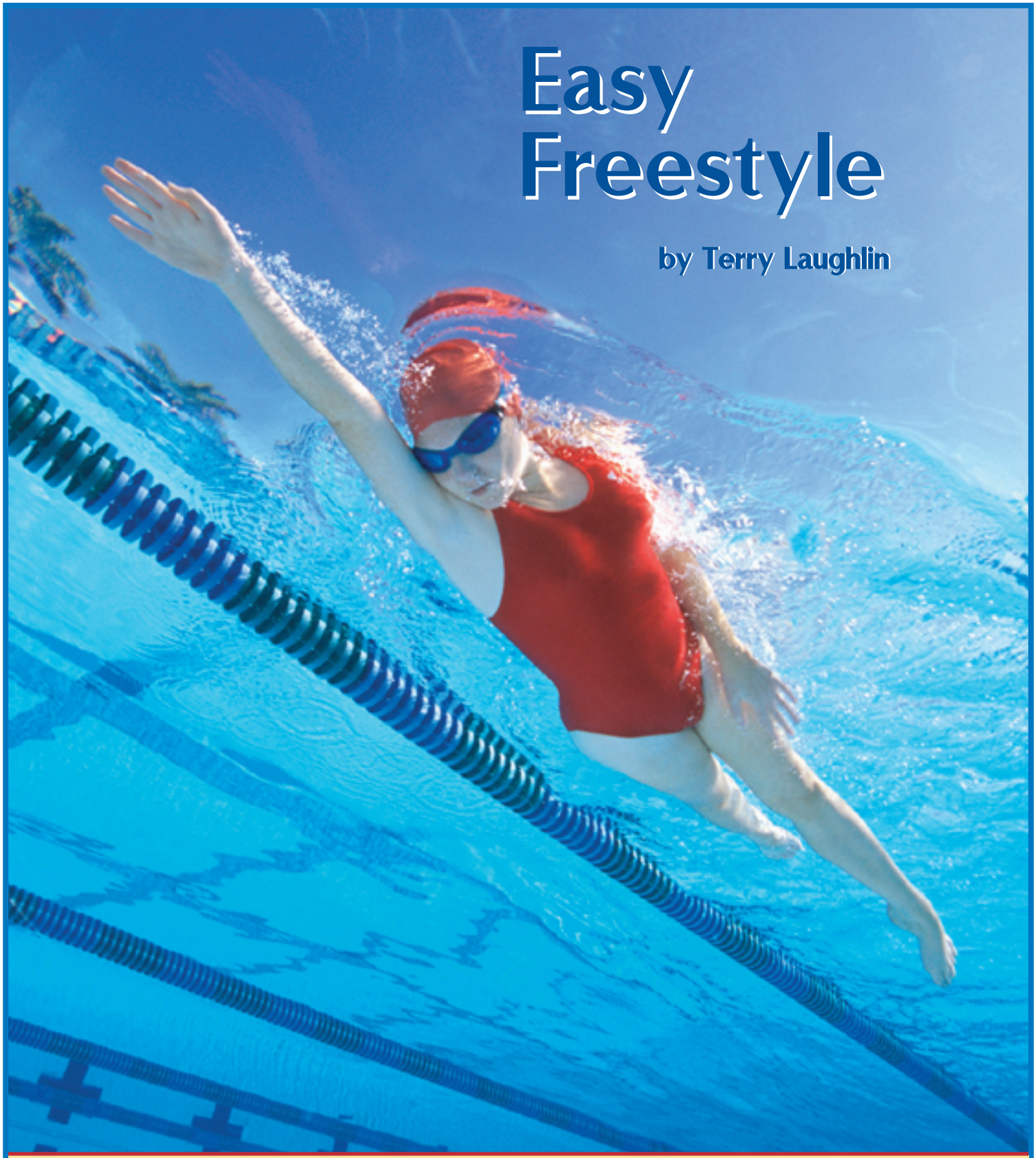

Easy Freestyle

by Terry Laughlin

A Total Immersion Instructional Manual

SWIMMING YOU LOVE

Total Immersion literally means "to go beneath the surface." Its other literal meaning is "to do with complete engagement." In swimming, as in any endeavor, total immersion is a prescription for loving what you do. Easy Free is nominally intended to improve your Freestyle technique, but the true intention of every TI book or video is to help you discover a passion for swimming.

When you practice total immersion, you'll swim with a sense of purpose, commitment and optimism that virtually guarantee your success in achieving any goal. You'll enjoy every minute, experience "epiphanies" regularly, and eagerly anticipate each practice. Experiences like those will result almost inevitably in continuous improvement. That's Kaizen Swimming.

What keeps many from experiencing passion for swimming is a combination of frustration or boredom. Frustration, if swimming is difficult to master or understand. Boredom, if: (1) You feel there's little to stimulate – or even distract – you while your face is in the water; or (2) You've reached the state of "Terminal Mediocrity: No matter how much I swim, I never improve."

Easy Free will help you love swimming by:

1) Providing clear and explicit priorities for improvement: saving energy and reducing drag.

2) Illustrating and explaining a learning sequence in which every step (a) contributes in specific ways to saving energy and reducing drag, and (b) prepares you for the next step while teaching a skill that will be essential in the whole stroke.

3) Leaves no stone unturned in providing you with the tools for understanding and action that will allow you to coach yourself – and even friends and family – effectively. As we promise, Easy Free will be the next best thing to having a lesson with a trained TI coach.

Easy Free is designed for:

New Swimmers because the first step requires nothing more complicated than floating and the progressions from one "mini-skill" to the next are clearly outlined and highly achievable. Master each step at your own pace and build from the simplest movements to a full stroke of rare fluidity, ease and grace.

Experienced Swimmers because no matter how long you've been swimming, it's likely your prior coaching or practice has not given sufficient attention to energy savings, drag reduction and integrated movement. If you've become stuck on a plateau in improvement or enjoyment, Easy Free will uncover a broad range of unexplored possibility for greater understanding, efficiency, endurance and speed. It will also help you enjoy swimming more.

Fitness Swimmers because the efficient, fluent, whole-body movements taught at each step of this learning sequence are best for your body and will also allow you to swim longer and farther without fatigue. As well, the improvements and enjoyment it will bring will increase your motivation to enjoy healthful swimming more often.

Competitive Swimmers because the primary impediment to swimming as far and as fast as you would like is drag and energy waste. Easy Free is the first freestyle-improvement program to give its primary attention to minimizing drag and saving energy.

Coaches and Teachers because the progressions illustrated in this DVD will give you a broad range of new skills and fine points to teach your athletes and students. As well, the graphic enhancements we've included, and right/wrong comparison video will help you identify and correct the most common errors and inefficiencies.

Gain Speed and Endurance by Saving Energy

Three Percent. That's how much energy and "horsepower" the average human swimmer converts into forward motion. In other words, 97% of our energy gets diverted into something other than propulsion. (For comparison, elite swimmers are just 10% efficient – that's right, even Michael Phelps wastes 90% – whereas dolphins are 80% energy efficient.) This eye-opening intelligence comes from a group of engineers and physicists who made these calculations while designing a swim foil for the Navy Seals. (Read the entire article here. http://www.popularmechanics.com/technology/military_law/4223354.html)

If you ordered the *Easy Freestyle* DVD in hopes of swimming farther or faster, your most valuable takeaway will be increased awareness that the opportunity to gain speed and endurance by saving energy is far greater than what you might gain by getting fitter or stronger. And if your goal is to enjoy swimming more, I guarantee that improving from, say, 3 percent to 4 percent efficiency will not only give you a 33% energy increase; it will also likely make you feel 33% better in the water. How you feel and how you swim are closely related. Whatever increases your comfort is likely to help improve your speed and endurance.

The stroke-improvement program on this DVD is the first to give primary emphasis to becoming an energy-conscious swimmer. While the drills illustrated here will also improve your pull, kick and breathing, the goal of saving energy will be foremost at every step. Within your first hour of practice, you should be well on your way to reinvention as an energy-conscious swimmer.

Why We Waste Energy

If you've felt frustrated by swimming, you have lots of company. Humans are "hard-wired" to swim inefficiently and virtually all of us work too hard to swim too slowly. I call this the Universal Human-Swimming Problem. Here are four reasons why Human Swimming is so inefficient:

1. You think you're sinking.

Well, you are…and should be! Based on normal body composition, the human body's natural position is 95% underwater – i.e. only 5% will be at the surface. The only part of your body that floats well is your lungs; everything below your sternum has a specific gravity that makes sinking natural. As gravity drags your hips down, buoyancy pushes your chest up. You're not really sinking (except for a few highly muscular and heavy-boned individuals); you're just swimming "uphill." Nonetheless, because you think you're sinking (and your body's internal gyroscope senses imbalance) survival instinct kicks in and you do whatever it takes to stay afloat. The "survival" strokes that result are both ineffective and exhausting.

Through years of dogged effort, some swimmers learn to cover greater distances, while still wasting 95% or more of the energy they expend. But with each inefficient stroke, "struggling skills" are being ever more deeply imprinted in muscle memory.

2. Water is a wall.

Water is almost a thousand times denser than air. Now think about how "thick" air feels when you hold your arm out a car window. That will give you a sense of how powerful drag can be at even slow speeds in the water. To understand better, try walking – or better yet running – in the pool.

The best example of drag-minimizing design is a fuselage. Cars built to break land speed records, bullet trains, jet fighters, torpedos, and even rowing shells all share the same shape, tapered in front and back with a streamlined body. So do fish. The human body is nothing like these and therein lies the prime reason we tire too easily and swim too slowly.

In a fuselage, the pointed tip gradually separates air or water molecules so they move smoothly as the thicker part comes through. When the leading edge is blunt, or the body unstreamlined, the molecules move crazily. The result is waves, turbulence and momentum-sapping eddies. You can dramatically reduce wave-making and turbulence by rethinking and reshaping your swimming body. When you do, you'll swim farther and faster, with no more effort. And possibly even less effort.

3. Water is hard to hold.

Though water may stubbornly resist you when you try to move through it, unless you stroke with care, it often just swirls away when you try to push it backward while stroking. As well, your hand is tiny compared to the body mass it's trying to propel. Even when you do it perfectly, pushing water back is a terribly inefficient form of propulsion – which is why propeller-driven boats run circles around those propelled by a paddlewheel.

