

## The Michael Phelps Swimming Workout

Now you can dive into the same program that won six gold medals in Athens. Here's an easy seven-part plan that will build muscle, burn fat — and make you feel 19 again. **By P.H. Mullen**

**W**HEN MICHAEL PHELPS LEFT the rest of the world in his wake five months ago, he not only became the breakout star of the Summer Olympics, he may have changed recreational sports forever. The 19-year-old college student is the product of a revolution in swimming, the ripple effects of which are now being felt at health clubs and YMCAs across the country. It's a movement led by people like Phelps's coach, Bob Bowman, and Joel Stager, a biomechanics guru and masters swimmer based at Indiana Univer-



Fully Armed: Phelps and his coach, Bob Bowman, are sticklers for technique, as you're about to find out.

**Reach for more** If you watch top swimmers closely it looks as if they hesitate momentarily in the middle of each stroke — and they do. As your forward hand enters the water, it should glide forward several inches before initiating a downward pull. This is key to making your stroke more effortless by milking your forward momentum for all it's worth.

**Thorpedo ahead** In the 2000 Sydney games Ian Thorpe shook the swimming world by dominating with a stroke that tunneled through the water instead of riding on the surface. Today most top swimmers swim like a "Thorpedo." To do the same, focus your eyes on the pool bottom and keep your head locked to your torso, with your crown pointed at the far wall. To breathe, rotate your head with your trunk.

**Forget the S** An engineer has discovered that when turtles are just idly paddling around, they use sculling motions similar to swimming's old first-out-then-back S-stroke. But when they're under threat and need to book, they switch to straight-back I-pulls. To make like a scared turtle, keep your elbow high and bent. Feel your chest and back help with the pull, and drag your hand through the water on a line about eight inches below your torso.

# The Perfect Stroke

The way we all learned to swim as kids has been made obsolete. Here's how to instantly turn that circa-1980 crawl into a fast, comfortable new glide.

sity. As you'll see in the innovative program the duo has helped design for you on the following pages, they've tossed out old-fashioned training techniques requiring mile after mile of boring laps. Instead they've gone to shorter, more effective workouts that use entertaining exercises inspired by a radical rethinking of stroke mechanics.

They've also changed our perception of swimming's health benefits — which are even greater than we thought. The 52-year-old Stager was curious about why he continued to perform at a peak level long after conventional wisdom said he should have slowed down, so he conducted a study of hundreds of adult masters swimmers (recently presented to the World Sports Medicine Congress). By regularly swimming 3,500 to 5,000 yards three to five times a week, these swimmers — who ranged in age from 20 to 86 — postponed the aging process that typically begins around 35. And we're not talking a few months. The majority were delaying the natural decline in such standard age markers as blood pressure, muscle mass, and lung function *until* age 70.

It's hard to overstate the implications for the average recreational jock. Men have long been aware that swimming is the ideal age-neutral workout. We've gotten the message that it's an unbeatable form of cardio, that it can turn us into V-shaped

gods, that it's easy on our jogging-battered backs and knees. Now the most recognizable Olympic athlete in 30 years, backed by a new wave of coaches and experts, is showing that it can keep you younger than any other sport — and can actually be fun while you're doing it. You still want to stick to golf?



It Works: Phelps, enjoying Athens

**In one study, swimmers delayed the natural aging process until age 70.**

"Swimming stays interesting now because there are so many ways to challenge yourself with goals," says Phelps, who this fall began taking classes and working out with the swim team at the University of Michigan, where Bob Bowman is the new coach. (Phelps's many endorsement deals prevent him from actually competing for the school.) "Even if you can swim only 100 yards at first, that's okay. It's a start. It's not as if I could swim 8,000 yards the first time I got in the pool."

**W**HEN I ARRIVE AT INDIANA UNIVERSITY'S Councilman Center for the Science of Swimming, the noon adult swim practice has just gotten underway. My eyes quickly gravitate to Joel Stager's lane. Although not quite the spectacle of Phelps's amazing body inhaling a pool, the professor's smooth torpedolike freestyle is its own kind of compulsive viewing. Even at a low-throttle "endurance day" pace, it's clear the 2002 U.S. masters sprint champ would be a decent match for top competitors half his age. After 40 minutes he emerges from the water, his chiseled six-foot-two-inch frame gleaming like a beefcake magazine photo. "Welcome to my world," he says, "where everyone swims in the fountain of youth."

