance. You want your right side moving in the exact same manner as your left (as long as the technique is correct). Experienced swimmers can feel when they're not balanced in the water.

### ALTERNATE BREATHING PATTERNS

This drill is especially effective if you only breathe to one side on freestyle.

Do a few 25s freestyle breathing to your non-dominant side. If you breathe every three strokes, try every two or four. Mix it up, and see where the imbalance lies.

You can also do a false breath—roll to your non-dominant side as if you were about to take a breath, but do not take your face out of the water for air. You'll gain the benefit of a more balanced body roll without throwing off your rhythm or tempo.

### OK DRILL

Make an "OK" sign with your thumb and pointer finger around a plastic golf ball with holes (golf training ball). When you initiate your pull with your other three fingers, be certain that they're pointing toward the bottom of the pool. Start with the ball in your non-dominant hand and then switch after a few 25s. Focus on how the water feels on those three fingers. If you're pulling correctly, you should feel a connectivity from your fingers to the tendons in your forearms to the muscles around your shoulder blades.

# 3 DRILL. REPEAT. DRILL. REPEAT.



## ONE FIN AND ONE PADDLE

You can do this drill at a faster pace to mimic conditions you'd feel on race day.

Start with one paddle and both fins. When you improve your ability to feel the water, take off the fin that's on the same side of your body that you have a paddle on (swim with a left paddle and right fin or right paddle and left fin). The propulsion from the downward phase of the kick with your finned foot (especially if it's your dominant leg) will help you gain awareness of how your hand is entering with the paddle on your non-dominant side. Alternate which hand you have a paddle on and perform this drill again.

## OPPOSITE-FOOT TRACK STARTS

With permission and supervision from a coach or lifeguard, step up on the blocks to work on your starts, but switch the position of your feet. If you normally have your left foot forward and your right foot back, switch them and try the start in this reverse manner. (Be careful not to lose your balance.) You'll feel the difference immediately. Everything from going down to grab the block to the legs pushing off the block to how you enter the water and get into streamlined position will feel drastically different. We often think in terms of being right- or left-handed, but we for sure have right- or left-leg dominance as well. Be aware of this not only on the block but when pushing off the walls for turns and in kicking.

## SWIMMING WITH DRAG SHORTS

Find an old pair of nylon soccer shorts and put them on for a few 50s after warm-up. The shorts will get you to feel drag in a much more pronounced manner. We wear tech suits to reduce how much drag we experience when racing, but feeling drag can be a very effective training tool in practice.

## FINAL THOUGHT

When doing these drills, try to feel the imbalance in your body, make mental notes, and do your best to correct. Whenever possible, have someone film you. This will always make analysis much easier. If a picture says a thousand words, then a video says much more.

*About the Author: Matt Donovan started his coaching career at a summer league pool in Connecticut in 1995. Since that time, he has coached on every level and is currently the head coach of Long Island University in Brooklyn, a Division I women's team in the Northeast Conference. He also is a Masters coach at Asphalt Green in Manhattan, N.Y. and a Level 4 coach with American Swim Coaches Association.*



## FLIP TURN FUNDAMENTALS

### DON'T TWIST, WAGGLE, OR WAVE WHEN YOU'RE DOING A FLIP TURN

If you spent a lot of time in a pool as a kid, you might have done flips or somersaults while playing around. You might have been taught to twist yourself or use your arms to help you do a flip turn at the wall, or picked that up on your own. But those extra movements—the twisting, wagging, and waving—make you wider in the water and, therefore, slower.

That's not good if you want fast flip turns. Swimming fast means making sure you don't waste any energy on movements that don't help you swim faster. Extra movements are just a waste of energy. And after all that twisting, wagging, and waving, you must spend more time and energy getting your body and all its parts back in line for a good streamline off the wall. That's a double whammy: wasted energy and wasted time.

But have no fear; the four fundamentals of a great flip turn are here.