When you combine the challenges of a sinking, unstable body, high drag and poor traction, swimming is like trying to pedal a bicycle uphill on an icy street. Traditional swimming techniques reinforce all those inefficient tendencies by having you kick the water into a froth, windmill your arms, and swim endless grueling intervals to immunize yourself from the fatigue that inevitably results. Techniques that emphasize pulling and kicking can never be effective in a medium that's both highly resistant and offers little traction. And by ignoring your imbalance and instability, conditioning laps simply deepen your "struggling skills."

Becoming an Energy-Conscious Swimmer

You must learn ease before focusing on speed or endurance. When there's so much energy waste, there's nearly limitless opportunity to improve through saving energy. But no one takes this approach naturally because each energy-saving strategy is counter-intuitive. You have to realize they're advantageous, then make a conscious decision to practice them with patience until they replace your instincts for harder work. Becoming aware is the first step. Here are the energy-conscious principles you'll learn on Easy Freestyle:

1. Cooperate with Gravity.

It's normal for us to think of sinking as bad, even dangerous, and we've often been told we should swim on top of the water. But, as I mentioned earlier, our inherent "specific gravity" leaves 95 percent of our mass submerged. So we swim through the water, not over it. Moreover, gravity is an inexorable force; does it make more sense to fight it, or use it?

For new TI swimmers, the moment they first feel a reassuring sense of support from the water is almost life-changing. It transforms what has often been a harrowing experience into a hopeful sense of comfort – even possibility. While balance is the essential foundation of efficiency, learning to relax into the water is equally important. It breaks the survival-stroking cycle, and frees your arms and legs for productive use.

To use gravity, let your head and chest sink, until you feel your lower half becoming more buoyant. Sinking into balance gives you an advantage – there's less drag just below the surface than right at it.

If you'd like a scientific reason for relaxing, consider this: tension increases your sinking tendencies two ways, (1) when you're tense, you tend to breathe fast and shallow. This reduces the air in your lungs, which is a tangible buoyancy aid. And (2) tense muscles inhibit oxygen flow, reducing an intangible buoyancy aid. The ability to "swim relaxed" goes a long way toward explaining why athletically-lean world class swimmers have great body position, achieved with virtually no effort. You'll learn to Cooperate with Gravity in Lessons 1 and 2 and reinforce in Lessons 3 and 4.

2. Take the Path of Least Resistance.

The study that showed humans are only 3 percent efficient and dolphins are 80% efficient also revealed another surprising statistic: dolphins use only one-eighth of the "horsepower" physics predicts it should take to swim at their usual speeds. This is because they're naturally designed for "active streamlining." The best human swimmers seem to do something very similar. In 1992, USA Swimming researchers Jane Cappaert and John Troup found that elite swimmers at the Olympics generated no more stroking power than average swimmers. Cappaert and Troup concluded that their superior speed resulted from "better whole-body streamlining."

Mindful that water is nearly 1000 times denser than air – and that you must swim through it – it's only logical to focus far more on how well you streamline than how powerfully you pull. Do this in freestyle by visualizing your swimming-body differently. In the traditional view your body has an upper half that pulls and a lower half that kicks. Instead, think of your body being divided down the middle, with each side shaped to cut through the water like a torpedo. Your freestyle stroke becomes a right-side-streamline alternated with a left-side-streamline.

To swim this way, visualize parallel tracks extending forward of each shoulder. Spear your arm forward along that track, separating water molecules as it goes. Then align your torso and legs to follow it through the "channel" it creates. Then do the same with the other side. In energy-conscious swimming, you shift your focus from "pushing on the water molecules behind you" to separating those in front of you. You'll learn Active Streamlining in Lessons 1 and 2 and reinforce it in Lessons 3 and 4.

3. Swim with your body.

As I mentioned above, traditional thinking views the body as having an "arms department" that pulls you forward and a "legs department" that pushes you forward. This view turns the torso into so much baggage that you drag through the water by pulling and kicking. That's why people train with buoys and kickboards to strengthen the arms and legs, often leaving torso muscles out as they do.

In energy-conscious freestyle, you swim with your body, instead of your arms and legs. As you send your right arm down its track and align the right side of your body to follow it, your left side will roll above the surface. This not only makes your bodyline longer and sleeker, it also positions your body mass to take advantage of gravity. As your recovering left arm moves forward of your lungs, gravity takes over and causes the left side

of your body to fall. All you need to do is use a forward-spearing arm to channel the force of gravity, producing a powerful movement that uses remarkably little energy. Harnessing that free energy creates what we call Perpetual Motion Propulsion. Naturally, there's a lot more to it, and many foundational skills to master to do it effectively but first you need to be thinking differently – about separating water molecules and drawing power from the body's "high side" rather than pulling and kicking. You'll learn to Swim With your Body in Lessons 3 and 4.

4. Don't move a muscle unnecessarily.

When you waste energy as extravagantly as human swimmers do, it makes sense to become nearly obsessive about finding ways to save energy. One of the most overlooked is avoiding unnecessary muscle activation. Any time a muscle is in contraction, it's burning energy. Never turn on a muscle unnecessarily. Never move a muscle without a clear benefit. Identifying unnecessary or counterproductive muscle tension should be one of your prime strategies for improving your endurance. I'll catalogue a few examples, working from front to back:

• **Relax your hands.** Nearly everyone instinctively stiffens the hand while stroking, yet that tires your wrist and forearm and can even cause tension in shoulders, neck and back. And a stiff hand doesn't hold water any better than a relaxed one. Even worse, a stiff hand tends to scoop up as it extends to catch, causing the legs to drop and increasing drag. A relaxed hand drops naturally into the optimal catch position (i.e. fingers down and palm back) and usually causes the legs to lift, decreasing drag. You'll imprint this in Lesson 2 and reinforce it in every lesson that follows.

• **Release your head.** It takes muscle to hold your head up. It even takes muscle to push it down. Releasing your head's weight, allowing it to be supported by the water, takes no work or muscle. Even better, it will improve your balance and streamlining. You'll imprint this in Lessons 1 and 2 and reinforce it often in subsequent lessons.

• **Patient Hand.** When you stroke prematurely, you rely on smaller, easily fatigued arm muscles. You also increase the chances of slipping water (like "spinning your wheels"), meaning your work is wasted. But a Patient Hand on catch allows you to firmly anchor your hand and allows time for a weight shift, rather than arm muscles, to provide the power for propulsion. You'll imprint this in Lessons 3, 4 and 5.

• **Marionette Arm.** Your arm muscles need to be engaged to hold water. Those same muscles need to be completely relaxed during recovery. Relaxing them not only prevents arm fatigue, it also helps avoid diverting energy sideways on the recovery and entry. You'll imprint this in Lessons 4 and 5.

• **Tune your kick.** Many new swimmers – and all who are not comfortable and balanced – have a habit I call "busy legs." The legs churn ceaselessly, causing turbulence and momentum-sapping eddies, and interfering with natural stroke rhythm. And because leg muscles are the largest in the body, they also burn huge amounts of energy. You'll break the "busy legs" habit in Lesson 1, learn to focus on streamlining your legs, rather than churning them in Lesson 2, and learn to "tune" your kick to core-body movement in Lessons 3 and 4.

5. Channel energy forward.

Poor balance – legs dropping below your upper body – increases drag. Instability – having the body wobble or move sideways also causes drag and diverts scarce energy in the wrong direction. Since your objective is to move forward, any motion – of head, arms or legs - that causes your body to move sideways is an energy waster. The most frequent cause of such diversion is arm movement – at any time in the stroke cycle – that goes away from or across the bodyline rather then directly forward or back. You'll imprint awareness of

tracks, to direct arm movements along your line of travel, in Lessons 1, 2, 3 and 4. And you'll train yourself to recover your arms along the same lines in Lessons 4 and 5.

Three Rules for Energy-Conscious Swimming

1) Saving energy is how you will swim farther (more endurance). Saving energy is how you will swim faster (more speed). Kaizen (Continuous Improvement) Swimmers focus first on saving energy.

2) 99.9 percent of the time, *excess* drag is the reason you're getting tired too fast or moving too slow – whether Skating, Switching or Swimming. Find ways to avoid drag and you'll Skate, Switch or Swim faster and easier.

3) When you do focus on propulsion, always focus first on the *easiest* way to create it. Do less, use lighter arm pressure (and more core power) and smoother, *quieter* movements.

LESSON ONE: WEIGHTLESS IN THE WATER - COOPERATE WITH GRAVITY

These four exercises are intended to eliminate the most obvious sources of wasted energy and movement – survival-stroking in reaction to the sinking sensation and a poorly streamlined bodyline. Instead of fighting gravity – trying to stay on top of the water – you *work with* gravity to find your natural equilibrium. When you feel the water's support, you gain the ability to: (1) calmly examine and improve your balance and alignment and (2) *make mindful choices* about head, arm, and hand position, shoulder rotation, and stroke/switch timing.

1.1 Superman Glide

Push off bottom or side and glide as far as you can without kicking – even if legs sink. Stand when you lose momentum or need to breathe.

Focus on:

- Relax or release your head.
- Extended arms on shoulder-width "tracks." *You will use these tracks as a guide for arm position in Skating, all Switch drills and whole stroke.*
- Extend legs to minimize drag.
- In a shallow pool, see how few pushoffs and no-kick Superman Glides it takes to cross it by *relaxing into support and minimizing water resistance.*

1.2 Superman Flutter

Glide a few yards, then begin kicking *just enough* to maintain a lazy, unhurried glide. Stand when you need a breath.

Focus on:

- Glide with awareness of streamlined legs, then begin kick as an "active streamline."
- Keep legs inside the "space" occupied by your torso; avoid noise and splash.

- Kick from core, not thighs.
- Minimize water resistance and turbulence.

1.3 Laser Lead Flutter

From Superman Flutter, pull both arms back and continue kicking gently until you need a breath.