Stager is the equivalent of a NASA engineer

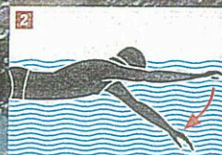
**Twist like Tiger** Another example frequently cited by proponents of the new stroke has been Tiger Woods. In the same way Tiger initiates his golf swing with dramatic hip rotation, you want to start your stroke at the hips and use them to drive your torso from side to side. At full torque your trunk will be nearly perpendicular to the pool bottom and it'll almost feel as if you're swimming downhill.

**Don't overkick** Nine out of 10 recreational swimmers overkick. Throttle down that outboard motor: Unless you're a serious competitor, use your legs primarily to help with balance. The one exception is when you're all-out sprinting. The kick should be generated by your hips and thighs, not your feet. And when your foot and ankle come down through the water they should be flexible. Like a flipper. Top swimmers stretch their ankles religiously; stretch yours by tucking your feet under your chair at work.

## How to Put It All Together



1 On entry, your left hand reaches out as your left hip turns near-perpendicular to the bottom. Your head stays still; your right elbow high.



2 Your left hand begins pulling straight down and back as your hips roll your trunk flat.



3 As your hips and chest drive your trunk to the right, your left hand pulls directly down your body's center line.



4 Your left hand finishes at your start, while your right hip points to the bottom. Breathe as your trunk rotates your face above the surface. Bend your elbow to lift your left arm and repeat.

helping to perfect the stroke mechanics and drills used by aquanauts like Phelps. In his underwater laboratory he spends hours aiming his video lens through the pool's side panels for slow-mo stroke analysis, and towing swimmers with wheeled cranes to develop special neuromuscular connections.

It's all about cracking swimming's central paradox: that the faster you swim, the harder it gets, due to increased resistance. Only a handful of swimmers possess an innate feel for the water that allows them to slip through it with minimal drag; the rest of us must spend years learning efficient streamlining. Michael Phelps is not exceptionally strong (he scored as one of the weakest members of the U.S. swim team on record), but he's one of the world's great natural-born swimmers, and he has honed his edge with some strange and often amusing-looking drills. "Swimming is not about strength, it's about power," says Stager. "Raw strength has no relationship to this sport — none."

That's a radical statement. When I was a competitive swimmer in the 1970s and '80s, we were taught to swim high in the water — like a hydrofoil — and that speed came from arm velocity and de-ailed hand sculls. We followed a religion of megadistance aerobic training that frequently had us logging 15 miles per day. Until, in the early '90s,

the pendulum swung crazily in the other direction, and sprint-based workouts became all the rage.

Today everything is different. Those complex S strokes have been replaced by simple, powerful pulls. Swimmers now stay deep in the water, with their heads down, not up. Trunk rotation has emerged as the critical component for generating power, with coaches invoking the hip-leading swing of Tiger Woods to show how torque should originate from the body's core. And practices are a careful blend of endurance and speed, pacey lap work and funky technique tweaking. I've benefitted from all these developments. A decade after graduation I still clock fractions similar to the ones I swam back in college, while training considerably less and having more fun. Still, it sometimes makes me wonder, What the hell was I doing all those years?

"If it makes you feel any better," says Stager, "I'm pretty sure we're much closer to getting it right."

Actually, it should encourage everyone from advanced swimmers to the person just considering getting into the sport for the first time. With input from Bowman and Stager, we've designed a program that will give you the power and endurance you need to hit Stager's magic 3,500-yard mark in just 10 weeks. Based on the same dynamic training structure used by Phelps, the plan will first train your body to be

comfortable in the water, then to perform specific workouts that will improve your cardiovascular system, sharpen your muscles, and make you feel fitter, faster, and stronger, both in the water and on dry land.