### STEP ONE: GET READY

Take your last freestyle stroke above or slightly after the "T" on the bottom of the pool at the end of your lane. Everyone is different on backstroke, but it's usually three or four strokes from the flags before you turn over and pull yourself forward.

### STEP TWO: HANDS TO HIPS

As you take your last stroke, one hand is already at your hip and the other is pulling you toward the wall. As that stroking hand reaches your hip, tuck your chin to your chest and reach down for your toes with both hands like you're doing a toe touch.

### STEP THREE: FLIP THE FEET

Before you touch your toes, flip your feet over the water toward the wall. Use your core muscles, which are much larger than other muscles, to help you do so quickly. Some swimmers throw in a little dolphin kick just before the flip to help the process go faster. Make sure your knees are slightly bent, so you can absorb the momentum once your feet hit the wall. Look for the tops of your thighs to help keep your head tucked. While flipping, avoid the temptation to twist to get on your side or stomach before you push off.

Your hands stay in about the same place in the water and should be over your head once your feet land on the wall. You shouldn't move them to the side or make any circles or other time or energy wasting movements. Remember: use your more powerful core muscles to flip around, not your arms.

# BONUS FLIP TURNS



## STEP FOUR: GET OFF THE WALL

You've probably noticed by this point that you're on your back, staring at the surface of the water. This is great if you're swimming backstroke, but it's also great if you're doing freestyle. Push off strong while making yourself as narrow as possible with a tight streamline. Rotate onto your stomach while kicking underwater—the movement of your feet will aid rotation.

With the basics of a proper flip turn in mind, here are two drills to help you do perfect, fast flip turns without any twisting, wagging, or waving.

## DRILL ONE: USE YOUR NOODLE

If you're worried about hitting your heels, a good drill is to get in the middle of the pool with a noodle. Lie facedown in the water with both hands holding the noodle in front of you above your head. Pull the noodle under the water and down to the hips and proceed to tuck your chin, reach for your toes, and throw your feet over the water. If done correctly, you end up lying flat on the water on your back, holding a noodle above (or behind, since you're flat) your head. The same drill can be done with a kickboard in each hand.

Variations of this are using the lane line in the same way, though many pool operators and lifeguards may cringe at this, or the water aerobics dumbbells in place of the noodle. When you are comfortable, ditch the equipment and try it for real at the wall.

## DRILL TWO: START FROM A FLIP TURN

Some people might find it unnerving to be face up under the water. Aside from getting water up your nose, which you can fix by exhaling or using a nose clip, it's a little disorienting because the ceiling or sky are your only visual references. You can get used to being face up under the water by pushing off the wall on every send-off from the head-up, knees-up, toes-up position.

Hold the wall or gutter with one hand and put your feet on the wall, making sure your toes and knees are pointed toward the surface. Your head is up as well and facing the wall with your other hand in the water. Let go of the wall and bring the wall hand over your head to meet the other under the water as you sink. Once you are underwater, you will be facing the surface with your head up, knees up, and toes up, just as you would be in the middle of a flip turn. Push off in a streamline. If you do this at every send-off, you get used to the position and develop a great ability to rotate onto your stomach off the wall rather than while on it.

*About the Author: Scott Bay is a USMS-certified Masters coach and an ASCA Level 5 coach and has been actively coaching and teaching swimming since 1986 to swimmers of all ages. The Masters swimmers he currently coaches include national champions, All Americans, and world record holders, who have swum to more than 300 Top 10 swims and 30 world records in just the past 5 years.*





*USMS Can Provide Technique and Tips for ...*



Stroke



Breathing



Kick

**JUMP IN TODAY**

U.S. Masters Swimming encourages adults to enjoy the health, fitness, and social benefits of swimming by providing more than 2,000 adult swimming programs and events across the country, including open water and pool competitions. USMS's 60,000-plus members range from age 18 to 99 and include swimmers of all ability levels. USMS, a nonprofit, also trains and certifies coaches, a bimonthly member magazine, monthly newsletters, and technique articles and videos at [usms.org](https://usms.org).