Focus on:

- *Release* your head until you feel the water support it. Then focus on your *laser beam*. It should always point where you're going.
- Experimentally raise your laser to feel how balance is affected. Then release your head and feel easy balance return. *This is the same head position you will use in all subsequent drills and whole stroke.*
- Feel as if you're being towed by a line at your head – as if suspended from a skyhook, and that gravity is lengthening your head-spine line.
- Speed is completely unimportant. Easy movement through drag-avoidance is your priority.

1.4 CORE BALANCE: Rotate *Just Enough*

Push off as above. As you pull back, drop a shoulder toward your chin – keeping your head stable. Rotate *just enough* for your shoulder to clear the surface. Maintain this position, kicking gently, until you need a breath.

Focus On:

- Rotate to one side on one rep, to the other on the next. Practice this way until you consistently rotate *just enough* for your shoulder to clear the surface.
- To sense too much rotation, roll to a "stacked shoulders" position. Then return to *just-enough* rotation.
- The just-enough-rotation position may not be easy to hold. You'll need to use core muscle to remain stable at that degree of rotation. *This is the same rotation you will use in all subsequent drills and whole stroke.*
- When *just-enough*-rotation requires little energy to maintain, add breathing, as illustrated in the video. Bubble lightly from your nose between breaths.
- Practice until your breathing is unhurried and relaxed – even lazy – to both sides. Your goal isn't just to get air, but to minimize turbulence as you rotate up and down.

Lesson One Practice Tips

Long term, you won't devote many hours to practicing these four drills and virtually all that practice will be for short stretches – say 10 yards or less. In that sense, these are exercises more than drills. In the short term, these exercises can be extremely valuable for teaching you to feel effortless support from the water. Once you feel that *doing nothing* is an option, you can be choosy about when and how you *do something*. This shift in your relationship to the water will enormously benefit every other drill and the whole stroke.

1) Separate the task of *breathing* from that of *relaxing*. Breathing is important but you'll breathe better when you feel in control of body position.

2) Until you include breathing in the Core Balance exercise, practice for short stretches, standing to catch a breath. When you feel a strong sense of body control in this position, include regular breathing cycles.

3) During your first three to five hours practicing the TI drills, begin each practice with a few minutes of Superman Glides and Flutters.

4) *Do* practice some short whole-stroke repeats after imprinting the sense of easy support in Superman Flutter (SF). Starting from SF, begin stroking easily and quietly, focusing on one of three focal points. Keep stroking only as long as you feel yourself executing your focal point with control – even if it's only 3 strokes. Then patiently increase the number of strokes for which you feel "right." Your focal points include:

- Release your head's weight and keep your laser beam pointing forward.
- Relax your body into the water's support and feel as if your kick can be relaxed and passive while stroking.
- Memorize the feeling of wide tracks while in SF and follow those tracks with your stroke.

LESSON TWO: THE PATH OF LEAST RESISTANCE

There are two forms of drag. *Passive Drag* is caused by the difference between the shape of a fuselage and that of a human body. *Active Drag* is the energy lost to wavemaking or turbulence when you begin stroke. Lesson Two focuses on minimizing Passive Drag, by teaching you the longest, sleekest, most Fishlike shape for swimming freestyle. You'll also establish the optimal position for your lead hand as it transitions from extension to beginning the next stroke. And finally, you'll continue imprinting the amount of body roll, or rotation, that (a) minimizes drag, (b) positions you to tap the power of the weight shift for propulsion, while also (c) increasing your potential for speed – by rotating *just enough*, you'll complete your efficient strokes more quickly.

The drag-reducing *Skating* position you imprint here will be integral to every practice drill – and every freestyle stroke – you take for the rest of your life.

2.1 Transition: CORE BALANCE to STREAMLINE

In this step, you'll reduce drag by lengthening your bodyline. The first time, you may wish to rehearse this with your feet on the bottom, as shown on the video. When you're familiar with the Track you'll follow as you extend, repeat this movement from Core Balance position. Extend your arm on its Track and hang a relaxed hand. Kick gently as you memorize how it feels. Repeat on the other side.

2.2 Introduce Skating Position

Push off into Superman Glide and just glide a moment to feel effortless support from the water. As you begin kicking, pull one arm back (to your "inside pocket") while extending the other forward.

Focus on:

- *Hang* your head so your laser points forward.
- Extended arm slightly outside shoulder line. Check the following: (1) Relax hand. (2) Fingers down. (3) Wrist slightly below elbow.
- Rotate just enough to clear one shoulder
- Press rear elbow into lower abdomen.
- Align bodyline – torso-to-toes – behind the lead arm. Be *spearlike*.

Practice for one full breath on your Right Track, focusing on laser-beam, right-hand position and a supported, streamlined, slightly-rotated bodyline. Repeat on the left track.

2.3 SKATING Position: Master key details.

Skating is the most hydrodynamic position for freestyle. Therefore, on every stroke you take in years to come, you should "finish" each stroke in Skating and hold this position during most of recovery. This will help you travel farther – faster – on every stroke. Several details of this position are subtle, but highly consequential. Now is the time to begin imprinting them in muscle memory.

Head Recheck that your head is hanging, gravity-neutral, with your laser pointing forward.

Lead Hand *Hang* your extended hand just outside your shoulder line. It will feel most natural to have it in front of your nose. It *takes concentration* to keep it in front of your shoulder.

- Heighten your awareness of horizontal (X-axis) position by sliding your hand to the center then back outside. Notice where nose and shoulder go as you do. Your nose should point down and your shoulders should be "unstacked."
- Heighten your awareness of vertical (Y-axis) position, *and* relaxation. Lift your fingers toward the surface and feel your laser beam follow. Then relax hand so fingers drop below your wrist and feel your laser follow.
- When you find your optimal position, extend the front of your wrist forward a few millimeters feeling your bodyline lengthen.

Body Rotation Recheck that your shoulder barely clears the surface. Rotate to "stacked shoulders" then back to "just enough" rotation to better sense the difference. It takes core muscle to hold this position; tune into that sense of engaging your core to hold the right position. The feeling should be of "tone" not tension.

Allow plenty of time to memorize the target locations you're hitting in these details – even to visualize a bulls-eye at your fingertips. Your hand should spear to this exact position in every practice drill and every freestyle stroke from here on.

2.4 Breathe in SKATING

You will imprint the key details of Skating – if you practice them initially – without breathing. Once they feel familiar and show consistency, introduce breathing. You have two choices – Sweet Spot or Advanced breathing. If you're new to swimming or even to the drills, you'll probably be more comfortable and get air more easily in Sweet Spot. If you want to rehearse or refine the rhythmic breathing you do in whole stroke, Advanced breathing will help.

Sweet Spot Breathing Roll to where you're comfortable. Pause as long as you wish to relax and breathe freely. Then return to your best Skating position and recheck focal points:

- As you rotate up, relax into the water until your ears are submerged and nose points straight up. Lead hand turns up and floats up.
- As you rotate down, take care to return to a relaxed-hand, fingers-down position on the Track.

Advanced Breathing When you do this the first time, it may be helpful to practice the nodding exercise illustrated on the video. The first time you do, take a breath and try to keep your shoulder from going past vertical. Later it may stop short of vertical. Practice with these focal points:

- Your rotation to breathe (and back again) should be unhurried – even *lazy* – but without pause.

The most critical detail is to keep your lead hand hanging relaxed in a fingers-down position (perhaps even pressing back lightly on the water) and *outside* of your bodyline.

After each breath, review all Skating position details you imprinted in step 2.3. In the drills that follow, returning to this exact position after you breathe will be essential to effective practice.

Lesson Two Practice Tips

As in Lesson One, "no-breather" exercises aren't intended for high-volume or long-term practice. Use them as needed to find the best arrangement of body parts for balance, stability, alignment and comfort. Skating is another story. It merits hundreds of hours of practice over a period over many years. I promise you will continue gaining new insights and awareness from it – or take more of the "Skating experience" into drills and whole stroke. Here are some more practice ideas:

1) Separate the task of *breathing* from that of *relaxing*. Breathing is important but you'll breathe better when you can control your body position.

2) Superman Glides and Flutters remain very valuable in Lesson Two. Use them in two ways: (i) Do them at the beginning of practice to imprint a sense of relaxed and effortless support and movement, and (ii) Practice segue from Superman Flutter (SF) to Skating. On one length, transition from SF to Left Skate and focus on your left side for the entire length. On the next length, transition from SF to Right Skate. Moving from SF to Skate repeatedly should increase your sense of relaxed control of body position in Skate – a sensation you particularly want to bring to whole stroke.

3) Do the above with focal points, completing one pool length (25 yds or meters) on each Track. Practice Skate for 2 x 25 focused on laser beam, 2 x 25 focused on x/y hand location, 2 x 25 focused on feeling your torso and legs align behind your arm.

4) Finally, include whole-stroke in the sequence described above. Start with SF, pull one arm back and continue Skating for a short distance, then begin stroking. When you do, keep your focus consistent, i.e. if you transition from SF to Left Skate, when you begin whole-stroke, focus on locations and sensation on the left side of your body. When you transition from SF to Right Skate, pay attention to the right side of your body when you begin stroking.

5) Continue swimming only as long as your focal point feels good. Or start by taking only three strokes – right, left, right – if you had been on Left Skate – and patiently increase the number of strokes as they feel "right." Don't keep swimming if you feel yourself beginning to struggle.

LESSON THREE: SWIM *WITH* YOUR BODY

In Lesson Two you worked to minimize Passive Drag by imprinting the most hydrodynamic position for Freestyle. Lesson Three shifts from passive to *active* streamlining in which you minimize drag and turbulence by spearing your bodyline through "holes" opened by your arms. You'll also learn to use weight shifts to propel you through those holes effortlessly.

3.1 SpearSwitch Rehearsals

The first time you attempt SpearSwitch (formerly called UnderSwitch) consider rehearsing the recovery with feet on the bottom, as illustrated on the DVD. Memorize your arm position when you pause your hand at your goggles. Then rehearse in Skating position.

- Sneak your hand forward and pause at goggles.
- Check that shoulder and hip are up. Hold there, kicking gently, for a full breath to register how this feels.
- Repeat on the other side, then deepen the imprint by sneaking your hand to the goggles two to three times on a breath. Hit the same position each time.