As the new golden boy of American athletics puts it, all that's left is to "just get in and go." **M**

## 5 Reasons Swimming Is Better Than Golf

- 1 Swimming burns more calories per hour than full-court basketball or singles tennis; golf burns more calories per hour than Texas Hold 'Em.
- 2 Swimming produces considerable cardio and muscle benefits with minimal impact on the back and joints; golf produces minimal cardio gains and is perhaps this country's leading cause of chiropractic appointments.
- 3 Swimming relieves stress; golf may have originated it.
- 4 Start-up costs: \$12 goggles vs. \$200 Big Bertha II.
- 5 Female golfers rarely sunbathe on the edge of the green.

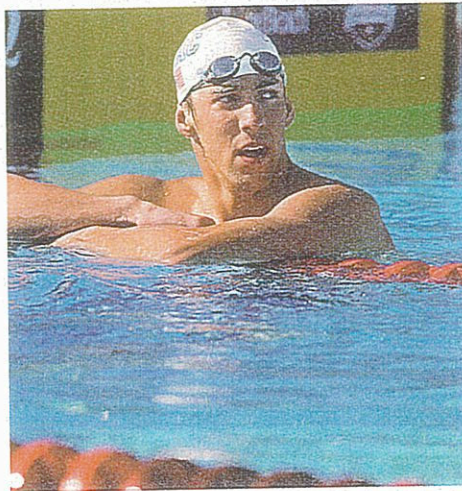
7 RULES OF THE POOL

# THE GOLD MEDAL PLAN

Coach Bob Bowman and swimming-science guru Joel Stager helped craft this program for recreational waterbugs of all levels. Modeled on the format used by Bowman's star pupil Michael Phelps, and consisting of just three weekly one-hour workouts, it will prepare you to log 3,500 yards comfortably. That's enough for a triathlon, competing in masters races ([www.usms.org](http://www.usms.org)), and for realizing the sport's incredible longevity benefits. To see how it all fits together in a 10-week plan, see page 45.

## 1 Build a Base

If you can already comfortably swim 500 yards nonstop, skip ahead to no. 2. If not, here's a simple twice-a-week workout to build up your endurance and comfort levels. Start by swimming as far as you can. Then stop and rest for three minutes. Next, swim only a single lap and rest for 30 seconds, swim another lap followed by 30 seconds' rest, and continue with these lap/rest cycles until your distance is double the yardage of your initial nonstop effort. (Most indoor pools are 25 yards long, so if you swam two laps nonstop, or 50 yards, you would do a total of four cycles.) Each workout, try to go farther on your nonstop swim before repeating the same formula with the lap/rest cycles. When you've hit the 500-yard nonstop mark, you're ready to proceed.



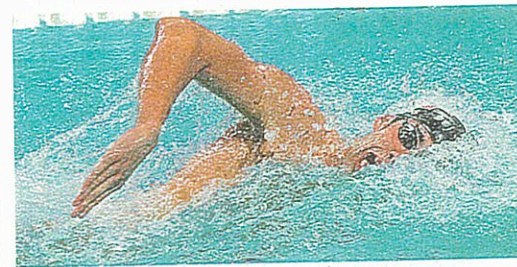
## 3 Go Slow

The first of your weekly "main sets." Monday's subaerobic session builds endurance by training your body to use glycogen more efficiently. The challenge here is distance, ranging from 20 50-yard repeats with 20 seconds' rest between each to a full mile nonstop in the last week. Go nearly as slowly as in the easy part of your warm-up, or at a pace that lets you carry on a conversation 10 seconds after stopping.



## 4 Go Medium

The key to improving both your speed and fitness, Wednesday's medium-speed "lactate-threshold" main set requires you to swim at a strong, consistent pace almost from start to finish. Depending on the week, you may do 10 reps of 50 yards or three of 100 yards. But your rest periods between reps will never be more than 30 seconds — and you'll soon be breathing hard. Work it, but don't kill yourself. Keep your times steady throughout the set.



## 2 Warm Up

Start each workout with a 10-minute warm-up. For the bulk of that time keep it really slow. Feel free to use whatever stroke you want; although this program is focused on freestyle, warming up with some breaststroke, backstroke, or butterfly is a good way to work all your swimming muscles. Also, once your blood is moving spend a couple of minutes at the end of the pool simply stretching your shoulders. As gentle as swimming is on the joints, shoulder injuries can occur when athletes from leg-based sports (running, tennis, etc.) do too much too soon. Then finish the warm-up with a brief "speed ladder" of several cycles of slow lap/fast lap to brace your body for the main part of the workout.



