# Changing Your Stroke

### By Jim Green

This article is for you swimmers who grew up with the Science of Swimming, by Dr Councilman, as your bible. You know who you are. Part of your Age Group and College career was without goggles because they hadn't been invented yet. A good part of your workout consisted of swimming at a pace well below Aerobic Threshold. Stroke work consisted of whatever the Football Coach, who was coaching swimming for some extra income, decided it was.

Then suddenly things changed. Dr. Councilman, the great Coach from Indiana University came out with the book, "The Science of Swimming." Suddenly interval work was cool – if you count hanging on the gutter by your teeth and throwing your lunch into the drain. A lot of swimmers stopped swimming when interval work started and a lot of swimmers got very fast. You can see portraits of these Olympians hanging on the wall at the University of Indiana Natatorium.

Another thing Councilman changed was the approach to Stroke work. He also started using a pace clock during practices. I am still not sure we should thank him for the clock thing yet. His approach to stoke work relied heavily on the Bernoulli principle. For swimming strokes, he postulated that the area of low pressure from the stroke moving through the water caused the swimmer to move forward. If the hand is moving backwards in freestyle, propulsion is caused by low pressure on the back of the hand. This is the same phenomenon that causes and airplane wing to lift. From this scientific explanation, he invented strokes that had the "S Curve" as the principle movement associated with propulsion. So all you Masters Swimmers who came up with that concept have a whole set of muscle memory and power built around that movement.

I hate to break it to you, but Dr. Councilman was wrong on stroke. I know this is akin to going into church and doing something obscene, but it is true. If you talk with all the Coaches from a younger generation like Andrew Pulsifer at Warren Wilson, Matt Kredich at the University of Tenn. Alan Barry at Asheville Swimming, Elizabeth Lykins and Claira Maust at the University of North Carolina, Asheville, NC. And, of course, David Marsh at MAC, you will find a whole generation of stroke mechanic Coaches who do not incorporate the S curve into their Coaching. These new stroke mechanics incorporate the research garnered from flumes and digital analysis of various swimmers through the years. Most of the work has been published in peer-reviewed articles.

**Jimmy's New Rules for Changing Stroke:**

The basic change in these new strokes is that the arm becomes a lever not an airplane wing. So the swimmer presses the T with his chest or back and then turns the arm into a lever by essentially pulling straight back. It is not my purpose here to describe these new strokes. That is what on deck Coaches should do. It would be nice to know what will happen to you, physically, during this transition so you don't go back to your old ways. Here is what to expect:

1. You will be sore. That is an understatement. You have been swimming the old way for your whole life and all your systems are set up to swim that way.

Expect the soreness and tightness to last for a good year. This is where swimmers start to think about going back to Councilman. Don't do it!

2. You will be slower. If you decide to change stroke in a major way, plan on being very spastic for some time. This is where a Coach really helps when you start whining and feeling sorry for yourself.
3. Get a good Coach to video you periodically. That is the best feedback in the world. What you think you look like and what you actually look like on video are not the same. Be prepared to be depressed.

But, if you can stick it out you will learn the new strokes. I would take the last year you are in an age group and plan on taking the whole year to change over. I'm not guaranteeing you will get faster, but at least you will lower your injury rate, and your next meet, after the transition, will leave on lookers aghast at how good you look in the water.