After several repeats, finish with a switch and check your *Skating focal points* before standing. Repeat *one correct Switch* two or more times in each direction. Pause in Skating and visualize your target. Then drive your hand to it and pause again to check that you're streamlined from fingers to toes. Stand, take a breath, and repeat the other way.

Add more switches only when you consistently finish (a) with your body aligned behind your arm, (b) on the track, and (c) with *just enough* rotation.

3.2 Two-Pause SpearSwitch

Including two pauses in each switch is the best way to make the key points consistent.

- Pause at your goggles to visualize your hand-target (x/y coordinates from Skating).
- After Switch, pause in Skating to check hand location, body alignment and rotation.
- When practicing 2-Pause switches, check these focal points in this order:

To minimize drag, focus on:

- Relaxed Hands on Wide Tracks.
- Rotate just enough for shoulder to clear the surface.
- Spear your entire bodyline – torso to toes – through the "hole" cut by your arm.
- Check that torso and legs are aligned behind that arm.

To maximize propulsion, focus on:

- Slide your hand across a "VW hood" and *to the bumper*; or…
- Spear the front of your wrist through your hand-target.
- Use your high hip to drive your body through the arm-hole.
- *Hold your place* with a "patient" lead hand. Spear the other hand past it.

3.3 One-Pause Switch

This is an optional transition between 2-Pause and Continuous Switches. If you choose to do it, eliminate the Skating pause but continue to pause at your goggles. Keeping this pause allows you to focus more intensely on a patient lead hand and a hip-driven switch, both of which help make each switch a powerful, coordinated whole-body movement. You may choose to transition directly from 2-Pause to Continuous.

3.4 Continuous or Rhythmic SpearSwitches

Leave out the two pauses. A simple way is by increasing the number of switches per breathing cycle, from two or three to four, five and possibly six. As you do, the pauses should drop out naturally. Or consciously move through the places where you had been pausing. Your goal is an unhurried, *sustainable* rhythm, yet still covering a bit of distance in each switch.

Focus on:

- Keep a patient lead hand. Hip drive – not an arm pull – should initiate each switch.
- Control rotation. Each shoulder should *barely* clear the surface.
- Keep kick *streamlined*, relaxed and passive.

One-Arm Switch

The greatest benefit of One-Arm Switch (of any kind, including Spear-, Zen-, and OverSwitches) is that, more so than any other drill, it teaches you to connect hip drive to your arm action – going both ways, spearing and stroking. Focus on using your left hip to drive your left hand to its target and on using right hip to pull it back. You'll leave your right hand at your side the entire time, as shown on the DVD. Then switch arms.

It takes fairly good body control to master the coordination of One-Arm Switch so you'll likely have more success with it after practicing switches with both arms for eight or more hours.

Lesson Three Practice Tips

As in Lesson Two, during your first few hours of Lesson Three practice, it can be helpful to start many repetitions by transitioning from Superman Flutter, to Skate, to SpearSwitch – and sometimes to whole stroke.

- Be very patient about progressing from 2-Pause to Continuous Switches. Stay with 2-Pause Switches until *Focal Points* become *Habits*. Return to 2-Pause Switches to refine or deepen any aspect of the drill. After years of drill practice, I still practice 2-Pause Switches as often as Continuous.

- Devote 80% of your attention to the *drag-reducing* focal points for the first six or more hours of Lesson Three practice. Even after you begin including more propulsion-oriented focus, drag reduction should receive more attention.

- Breathing: Sweet Spot is best for 2-Pause Switches. At the conclusion of a cycle, before rotating up to breathe, stay in a low-drag Skating position for a moment or two after your final switch. Experiment with Advanced Rhythmic Breathing as you transition to Continuous SpearSwitches. Focus keenly on the patient leading hand as you do.

- Kicking: Because a steady kick was required in Lessons One and Two, you'll probably continue using a steady kick as you begin working on Lesson Three. If you swim for fitness, distance, triathlon, or in open water, a 2-Beat Kick will be your best choice. Closely watch the various kicking choices illustrated in the review section at the end of the lesson. Your first kicking adjustment can be to pause your kick when pausing your hand at your goggles in 2-Pause Switch, then resume kicking (lightly and with streamlined legs) during the Skating Pause. Continuous Switches are ideal for rehearsing and imprint the 2-Beat Kick you'd like to use in whole stroke. That is illustrated at the end of the review section.

- Sequences: To integrate your new skills in whole-stroke, begin a length with switches. Shift to swimming with, say, 5 yards to go, giving yourself room to finish with 3 strokes. Choose a focal point from among those listed above and focus purely on how closely your stroking sensations match your switching sensations. If that goes well, transition to swimming earlier in the lap, eventually swimming full 25-yard repeats. Never take a stroke without a focal point. You can also sequence through the entire SpearSwitch progression with 100 yard repeats as follows: 25 Right Skate, 25 2-Pause Switch, 25 Continuous Switch, 25 Swim (on odd 100s, start with 25 Left Skate). If you start with Right Skate, give more attention to the right side of your body for the full 100, and vice versa.

LESSON FOUR: PERPETUAL MOTION PROPULSION

Our focus in Lessons One to Three was mostly on drag reduction. In Lesson Four, we'll give more attention to propulsion, while maintaining our focus on saving energy. Through the first three lessons, you should have begun developing a lower-drag bodyline that moves through the water like an arrow through the air. This lesson will teach you to avoid diverting the body from its laserlike path as you raise an arm or swing it outward in recovery. And by spearing the arm at a steeper angle than the horizontal movement of SpearSwitches, you'll pick up more energy from hip drive. *ZenSkate teaches skills that keep you on a laserlike path. ZenSwitch reinforces that while also converting hip drive into effortless propulsion.*

4.1 ZenSkate Rehearsals

The standing/crouching rehearsals illustrated on the DVD can be quite helpful to mastering the key points of the ZenSkate arm movement more quickly. Study it closely on the DVD then keep the following in mind as you practice:

- Initiate the movement by swinging your elbow away from your side, not by lifting it.
- *Inch* your arm forward with hand submerged and elbow leading.
- Follow a *wide track* with the crook of your arm just above the surface.
- Pause with forearm hanging, like a marionette, from your elbow forward of your ear.

Memorize this feeling then retrace the pattern several more times. Do this on both sides, then progress to practice in the Skating position.

4.2 ZenSkate

This is the most valuable freestyle balance-and-alignment drill. It imprints the optimal arm position for balance, a clean entry, and the connection between core power/hip drive to arm action.

In your initial practice, pause with your "marionette arm" suspended alongside your goggles for a full breath. As you pause, feel how the weight of the suspended arm (because it's forward of your lungs) makes your legs feel lighter. This gives a taste of how your arm can be a tool for balance and the weight shift in Switches and in Swimming. After practicing for a time with a long suspended-arm pause, progress to completing two to three recover-return cycles per breath as illustrated on the DVD. This combination of holding the position for an extended period and moving to that position repeatedly will help fix in your muscle memory where the Switch will take place. As you practice, concentrate on:

- Draw your arm forward deep and slow on Wide Tracks.
- Lead with your elbow. Let your hand yield to water pressure.
- Hang your forearm *like a rag doll*.

4.3 ZenSwitch

Practice ZenSkate until you gain a clear sense of the right position to initiate the Switch. When you do ZenSwitch (formerly "ZipperSwitch") for the first time, pause before and after your switch, as in SpearSwitch. Continue practicing 2-Pause ZenSwitch for as long as needed to make switches accurate, well-timed and consistent. Then progress to Rhythmic or Continuous ZenSwitches. Your focal points should include:

- **Wide** Recovery. Swing elbow out, don't lift it up, as you initiate.
- **Deep** Recovery. Keep most of forearm submerged. Feel resistance on hand; *yield* to that resistance
- **Slow** Recovery. How slowly can you bring your elbow forward?
- **Lead with Elbow.** Try to bring past your ear before hand catches up.

- Switch from steep angle and feel connected to hip drive as a result.
- Just hold on with lead hand, as you spear other hand past it.

Lesson Four Practice Tips

By the time you begin working intently on Lesson Four, you should have used SpearSwitch practice to strongly imprint a sense of spearing a sleek bodyline through the water on each stroke. If you've been thorough in imprinting those habits and sensations, you'll be able to give full attention to a new set of focal points for ZenSwitch, designed to teach Perpetual Motion Propulsion.

1) Early in Z-Switch practice it's helpful to pause at your goggles before switching to test your balance and feel support and stability. After switching, pause again in Skating position to feel the effortless momen tum generated by your weight shift. This will closely attune you to the effortless power of well-timed hip and leg drive. After you feel those sensations consistently, make your switches continuous and rhythmic.

2) As you eliminate those pauses and segue to continuous rhythms, move through your switchpoint s-l-o-w-l-y. This will heighten your sense of balance, exquisite body control and acute timing.

3) To learn a 2-Beat Kick, pause your kick when you pause at the goggles. Drive the opposite foot as you switch. This is illustrated in the Lesson Four review on the DVD.

Notes on Breathing:

- As in Skating and SpearSwitch, it can be helpful to practice no-breather Z-Switches while learning the fine points. When the coordination and timing begin to feel consistent, then breathe more regularly. Do the same when you first work on synchronizing a 2-Beat Kick with your Switches.
- The review section also illustrates "semi-continuous breathing" which can be a midpoint between Sweet Spot breathing and Advanced Rhythmic Breathing.

The form of Z-Switch practice that will best prepare you for a Perpetual Motion Freestyle is fully rhythmic switching and breathing with a 2-Beat Kick, which is also illustrated in the review section. Strive to master this form, but be patient about first committing the recovery, switchpoint and switch timing to muscle memory.

Sequences:

- Sequence practice is as valuable here as it was in Lesson Three. Begin a pool length with four to six Z-Switches, then transition smoothly to Ear Hops (see Lesson Five). On subsequent lengths (or every 2nd length) gradually reduce the number of Z-Switches and increase the number of Ear Hops.
- Also practice 100-yard repeats as follows: 25 Right Skate, 25 2-Pause Z-Switch, 25 Continuous Z-Switch, 25 Swim (on odd 100s, start with 25 Left Skate). If you start with Right Skate, give more attention to the left side recovery and switch for the full 100, and vice versa.