### Just Add Water | Swimming isn't exactly one of your more gear-heavy sports. Still, there are a few essential tools that will immediately let the 7 AM regulars know you're not messing around.

#### GOGGLES

The first time you try Tyr Racetech's goggles, you won't believe how well they fit. The antifog lenses and leakproof gaskets really work. Best of all: no raccoon eyes! They're indestructible, but buy extras in case you lose them. (\$8; [swimoutlet.com](http://swimoutlet.com))

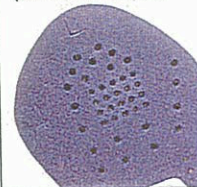


#### NYLON TRAINING SUIT

Baggy boardshorts are fine for the beach, but in a pool they act like a water-filled parachute, dragging you toward the bottom. Get yourself a nylon training suit, a more durable and (relatively) looser-fitting alternative to the traditional Lycra banana hammock. (\$20; [Speedousa.com](http://Speedousa.com))

#### HAND PADDLES

The comfy wrist strap and multiple holes help the Strokemaker paddle tune up your freestyle. (\$12-\$18; [kiefer.com](http://kiefer.com))



#### PULL BUOY

The ultralightweight Kiefer Universal Leg Float fits snugly between your thighs. The polyethylene foam doesn't chafe, it dries quickly, and it fits easily in a duffel. (\$6; [kiefer.com](http://kiefer.com))

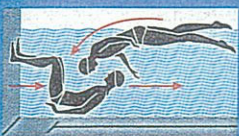
## Advanced Class: Flipping

Doing a flip turn is like dribbling behind your back: It says you've arrived. In just four lessons, you'll be doing it.



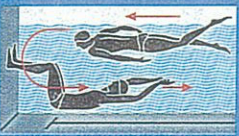
### Lesson One: the Somersault

Start by simply doing a somersault in any shallow part of the pool, kicking out your legs as you complete three-quarters of the rotation. Take it slow — you want to end up suspended on your back underwater.



### Lesson Two: the T

Now position yourself over the T on the bottom of the lane end. (Oh, that's what those are for.) Again — slowly, unless you want cracked heels — do a kick-out somersault that finishes with your feet planted on the wall, your knees bent at 90 degrees. Push off facing up.



### Lesson Three: the Approach

Time for a moving start: Begin from five yards out. One foot before the T take a final stroke, leaving both hands at your waist. Somersault, plant your feet on the wall, and extend your arms in front of you so they squeeze your ears. Push off on your back.



### Lesson Four: the Tilt

Approach as in 3, but "tilt" your somersault (your feet hit the wall at either 10 and 4 o'clock or at 2 and 8) and end up on your side. Achieve this by dropping the shoulder opposite your breathing side and flipping over it. Stroke down the pool.

## 5 Go Fast

Fast and sweet — that's what the week's third main set is all about. The reps are fewer (for example, just 4 X 50) and the rest periods longer (usually 1:30) — to let you really burn it up. Focus on trunk rotation, high elbows, and quick turnover. The goal is to teach your body to respond when you shift into high gear.



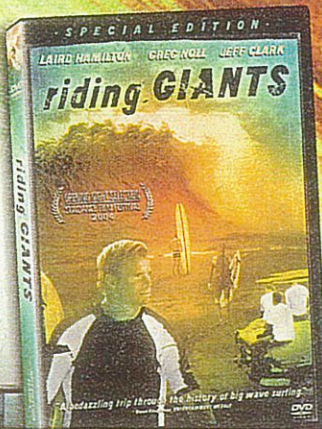
## 6 Get Some Pull

Each workout you will follow up the day's main set with a "pulling set." This is the part of the workout when you get some toys to play with: hand paddles to increase arm resistance and a pull buoy held between your legs to prevent kicking. (See "Just Add Water," page 42.) Doing intervals with these devices simultaneously builds your aerobic system and adds power and noticeable definition to the "swimmer muscles" (shoulders, back, arms) that drive the pool groupies wild. If your shoulders start to hurt, get rid of the paddles. Don't go too fast — you want to breathe easily and take long, full strokes. The buoys will allow you to experiment with technique; use the opportunity to widen or narrow your armstrokes, keep your head low in the water, and focus on body rotation, as illustrated in "The Perfect Stroke," on page 40. Start with six reps of 50 yards with 15 seconds' rest in between. Each week add two 50s.