LESSON FIVE CHANNEL YOUR ENERGY

A relaxed, compact recovery is a key ingredient to Perpetual Motion Propulsion. Keeping your arm relaxed as it comes forward saves energy. It also naturally positions the arm for the steep entry that taps the power of hip drive. And finally, that relaxation, combined with the compactness of the recovery, helps prevent sideways diversion of momentum that results from a "roundhouse" recovery. It channels energy and momentum forward, along the line your body is traveling.

The skills you imprint with OverSwitch exercises are more exacting than those that came before, because while Lessons One to Four relied heavily on gross-motor skills, Lesson Five relies far more on fine motor skills, where the difference between *just-right* and not-quite is quite subtle. To master those fine distinctions, this lesson prescribes non-swimming rehearsals for each aspect of recovery. When you segue from non-swimming to OverSwitch practice, keen concentration will be essential. To allow undistracted focus on these fine points, it also helps to breathe less often during your initial period of familiarization.

5.1 Standing Rag Doll

This exercise teaches forearm/wrist/hand relaxation. This rehearsal is designed to teach you to "turn off" muscles that are often overly tense as we swim. You don't need to be in the water for this. Just pause from your reading (or while viewing Lesson Five on your computer) and hold an elbow to the side, with your upper arm at a 90-degree angle to your torso and parallel to the floor. Your forearm should hang directly underneath in a state of "rag doll" relaxation. Move your elbow slightly forward of your shoulder without tensing any muscles below the elbow. Moving the elbow by inches, find out how far forward it can move before shoulder tension causes your wrist to move ahead of the elbow. Use relaxation, not force to gain another inch or two. Then move the rag-doll arm back and forth several times to heighten your sense of having the elbow "carry" the forearm. In the pool do this first with back of hand dragging on the surface, then knuckles, and finally with fingertips grazing the surface.

5.2 Standing Ear Hops

This exercise teaches brief, minimal clearance of hand above surface. When you find your maximum "relaxed range of motion" using the single-arm rehearsal above, progress to bilateral Ear Hops rehearsal – i.e. alternating arms, as illustrated on the DVD. Moving both arms rhythmically – but deliberately – start with knuckle drag, then fingertip drag, and finally visualize a bar coming from your ear. Hop over it and in. Make your ear hop brief and minimal, but distinct enough to imprint in muscle memory.

5.2.1 Ear-Hops OverSwitch

Practice swimming with Ear Hops. Do one cycle (i.e. right arm, left arm) each of wrist drag, knuckle drag, fingertip drag, before lifting just enough to hop over your ear and in. Do this without breathing until you feel some consistency in your ear hops. After a few such cycles, leave out the preliminaries (wrist, knuckles, fingertips) and just practice Ear Hops. Introduce breathing – and swim full length repeats – when your Ear Hops feel consistent.

5.3 Standing Elbow Circles

This exercise imprints a relaxed "inertial" recovery to transfer energy from the finish of one stroke directly into the next. As shown on the DVD, draw circles in the air with your elbow, using your shoulder as the axis. Keep the circle free-moving and away from your body. Repeat with other arm after a brief period of swimming practice.

5.3.1 Elbow-Circles OverSwitch

After the elbow-circling sensation imprints, focus on that feeling while swimming a short distance. After circling your left elbow, focus only on that arm while swimming whole stroke – i.e. swimming with both arms, but paying attention only to one. Then switch to the right elbow – rehearsal followed by swimming. As with Ear Hops, start with short no-breathing repeats. Introduce breathing – and swim full length repeats – when you feel elbow-circling more clearly in your recovery.

5.4 Standing Draw a line

This imprints wide, straight recovery tracks that send energy forward along your line of travel. As shown on the DVD, practice drawing a line on the surface with your fingertips with one arm only. Draw the line directly from exit to entry point, then back. Avoid swinging your arm outward. Move slowly and keep the line somewhat wider than normal. Keep your forearm rag-doll relaxed. Repeat until your muscles imprint the "line" with exit and entry points along it.

5.4.1 Draw-a-line OverSwitch

Resume stroking, trying to trace the same line from exit to entry. You'll heighten awareness if you drag fingertips initially. Keep the line wider than seems normal. As with elbow circles, you should rehearse one arm then swim focusing only on that arm. Stop for a breather, then rehearse and focus on the other. Do short no-breathing repeats until you feel yourself drawing a wide, straight line consistently, and then introduce breathing and full length whole stroke repeats.

5.5 Standing Mail Slot

This imprints a clean entry at an angle that minimizes water disturbance (promoting a firmer catch) and connects the arm to power from hip drive. As shown on the DVD, imprint one arm at a time before practicing with bilateral arm action. With left hand in Skate position, suspend the right forearm, with that elbow at its most-forward "rag-doll" position. Repeatedly dip right hand opposite the left elbow, then switch arms. Next rehearse with continuous, rhythmic alternating arms (i.e. like swimming) as illustrated. While watching, notice particularly how I accentuate a deft, quiet – almost surgical – entry by pausing for a millisecond before entering the Slot. That brief pause heightens awareness and precision. Keep both hands on their tracks. Enter opposite the other elbow. Keep the lead hand still until your fingertips enter the Slot.

5.5.1 Mail Slot OverSwitch

When practicing a Mail Slot entry, your relaxation should be such that you feel as if your hand drops into the water of its own weight. In initial practice feel as if you are slightly exaggerating the overlap between arms. Maintain this until that "patient hand" timing feels natural. Your entry should be silent. If your forearm and hand are properly relaxed, your fingers should be loosely separated.

Lesson Five Practice Tips

Other than the non-swimming rehearsals, all OverSwitch practice is done with whole-stroke repeats. The fine distinctions you imprint in your stroke here require that – especially in your first several hours focusing on these skills – you design your practice to maximize attention to detail. I suggest the following:

- Short repeats. Start with 25 yard/meter repeats. Don't bother using a pace clock. Time is unimportant; awareness is everything. Use two to five bobs or cleansing breaths as your rest interval.
- Breathe later. Swim the first five to six strokes of each repeat without breathing. When you feel consistency in the movement – i.e. ear hops or draw-a-line – introduce breathing, trying to keep the same sensation.
- Breathe bilaterally. If practicing one of the skills for which single-arm focus is recommended – elbow cir cles and draw-a-line – breathe to the same side you're working on. I.E. When focused on the right arm, breathe right.
- Increase incrementally. When you can consistently maintain the desired sensation for full 25-yd/m repeats, test your ability to do so for a full 50. Add distance only as you can maintain the sensation. A good repeat series to test the durability of your new skill would be 4 x 25 + 3 x 50 + 2 x 75 + 1 x 100.
- One Focus. For at least your first five to eight hours of Lesson Five Focal Point practice, concentrate on only one of the four skills at a time. I introduced them in the natural order so I suggest you begin with Ear Hops, then progress through Elbow Circles, Draw a Line and Mail Slot in sequence.
- How Long? At first, devote about 10 minutes to one focus before moving to the next. As you become more familiar and can better distinguish between them you can vary more frequently, perhaps ultimately doing rounds of 4 x 25-yd/m repeats in which you change focus each 25.

LESSON SIX: SEAMLESS BREATHING

Many swimmers think of breathing as an inconvenience. Either their stroke breaks down or they lose speed whenever they breathe, so they try to breathe less often. But it's far better to *fix* your breathing error than to *hide* it. When you breathe with effective technique, not only do your muscles get the oxygen they need for optimal function, but the breath can actually make your stroke *more* powerful and effective.

Breathing has been secondary in the first five lessons; here it becomes primary. In fact, it's the introduction of rhythmic breathing that turns OverSwitch into *swimming*. And apart from the 6-lesson progression, if you've had difficulty with breathing – or are breathing on a new side – these exercises can also help.

6.1 Swim-and-Nod

It's not called *rhythmic* breathing for nothing. This drill puts rhythm at the center of your breathing practice. If Lessons Two to Four got you used to interrupting your rhythm to breathe in Sweet Spot, you may have had difficulty leaving out that pause and relearning rhythm – or breathing without going to your back. Swim-and-Nod corrects that in two ways: (1) you establish a continuous stroking rhythm and simulate the breath (fit it into the right place in the rhythm) without needing to actually take in air; and (2) by rotating just short of the air, you correct the tendency to roll to your back. Start with Overswitch (perhaps including a focus like Ear Hops) and, in each cycle, turn your head as if to breathe, but stop just short of the air, as shown on the DVD. (Choose one side.) Use these focal points:

- Feel rhythm and ease in your stroke. Bubble quietly from your nose the entire time. While stroking, *mentally* rehearse where the breath would occur. Stand and pause when you need air.
- Begin nodding to one side in rhythm with your stroke. Just follow that shoulder back with your chin on each cycle, stopping just short of the surface – bubble a little stronger from your nose as you do. Without pause, return your chin this time *leading* the shoulder. Keep your laser pointing forward at all times.
- Notice how close the surface is, perhaps even clearing it with one goggle. When you feel ready, turn the slightest bit more to breathe, fitting the breath-and-return to the rhythm you've been imprinting.
- Focus on keeping a relaxed lead hand on a wide track while nodding, but before breathing. Hold it there a bit longer than instinct suggests. When you do breathe try to maintain that timing with the lead hand.

6.2 Skate-Breathe-Skate

This teaches you to use energy from spearing your opposite arm forward to rotate to a breath. This can be especially helpful when breathing to a new side. Review the DVD to learn the sequence then practice with these focal points:

After each breath return *immediately* to Skating then pause there and check your Skating focal points. You may not actually get air – as in Swim-and-Nod. No matter. It's most important at this point to start and finish in Skating, without interruption.

- Use an Ear-Hop with the opposite hand to initiate your rotation to air. Breathe as you did while nodding, keeping a patient lead hand and your laser beam pointing forward.
- Gradually build rhythm by reducing the pause in Skating between cycles, until you are swimming – and breathing – with full, uninterrupted rhythm.

Lesson Six Practice Tips

As in Lesson Five, rhythmic breathing practice is necessarily whole stroke practice. The drills illustrated here are not intended for high-volume or long-term practice. Once they have broken the tendency to roll too far or interrupt the rotation rhythm, you'll practice breathing by using specific focal points in whole stroke. The most important are:

- Keep your laser beam pointing forward – never up.
- Keep the line from your head along your spine to your toes straight as you rotate to breathe.
- Keep your opposite hand on its track away from the centerline.
- Never interrupt the exchange of air. Begin bubbling out steadily as soon as you complete your inhale.
- Emphasize the exhale. **Push** air out and let the inhale "happen," as air from outside simply rushes to fill your lungs because the outside air pressure is greater than inside.

BEYOND EASY FREESTYLE: GETTING STARTED WITH KAIZEN TRAINING

The **Easy Freestyle** program is designed to save energy, decrease drag and, generally, to teach efficient stroking skills – not to begin a conditioning program. The elements of training and conditioning are covered in great detail in Part 4 of **Extraordinary Swimming for Every Body**. However, keep two things in mind: (1) Conditioning will "happen" as you practice the movements and sequences outlined here, and (2) As you reduce drag and increase energy efficiency, whatever level of fitness you do have will propel you farther and faster than before.

As you have begun to think about and practice your stroke in a new way, it makes sense to also think about your training in a new way. This brief guide to Kaizen Training outlines an approach to swim practice that we think you'll find more sensible, effective and rewarding than the "more and harder" mindset that guides most non-TI swimmers.

Join the TI Learning Community.

In many cases, having an enthusiastic support group is one of the biggest factors in getting started on a training regimen and ensuring that you stick with it long enough to achieve your goals. Some swimmers are lucky enough to live in a TI hotspot, close to other TI swimmers and hands-on coaching – but, for the rest of us, there is a large, vibrant community of TI swimmers available at any time at **www.totalimmersion.net.** This community is made up of passionate individuals who are actively involved in helping their fellow TI enthusiasts to enjoy the benefits of swimming well that they have themselves enjoyed. Free resources that you are encouraged to take advantage of include:

- **Video Sharing** – TI students and coaches use online video hosting to display videos of their stroke for review and commentary by other TI swimmers. It's the next best thing to having your own personal TI Coach!
- **Blogs** – Each Coach has a personal blog featuring their day-to-day insights and experiences, both with their students and in their own practice.
- **Discussion Forum** – The TI discussion forum is a place for students and coaches alike to have conver sations about any swimming or TI topic: from advice on which goggles to purchase to suggestions on how to remedy sinking legs to the best way to execute turns in an IM. The discussion forum is full of valuable information whether you're an active poster or are just browsing through.

- **Total Swim, TI's Online Magazine** – Total Swim is a great resource for any swimmer, with articles that cover a broad range of topics. Regular contributions from TI Headquarters keep readers abreast of the latest TI developments, Coach articles help to shed light on problems that students may be encountering in their own practice and amazing testimonials from TI swimmers help everyone to gain insight and motivation.

Kaizen equals Pleasure Principle.

I've emphasized that TI Swimmers think differently than most swimmers. Our paradigm for training is equally distinctive. Those training the TI Way are not only improving steadily but also enjoying it more than ever. In a few words, *we believe in the pursuit of pleasure, rather than pain*. This section provides guiding principles for maximizing the value – and enjoyment – of every hour you spend in the pool.

Expect Improvement.

Most swimmers have gotten used to swimming year after year with little to show for it. A TI Swimmer's goal should be *Kaizen* (Continuous Improvement) Swimming. Because swimming offers limitless opportunities for saving energy, reducing drag, and learning to work with the water, you could continue gaining in Mastery for decades. I still make exciting advances every year, and still sense almost limitless possibilities for further improvement. The refinements I'm making now are fairly subtle, but my capacity for fine distinctions in position and timing has increased steadily. My focus since turning 50 has been on greater harmony with the water and greater relaxation, especially when swimming faster. This way of thinking has resulted in the greatest improvement of any decade since my teens.

Clear Thinking.

There's considerable "folklore" about swimming technique and training. One goal of the **Easy Freestyle** *program is to replace that with clarity on how swimming works and to make that knowledge the basis for effective goal-setting. Since I entered my 50s I've begun every practice with two conscious intentions. Since I made this my practice – at an age when most swimmers are slowing down – my improvement has not only continued, but accelerated.*

Intention #1: My intention in every practice is to swim better than I ever have – a goal that keenly concentrates one's mind. Since I adopted that intention, I've enjoyed great fulfillment – and even excitement – in nearly every practice. A key to making this happen is to never push off a wall without a specific purpose or "stroke thought."

Intention #2: My intention on every set and repeat, is to accomplish whatever task I set for myself (whether technique, stroke count, time, or some combination) with as *little effort as possible*. In conventional training, the goal is typically to *work harder*, to increase one's tolerance for pain and fatigue. But, as we've seen energy supplies are limited, while opportunities to save energy are virtually limitless. After 40 years I'm still improving my sense of how to swim more economically.

What about Fitness?

None of the above is meant to suggest that fitness is unimportant. We understand that one of your primary motivations for swimming is for better health. The **Easy Freestyle** program will certainly aid that. But we'd like to suggest that, instead of training to "get in better shape," you train to *improve your swimming*. Conditioning will be something that *happens* while you improve your swimming. To illustrate:

Redefine Endurance. Webster's defines endurance as "the ability to sustain a prolonged stressful effort or activity." TI defines **Swimming Endurance** as "the ability to repeat *effective swimming movements* for a duration and speed of your choosing." That definition gives as much emphasis to nervous system development as aerobic system development. The critical difference is that when you train the nervous system, your aerobic system also receives a beneficial stimulus; when you train the aerobic system, there's no guarantee your "muscle memory" will be trained in the optimal way – i.e. imprinting movements that save energy, reduce drag and increase efficiency.

Ideal for Fitness Swimming. *Many TI enthusiasts swim purely for fitness, rather than speed or performance. A common question among fitness swimmers is: "If I swim easier, will I lose fitness?" You won't and here's why: (1) A quality workout is one that makes good use of the body. TI Practice makes better use of the body than conventional workouts, minimizing the chances of injury and increasing the likelihood that you'll be able to do healthful training consistently. (2) Motivation matters. If you enjoy and are engaged by your fitness routine, you'll continue for the long term; if you don't you'll lose interest. Kaizen – Continued Improvement – Swimming will keep your interest higher than training "because it's good for you." (3) Increasing intensity is always an option. Once you begin to master the basics, you'll find yourself able to swim longer – and faster – with less fatigue.*

Should I Increase Yardage? In Kaizen Training, the primary reason for swimming more yards is to increase opportunities to imprint efficient movement. Will fitness increase as you do so? Yes, but your swimming will benefit only if that increased fitness accompanies improved skill. So if increased yardage causes you to compromise form, don't.

Kaizen Training: Into the Pool

This section outlines a general program for improvement during the first three to six months of following the **Easy Freestyle** program, using the lessons illustrated on the DVD. (Pages 136-164 of Extraordinary Swimming for Every Body include detailed guidance on how to plan a Kaizen Training program for the long term.)

Phase I: Energy Conservation

If you're fairly new to TI practice, we suggest you devote at least 10 to 20 practice hours – or possibly one to two months – to balance, comfort and relaxation. Some swimmers have kept this a priority for a year without stagnating. Your goals are to eliminate discomfort and tension and allow the emergence of efficient, relaxed, and fluent movement habits. For less experienced swimmers, drills are essential for this but whole-stroke practice can be helpful too (more on this below). The specific foundations you should form include:

(1) Make breathing routine so it doesn't distract while working on other skills.

(2) Create effortless support or balance by imprinting a head-spine alignment and the right x/y "targets" for your *relaxed* extended hand.

(3) Make long, low-drag bodylines a habit by learning to "separate water molecules" with your spearing arm and follow the Track with your bodyline.

(4) Make coordinated whole-body propelling movements a habit.

Tools:

30% Lesson 1 and 2 Drills to learn balance and imprint sleek bodylines.

40% Lesson 3 Drills in which you focus on minimizing drag and turbulence and becoming "patient" in trapping the water.

20% Mindful Swimming (whole stroke with focal points) to transfer the awareness gained in drills into whole stroke.

10% Stroke Counting to measure your improvements in efficiency and compare the effectiveness of various focal points

Practice Tips

(Find more detail on pps. 115-135 of Extraordinary Swimming)

Efficient, fluent swimming starts with exploring basic movements and positions with a sense of curiosity – and no sense of urgency. Whenever you feel discomfort during a drill, your natural reaction will be some kind of compensation – craning your neck, sculling, kicking too hard. These unconscious reactions imprint energy-wasting movements on your nervous system.

Patience in mastering basic skills may be natural to martial artists and dancers, but not to most swimmers. I only came to appreciate its value after beginning yoga practice in my early 40s. The most beneficial goal for your first 10 to 20 hours of Easy Freestyle practice might be to make *mindful, examined movement* a habit. Don't count laps or watch the pace clock; focus purely on sensation and awareness – aiming to reduce effort and increase flow.

Your period of concentrated drill practice may last a few weeks for some students, several months for others. Your drill practice will benefit greatly if you follow these guidelines:

- Short repeats. *25s or less (much less for no-breather exercises) for the first two to four weeks, and seldom longer than 50s.*
- Short sets. To maintain keen focus, change your main activity or drill every 7 to 10 minutes and alternate tasks that require intense focus, with less exacting ones.
- Clear focus. Think about doing *just one thing well* on each length. And organize your focal points into a "checklist." As an example, when practicing Skating, you could organize your focal points by working from the body's leading edge to its trailing edge: (1) relaxed lead hand at x/y coordinates; (2) release head and check laser beam; (3) align torso and legs behind your lead arm; (4) rotate just enough; and (5) keep kick relaxed and streamlined. In the case of Skating, you'd need to check all of that on your right side, then repeat on your left.
- Ignore the clock. Use "cleansing breaths" to regulate your rest interval between repeats. 3 to 5 breaths should be sufficient.

Should You Swim?