PHELPS: GET IT IMAGES; ILLUSTRATIONS: NIGEL HOLMES

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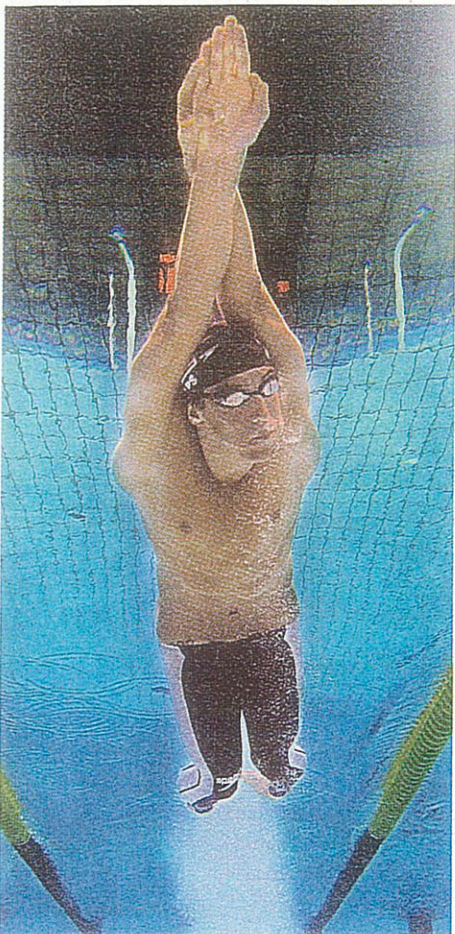
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10 WEEKS TO GOLD

# YOUR SCHEDULE

As explained in "7 Rules of the Pool," each of your three one-hour workouts has the same structure: a warm-up, a main set, a pulling set, and a drilling-down technique drill. The wild card is the main set, which changes to hit your different energy systems and accommodate your growing prowess. Just remember, all of this assumes that you can swim 500 yards nonstop. If you can't, go back to the workout detailed in Rule 1 on page 42 and build up your base until you can.

DAY	MONDAY	WEDNESDAY	FRIDAY
<b>WEEK</b>	An endurance day to increase your aerobic system and overall swimming strength. Use a comfortable pace that lets you carry on a conversation within 10 seconds of stopping.	Hard, steady intervals to train your body to process lactic acid more effectively and go harder for longer. Push yourself but not all out — you should be able to recover in 30 seconds.	Short bursts of speed spaced around long rest periods and easy active-recovery swims. Note weeks 3 and 10 are the same — for easy comparison of how much faster you've gotten.
<b>1</b>	<b>WARM-UP</b> See page 42. (10 minutes) <b>MAIN SET</b> 20 50-yard reps (most indoor pools are 25 yards long; adjust accordingly) with a 20-second rest after each rep <b>PULLING SET</b> See page 44. (12 minutes) <b>DRILLING DOWN</b> See left. (12 minutes)	<b>WARM-UP</b> <b>MAIN SET</b> 10 x 50 on :15 rest 12 x 25 on :20 rest <b>PULLING SET</b> <b>DRILLING DOWN</b>	<b>WARM-UP</b> <b>MAIN SET</b> 4 x 50 hard on 1:30 rest 100 easy 2 x 50 hard on 1:30 rest <b>PULLING SET</b> <b>DRILLING DOWN</b>
<b>2</b>	<b>MAIN SET</b> 10 x 50 on :20 rest 5 x 100 on :45 rest 10 x 50 on :20 rest	<b>MAIN SET</b> 10 x 50 on :15 rest 12 x 25 on :15 rest	<b>MAIN SET</b> 4 x 50 hard on 1:30 rest 100 easy 2 x 50 hard on 1:30 rest
<b>3</b>	<b>MAIN SET</b> 10 x 50 on :20 rest 10 x 100 on :45 rest	<b>MAIN SET</b> 10 x 50 on :15 rest 12 x 25 on :10 rest	<b>MAIN SET</b> 6 x 50 hard on 1:30 rest 100 easy 4 x 50 hard on 1:30 rest 100 easy 2 x 50 hard on 1:30 rest
<b>4</b>	<b>MAIN SET</b> 10 x 100 on :30 rest 2 x 200 on :30 rest	<b>MAIN SET</b> 10 x 50 on :15 rest 3 x 100 on :20 rest	<b>MAIN SET</b> (4 x) 2 x 50 medium on 1:00 rest 1 x 50 hard on 1:30 rest
<b>5</b>	<b>MAIN SET</b> 10 x 100 on :20 rest 1 x 400 on 1:30 rest	<b>MAIN SET</b> 10 x 50 on :15 rest 3 x 100 on :15 rest	<b>MAIN SET</b> (4 x) 2 x 50 medium on 1:00 rest 1 x 100 hard on 1:30 rest
<b>6</b>	<b>MAIN SET</b> 8 x 100 on :20 rest 2 x 400 on 1:30 rest	<b>MAIN SET</b> 16 x 50 on :15 rest 3 x 100 on :10 rest	<b>MAIN SET</b> (2 x) 6 x 50 medium on 1:00 rest extra 2:00 rest 1 x 100 on 1:00 rest
<b>7</b>	<b>MAIN SET</b> 8 x 100 on :20 rest 1 x 800 on 3:00 rest	<b>MAIN SET</b> 16 x 50 on :10 rest 3 x 100 on :10 rest	<b>MAIN SET</b> (5 x) 1 x 50 medium on 1:00 rest 1 x 50 hard on 1:30 rest  (3 x) 1 x 75 medium on 1:00 rest 1 x 25 hard on 1:30 rest
<b>8</b>	<b>MAIN SET</b> 1 x 800 on 3:00 rest 1 x 400 on 2:00 rest 2 x 200 on 1:00 rest	<b>MAIN SET</b> 16 x 50 on :10 rest 3 x 100 on :15 rest 2 x 200 on :30 rest	<b>MAIN SET</b> (6 x) 2 x 50 medium on 1:00 rest 1 x 100 hard on 2:00 rest
<b>9</b>	<b>MAIN SET</b> 2 x 900 on 3:00 rest	<b>MAIN SET</b> 16 x 50 on :10 rest 3 x 100 on :10 rest 2 x 200 on :20 rest	<b>MAIN SET</b> (6 x) 1 x 50 medium on 1:00 rest 1 x 100 hard on 2:00 rest
<b>10</b>	<b>MAIN SET</b> 1 x 1,800 (1 mile) on 3:00 rest	<b>MAIN SET</b> 16 x 50 on :10 rest 3 x 100 on :10 rest 2 x 200 on :10 rest	<b>MAIN SET</b> 6 x 50 hard on 1:30 rest 100 easy 4 x 50 hard on 1:30 rest 100 easy 2 x 50 hard on 1:30 rest

## 7 Drilling Down

You'll finish every workout with the two following technique drills. These will provide an even better recovery than a traditional cool-down and are great for building the muscle memory essential for mastering the perfect stroke. Do the drills on alternate days. For each, mix one lap of drilling with one lap of regular swimming for a total of 16 laps of 25 yards with 10 seconds' rest between each. Mixing in the regular swimming will let you immediately start incorporating the drill's lessons into your stroke.

**Fingertip Drag** During the part of your crawl when your trailing elbow is lifted in the air, drag the fingers of that hand lightly across the surface of the water as you reach forward. While doing that, rotate your hips until they're nearly perpendicular to the bottom and visualize your stroke originating at your core.

**Trunk Rotation Catch-Up** Warning: This will feel a little like water ballet (but in a good way). After pushing off the wall, begin a stroke but halt it halfway, when your body is on its side, so that one arm is extended in front of you and the other is by your suit. (You'll look like a combination of Esther Williams and a flying Superman.) Without breathing, kick eight times and gently rock your body back and forth to feel how it balances. Rotate to your other side and, as you bring your trailing arm forward, lightly tap your extended hand. Finally, pull deep with that hand and repeat.