Anyone who begins this program with wasteful and inefficient stroke habits should take care to avoid reinforcing your existing "struggling skills." That usually means replacing much of your swimming with drill practice. However, with the right focus, it can be beneficial, to swim a bit of whole stroke as you work on Lessons 1 and 2. Even after your first 10 to 15 minutes with Superman Glide or Flutter, you should swim a bit of whole stroke (anything from a few strokes to a full pool length) simply to see if it feels different. If your stroke doesn't feel improved, stop swimming and resume practice of the same drill. If it feels better, enjoy it for a bit.

When you do swim, continue with the same focal point or sensation you've been working on in the drill. If it feels as good in whole stroke, feel free to continue swimming, to more fully imprint what you're learning. If not, or you're unsure, resume drilling to *hone* that sensation.

Embrace your imperfection.

We repeatedly emphasize the importance of avoiding struggle and giving close attention to the fine points of drills. At the same time, it's best that you not get "stuck" trying to achieve perfection on a particular drill if the sensation or refinement you're aiming for doesn't come in, say, 10 or 15 minutes. For example, those who don't kick well often experience difficulty with drills like Core Balance and Skating in which kicking is your only source of propulsion. After spending 10 seconds looking at the same point on the pool bottom (or ceiling as they take a breath), they may experience frustration. But when they progress to SpearSwitch drills, and gain propulsion from weight shifts, the increased momentum improves balance and relaxation and reduces dependence on the kick. When they return to Skating, they often find their kick feels better as a result.

So if a drill or focal point doesn't feel *exactly* right, after 10 minutes of deliberate practice, let it go and move to your next focal point. Dedicate a reasonable amount of time to each drill or aspect of a drill, then move to the next. Because we have human – and not fish – DNA, there will *always* be something else to learn or improve. That's the principle behind Continuous Improvement, or Kaizen, Swimming. The next time you practice that drill, you'll probably find that what eluded you before comes more easily.

This is because the drill-and-swim learning process is circular, not linear. What we learn while drilling prepares us for the next drill and helps improve our swimming. And lessons learned from swimming – or a subsequent drill – often help an earlier drilling. For this reason – except for the drills I've specified are not long-term in nature – it's important never to "leave behind" a drill, even if you feel you've learned it. During the first year or two of your TI Practice, it's a good idea to review all drills in the **Easy Freestyle** progression for at least a few lengths, every week or two.

Phase II: Integrate Your Stroke

This phase can last a lifetime for the most deeply committed Kaizen Swimmers but it should certainly last at least three months to a year or more. (I've been teaching or coaching swimming for 36 years and practicing TI for almost 20 years, but have been engaged in a "project" for better integrating a 2-Beat Kick in my stroke for four years now.) Your minimum goal is to swim whole stroke with the same degree of balance, ease and control that you enjoy in your best moments of drill practice. You do that by learning to:

(1) Swim with relaxation and maintaining a long, leisurely stroke.

(2) Start each stroke with a "patient hand," taking time to trap the water before stroking.

(3) Breathe rhythmically and comfortably while keeping a patient lead hand.

(4) Establish an SPL (strokes per length) range of three to four 25-yd/mtr stroke counts (e.g. 14 to 17 strokes per length) within which you can swim for up to 1500 meters or increase your speed by 10 percent or more.

Tools:

10% Lesson 2 Drills mainly for warmup or recovery.

40% Lesson 3 and 4 Drills add a focus on using your lead hand to "hold your place" in the water, and connecting your spearing hand to hip drive.

20% Mindful Swimming in both drill/swim sets and pure swimming sets

20% Stroke Counting practice to increase your ability to choose your SPL at will and to add strokes as a means of gaining speed.

10% Swim Golf to begin measuring the effect of various stroke counts and focal points.

"Inspired" Practice.

For the most part – especially in your first two to three months – it's best to plan your practice before going to the pool, but it's also beneficial to occasionally allow for inspiration to strike in your first few laps. Here's a description by TI Coach Brian Vande Krol on how he does that:

Practicing according to a pre-set plan, as well as practicing with an open-ended approach, can both bring good results. Here are examples for how I do each. If my objective for a practice is to improve my ZenSwitch, I'll often warm up with Skating, SpearSwitch and ZenSkate. I try to make each feel at least as good as the last time I practiced. In Skating I might focus on establishing my Tracks and targets for my hands. In SpearSwitch, I work on spearing dynamically to the targets I set in Skating, or on the Patient Hand. As I move to ZenSwitch, I continue to reinforce the same focal points. On occasion I'll decide to "trust" the imprinting I've done and give my attention to a new focal point.

Then there are the occasions when I go to the pool with no plan to learn something. Such a practice might go like this:

Swim 50 - 100 yds easy - no focal point, just tuning in to what needs work. If I sense that I need to work on a patient lead hand, I'll choose a drill or drill-swim sequence to imprint that. For instance:

75 SpearSwitch + 25 Swim focused on patient lead hand. I'll repeat those until the sensation starts to feel well imprinted, or stale. If it feels stale, I'll choose a different drill or focal point. If it feels good, I'll do some easy swimming repeats of 25 or 50 yards to deepen that feeling in the stroke.

I might then choose to see if I can maintain that feeling for longer swimming repeats (200 - 500 yds), or faster repeats, perhaps 3 rounds of 3 x 50, descending my times on each round, *or more effective* repeats by doing several rounds of Swimming Golf with that focal point and comparing my scores to previous rounds with other focal points.

After that, I return to SpearSwitch, and see how it feels compared to my initial set of those drills. Or I could proceed to ZenSwitch, and see how the patient hand sensation affects that drill. Or I might just be happy with what I've done, and choose a different focal point altogether.

Though I usually go to the pool with a set plan, an open-ended approach also yields good results *so long as it includes structure* such as I've described. It requires greater awareness and discipline than a pre-set plan. A consistent format allows you to compare your results from practice to practice. But occasional variety can stimulate your physiological and neuromuscular systems to create greater adaptation and improvement.

Phase Two Practice Tips

Following a period of intensive drill practice, you have two priorities: (1) apply what you've learned in drills to whole-stroke and (2) begin imprinting an economical stroke into muscle memory. The two key ingredients are sets that combine drills, whole stroke and Mindful Swimming – i.e. whole stroke sets devoted exclusively to focal points and "sensations."

In both, your goal is to take what feels good in the drill and make it feel as good in whole stroke. At first, it might take you 75 yards of a drill to get a clear idea of the sensation you're aiming for, and you may be able to "hold that feeling" for only 25 yards of swimming. After more practice, that mix should become 50 yards drill and 50 swim, then 25 drill and 75 swim. Prioritize clarity by having a specific focus at all times and keeping it from drill to swim. If you practice Skating with a focus on establishing your Tracks, then focus on following those Tracks in SpearSwitch, ZenSwitch and whole stroke.

When you begin to include more whole-stroke practice in the mix, simplify your task and heighten your focus with Mindful Swimming. Pages 115-127 of Extraordinary Swimming provide a detailed context for this kind of practice. Here is a consolidated list to begin your freestyle practice:

For Balance

- Completely release the weight of your head to the water.
- Keep your laser beam pointing forward.
- *Hang* your extended hand – keep fingers below wrist and wrist below elbow.

For Lateral Stability

- Keep extended hand outside shoulder.
- Follow "Wide Tracks" with recovery and extension.
- Rotate only enough for shoulder to clear the water.

For Long Sleek Bodylines

- "Part the water" as you spear your hand to its target.
- Line up your body to follow your spearing hand down the Track.
- Keep legs inside the "shadow" of your body.

For Recovery and Entry

- Ear Hops – Hop your hand over an imaginary bar from your ear.
- Draw a Line – From exit to entry and make it wider than you think it should be.
- Mail Slot - Slip hand and *forearm* through a "slot" forward of shoulder.

Patient Hand

- Enter fingers opposite the elbow of extended hand.
- Pause hand – fingers down – for a brief moment before stroke.
- *Trap water molecules* behind the hand and forearm.

Propel Effortlessly with your Core

- Hold the water, don't pull, as you spear the other hand past your grip.
- Drive down the high hip to spear your hand to its target.
- Finish each stroke to the *front*.

Breathing

- Push air out; do this immediately and continuously after inhale.
- Follow shoulder back with your chin and look past your shoulder.
- Keep the top of your head down.

Kicking

- Let legs be as passive as possible.
- Kick from "gut" and top of legs. Don't feel it in your thigh.
- Synchronize left foot drive with right hand spear and vice versa.

And Finally

- Do everything as quietly as possible – drilling, swimming, increasing speed or rate.
- Never Practice Struggle.

If you've been counting, you'll notice I've listed 26 different focal points. That may seem like a lot but it's not an exhaustive list. I've used each of these for thousands of strokes. All have contributed meaningfully to my efficiency. I *never* take a stroke – in training or racing – without thinking about one. Each focal point works on a particular part of the stroke. And each lap you do with one faintly imprints a new groove in your nervous system. After 10 minutes thinking only about that, it will feel a bit more natural and improve the chances that you'll continue doing it when you're thinking about something else.

Through practice, you'll narrow the list to a few favorites. You might note those on an index card and laminate it or put in a baggie for use at the pool and do several 25s of each "cue" on the card. Pause between reps to catch your breath and think about how you feel. As they become easier, progress to repeat 50s, then 75s. The level of attention required to groove them into your nervous system makes the time fly, so enjoy this exercise in Mindful Swimming while you build efficiency and fitness.

Phase III: Effective Swimming: Increase Mastery, Distance and Speed

Your goals in this phase are to be able to increase your awareness, control and coordination to be able to swim farther and faster with the least additional effort. Your specific training goals are:

(1) Develop the ability to choose any SPL and swim effectively.

(2) Develop the ability to swim farther, with minimal increase in your SPL and while maintaining a sense of relaxation.

(3) Develop the ability to increase your stroke frequency or tempo with minimal increase in your SPL.

Tools:

20% Lesson 4 Practice – focused on patient catch, trapping water, connecting to hip drive

20% Lesson 5 Practice – focused on relaxed, compact recovery and clean entry

30% Mindful Swimming – in drill-swim sets and whole-stroke sets with same focus as above

20% Stroke Counting Exercises

20% Tempo Trainer Practice

Practice Tips

If you've been wondering where, in Total Immersion, "training" happens – those sets intended to build endurance and speed that other swimmers seem to rely on exclusively – this is it. But with a crucial distinction: The difference between TI training and traditional workouts is that TI swimmers focus on developing the most efficient stroke, then being able to maintain it while swimming for longer distances or completing those efficient strokes at higher tempos (i.e. higher speeds.)

You practice Effective Swimming by getting in the habit of: a) memorizing sensations that help control your stroke count, b) comparing your stroke counts at various distances or speeds, and c) choosing your stroke count on any repeat or set. Once you reach that point, you'll be ahead of 99% of all swimmers in training effectively.

The motto "Never Practice Struggle" will help answer virtually any question that might arise as you progress from learning new skills to developing those skills into habits to building fitness while reinforcing those skills. Never forget that you can *reduce energy waste* far easier and faster than you can *create energy stores*. And that it takes only half as long to learn a skill correctly from the start than to correct a bad habit. So Effective Swimming will produce far more "functional fitness" in far less time than traditional workouts.

Here are the basics for getting started:

Stroke Counting: Find your Strokes Per Length (SPL)

If you're not doing a drill or focal point, count your strokes. This gives you real-time info on your level of efficiency. How much does your count increase when you swim 50s at 40 seconds, rather than 45, or when you swim 100-yard repeats, rather than 50s? With that information, you can then begin setting efficiency goals for every length of practice. Those goals are not strictly about taking fewer strokes; just as important are:

1. Reducing the increase that occurs when you swim faster.

2. Reducing the increase that occurs when you swim farther.

In time, stroke counting will become almost automatic and you'll use only a little brainpower to keep track of SPL. Then you'll be able to concentrate on a Focal Point and track your count at the same time.

Hold Your SPL Farther

Once you have awareness of your stroke count range, you can begin to use that knowledge by doing sets that increase your ability to maintain an efficient stroke for a greater distance and develop your aerobic capacity at the same time. You do this with moderate distance repeats (50 to 300 yds/m) in sets of 1000 to 1500 yds/m in an orderly distance-building, efficiency-maintaining progression. Start with shorter repeats at a moderately challenging stroke count, then increase the repeat distance while maintaining the stroke count. When you've progressed from 50-yd repeats to 200-300-yd repeats at that stroke count, you can start the process again with 50-yd repeats at a slightly lower SPL. How fast you swim on these repeats is less important than a sense of smooth, consistent stroking over longer distances. To train a bit faster, just reduce the repeat distance at the same stroke count for a set (or session) or two.

Choose Your SPL

If you rode your bicycle on a hilly course with only a single gear your legs would be toast in no time. If you drove your car in only one gear, you'd empty the gas tank in a hurry *and* limit your speed dramatically. And yet, virtually every swimmer has only one "gear" for swimming, mainly because they swim most of the time with just one stroke count and rate. The next stage of Effective Training is similar to a piano student playing scales until she becomes deft in striking the right keys every time.

Your next set of exercises are designed to teach you to "play" SPL as easily as a pianist playing scales and then help you use your developing gears to learn how to build speed almost effortlessly. Having established your range of stroke counts (in a 25-yard/m pool, most swimmers should have a range of about four stroke counts; mine is from 12-15 SPL) your next goal is to: (1) learn to swim smoothly and effectively at every count in that range, (2) be able to "calibrate" your stroke so you can push off a wall and swim at any count you choose in your range, and (3) increase speed with far less effort by smoothly increasing your stroke count (and consequently your rate) to move more freely. Here are a few simple exercises you can do to begin that process.

SPL Exercise #1

Swim 25+50+75+100. Rest for 3 to 5 breaths after each swim.

Take note of your stroke count on the 25, then *without trying to strictly limit* your count, just swim at a consistent pace or effort and see what happens to your SPL average on the other swims. If you took 15 strokes for the 25, how far above 30-45-60 strokes are you on the 50-75-100? Don't judge yourself; just take note and file the information for future reference.

SPL Exercise #2

Swim 100+75+50+25. Rest for 3 to 5 breaths after each swim.

Start with an easy 100. Count your strokes and divide by 4. This number becomes your "N" (benchmark SPL) for the rest of the set. E.g., If you took 72 strokes, your N is 18 SPL (72 divided by 4 lengths). Again, simply note how far below 54-36-18 strokes you are for 75-50-25.

SPL Exercise #3

Swim 25+50+75+100.

Repeat Exercise #1, but this time with a specific focal point – e.g. hiding your head, or slipping through a smaller hole, or swimming more quietly. Just take note of your stroke count; don't attempt to hit any particular count. This is purely an experiment to see if technique "tweaks" affect your SPL, teaching you that you can affect – and ultimately choose your SPL.

SPL Exercise #4

Swim 2 rounds of 25+50+75+100.

1st Round: Swim with fistgloves®. Just swim at your previous effort, not trying to hit any particular count. How many strokes above your ungloved SPL are you?

2nd Round: Remove fist gloves. Without *trying* for a particular count, compare your stroke counts to your previous SPL, to discover how fistgloves affect your efficiency.

Train your Tempo

When your stroke achieves a reasonable level of consistent efficiency – not much more than 10 percent change as you increase distance – you can begin training yourself to take those efficient strokes at incrementally greater frequencies. This is where the Tempo Trainer comes in. The Tempo Trainer is a small electronic metronome that transmits an audible beep. You can adjust the frequency of the beep in increments as small as a hundredth (.01) of a second.

Put the TT under your cap and simply synchronize your hand entry or hip drive (or leg drive if you have a 2-Beat kick) to the beep. If you keep your SPL consistent as the frequency increases, then you swim faster. E.G. If you swim 50 meters in 35 strokes at a tempo of 1.50 seconds per stroke, then swim nine more 50s, increasing frequency by .01 second on each – a tiny change but one you can actually feel – your last 50 will be swum at a tempo of 1.40 seconds per stroke. If you managed to keep your stroke count consistent at 35, your 10th 50 will be 3.5 seconds faster than your first. Just like that.

What TT enthusiasts love about training this way is the sense that speed "just happens." Instead of trying to swim faster – which virtually always means swimming harder – you just keep your stroke synchronized to a gradually faster beep. As you do, you swim faster. Most TI swimmers set the TT at about 1.5 to 1.7 seconds the first time they use it. This is a very leisurely stroke tempo, but appropriate for a "new" stroke. They soon learn that the nervous system adapts to the new stimulus with surprising speed. And that's one of the great things about it; it keeps you focused intently on nervous system training. And as the tempo gets faster – and your swimming along with it – your aerobic system receives higher level training too.

What I like about the Tempo Trainer:

It focuses you. The regular beeps keep your attention on each stroke you take.

It improves your rhythm. Consistent rhythm is an essential skill of successful swimming.

It teaches you unerring pace. Pace is usually described as something you either have naturally – and some swimmers do have a naturally superior sense– or which takes endless repetition to learn. When you swim a 1:15 pace for 100 yards hundreds of times, you learn how 1:15 feels. But with the tempo trainer, if you simply keep your stroke count consistent *and* synchronized to the unchanging rhythm of beeps, you also maintain consistent pace. For instance, when swimming a 200 instead of *hoping* you can hold the same pace for the second 100, or trying to do it by *going harder* on the 2nd 100, you simply keep your stroke count constant and synchronized to the beeps.

It clarifies how "speed happens." If you maintain constant SPL and increase SR, you swim faster – or if you can increase SPL less than you increase SR, you swim faster. Experiencing this in training teaches you that swimming speed is a pure math problem – SL x SR = V – rather than a function of how hard you can swim or how much discomfort you can tolerate.

It focuses you on the most useful and positive sensations. During longer or harder training swims or races, the central awareness of many swimmers is either how tired they're becoming or how much discomfort or pain they're feeling. With the TT your central awareness is of the beeps and whether you're staying synchronized with them. Your second level of awareness is of relative levels of control – how smooth, coordinated and relaxed you are and the stroke adjustments that help you maintain that sense of control. The control sensations alert you to when you're close to exceeding your current capability.

It gives you unprecedented control over how fast you swim. It gives you the physical ability to choose and improve your speed or pace, and that leads to the psychological sense that you *do* control your speed, which is essential to confidence and motivation.

It provides clear incentives to swim efficiently. If two swimmers are swimming side-by-side with the same tempo setting, the one with the longer stroke will always pull ahead. Also, at a tempo of 1.0 seconds per stroke, 40 strokes = 40 seconds and 41 strokes = 41 seconds. Has there ever been a clearer reward for swimming efficiently? This focuses you on keeping *each of those 40 strokes* effective.

It emphasizes the benefits of training the nervous system. You learn how quickly your nervous system can adapt to training stimulus. Often you experience noticeable adaptation in as little as 10 or 15 minutes. When you begin using it, you find yourself making *thrilling* progress in a week's time.

It focuses you on training the nervous system. The readiness of your nervous system to perform certain tasks – repeating effective swimming movements at higher frequencies while maintaining overall relaxation –

has far more influence over your progress and performance than the training of your aerobic system. The TT provides the clearest structure, incentives and rewards I've ever seen for training the nervous system.

It brings exact specificity to aerobic system training. Most aerobic system training is relatively random. Though it has been given a veneer of being highly organized, in reality it's highly inefficient. At any given moment, we have no way of knowing just how fit we are and there has never been a close correlation established between any given level of aerobic fitness and how fast you will swim.

In stark contrast, if you travel 1.25 meters/stroke (i.e. 50 meters in 40 strokes) with the TT, and maintain a tempo of 1 second per stroke, you know you'll travel 50 meters in 40 seconds (plus the number of beeps on your pushoff, usually 3). While training at that combination of Stroke Length and Rate, your aerobic system develops the capacity to support exactly that activity. If you train yourself to maintain the same SPL (40 strokes for 50 meters) at a frequency of .9 seconds per stroke, you know you'll travel the distance in 36 seconds (plus the number of beeps on your pushoff) and your aerobic system will develop the greater capacity needed to support *that* activity as you do it.

So there you have it – a full set of practice tools to start on the path toward Kaizen Swimming. But let me add just one more: visit the online Discussion Forum at the TI web site at least once a week. Not only to ask – or search for the answers to – questions, but to share insights and report successes. It will be the next best thing to actually belonging to a TI Team at your pool. Happy Laps!