Holding Back the Years
HOW MUCH SHOULD WE DECLINE WITH AGE?
By Phillip Whitten
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We are told that aging is synonymous with physical decline. However, studies on swimmers seem to indicate it doesn’t have to be as bad as they paint.

Everybody knows that as we grow older we lose strength, our vital capacity and oxygen uptake declines, our body fat percentage increases, we become less flexible and, in many cases, brittle. And, oy, those aches and pains! We find ourselves hurting in places we didn’t even know we had before!

If that’s not depressing enough, on a host of measures we perform less well than we did 30, 20 or even 10 years previously. We can’t run as fast or as long as we did in our younger days, nor can we jump as high or as far as yesteryear. In the water, what used to be easy is now more difficult and what used to be tough has become impossible. And it seems to take longer than in the past to recover from anything—a cold, an injury or a workout.

It’s called aging, and there’s no reason to get your knickers in a knot about it, we are told. It is simply a fact of nature, as unstoppable as the tides (ask good King Canute about that), as inevitable as the sun rising every day in the east and setting in the west. Accept it. It’s a natural law—aging is synonymous with physical decline.

Or is it?

CONSIDER THESE CASES

In the early 1980s, Karlyn Pipes was a hotshot young collegiate swimmer at the University of Arkansas. She swam well, but problems with alcohol led to her withdrawal from school. Some years later, Karlyn got her life together, joined Masters swimming, and eventually got back into college at Cal State University, Bakersfield. There, in her 30s, she swam lifetime bests, won several NCM Division II national titles and set Division II NCM records.

Since then, Karlyn—now Karlyn Pipes-Neilsen and 43 years old—has continued to swim ... and continued to post lifetime bests in her late 30s and even early 40s. Take the 200 yard Butterfly, for example. Her 30-34 national record is 2:03.46; 35-39 is 2:04.88; and 40-44 is 2:03.93. This woman is not slowing down!

Recognised as one of the three or four greatest female Masters swimmers in the world, she currently holds a total of 87 U.S. national records and 49 world records simultaneously in three age groups and in every discipline except Breaststroke.

Then there’s Trip Hedrick, 51. By no means a world-beater in his younger years, Trip was, nonetheless, a good collegiate swimmer at Bemidji State University in Minnesota in the mid-1970s, winning conference titles in the 100 yard Butterfly with a best of 53.3. He joined Masters in his early 30s and quickly improved, swimming lifetime personal best times at 35 and 36, including a 51.8 in the 100 yard Butterfly. Not bad, eh?

But wait. There’s more. Over the next decade, Trip continued to place consistently among the nation’s top 10 in the Freestyle and Butterfly sprints in his age group. Then, four years ago, though he appeared to be in great shape, he suffered a heart attack. Gradually, he got back in the water, and last year he swam amazing times of 23.19 and 52.05 for the 50 and 100 yard Butterfly, and 21.90 and 48.16 in the 50 and 100 yard Freestyle. All ranked No.1 nationally, and the two 50s were personal bests. His long course swims, including world records in the 50 and 100 metre Butterfly were even more astounding ... 26.23 and 59.49!

To put that 59.4 into perspective ... in 1991, when he was 41 years old, the great Mark Spitz announced he was making a comeback for the ’92 Barcelona Games. In several well-publicised
contests, Spitz got his time down to just under 59 seconds. Today, Spitz is 54—in the same age group as Hedrick—but both are 13 years older.

So what’s up with that? Are Karlyn and Trip some kind of genetic freaks? Or are they avatars—role models who can show us what is possible for all of us as we age?

**A STUDY OUTSIDE THE BOX**

In 1990, when I was a research associate at Harvard University, I decided to undertake a longitudinal study of Masters Swimmers to answer such questions. We have, after all, a unique and very large pool (couldn’t resist that) of subjects whose performances can be measured precisely under conditions that are relatively constant.

Now, it would be a simple matter to compare performances of different individuals at a particular point in time—say, world records for every age group in the 100m Freestyle. Several researchers have done this, and they have concluded that swimmers’ performances decline at the rate of about 1% per year. This accords with gerontology’s 1% rule.

This rule of thumb states that, beginning at age 25, people start going downhill—they decline about 1% per year on a host of measures of physiological functioning and physical performance until they hit their mid-60s. Then the hill gets steeper, and the rate of decline increases.

This 1% rule is not someone’s fanciful theory. It has been borne out by numerous studies over the years.

I decided to take a different approach. I wanted to study Masters Swimmers, that is, people who exercised regularly, at a relatively high level of intensity (at least, compared with most exercise programs). For a variety of reasons—mostly psychological and cultural—I felt it would be more valid to compare the same individuals, divided into five-year cohorts, as they age. So, instead of comparing 30-year-old Mary Smith’s performances with those of 40-year-old Jennifer Goldberg’s in 2005, this approach compares Mary’s performances at age 25, 30, 35, 40, 45 and so on.

I first published an article on this topic in the July/August 1992 issue of *SWIM Magazine*. It covered the 15-year period between 1975 and 1990, or four separate age groups. That article, which used performance in six different events and only looked at men, came to some interesting conclusions about male Masters Swimmers...

- They don’t begin to decline until their mid- to late-30s.
- The decline, when it does kick in, is far less than 1% per year.
- The decline does not reach 1% until about age 70.

**AN EXTENDED STUDY**

This article extends my earlier focus to the period between 1975 and 2000. It includes 14 separate age cohorts tracked as they progress through six age groups. Cohort 1, for example, consists of those people who were in the 25-29 age group in 1975, the 30-34 age group in 1980, the 35-39 in 1985, and so on, all the way to the 50-54 age group in 2000. Cohort 2 contains those who were 30-34 in 1975, all the way to 55-59 in 2000.

This time I eliminated five of the six events on the grounds that there have been technique and rule changes in the last quarter century that might significantly influence performance: for example, the underwater Butterfly and Backstroke kick, the new Backstroke turn, and allowing the head to go under the surface in Breaststroke.

What was left was the 100 Freestyle—probably the most popular event in swimming and one that utilises a stroke (Freestyle) whose rules have remained constant since 1975. Furthermore, for most Masters, 100 yards is a distance that calls upon both aerobic and anaerobic energy systems.

In addition, this time I analysed women’s times as well as men’s.

I had two hypotheses about the patterns of women’s times...

- There would be a significant drop-off from the mid-20s to mid-40s due to the demands of pregnancy and child-rearing; and
- There would be a decisive break in performance (compared with men) corresponding to the inception of Title IX.

Both hypotheses turned out to be wrong. In fact, the pattern of women’s performances is statistically identical with men’s, from the 25-29 through the 75-79 age groups.

**MEASURE OF PERFORMANCE**

Now, swimming performance is not a direct measure of physiological function but, rather, a reflection of it.

Joel Stager, Ph.D., a researcher and Masters swimmer who is head of the James Counsilman Center at Indiana University, has undertaken a study in which he has measured the physiological condition and functioning of Masters swimmers using a variety of variables including body fat, maximum oxygen uptake, flexibility, max heart rate, and so on. Interestingly, his results correlate very strongly with my own.
Two cautionary notes ... the performances reflected in my data do not, I believe, represent what is possible at any age. That’s because in adulthood, very few individuals have either the time or desire to devote full time—five or six hours a day—to training and additional hours to sleeping more. I am convinced that the theoretical human potential is much faster than any Masters swimmer beyond the age of 40 actually has swum.

Rather, what the data illustrate is what’s possible—indeed, likely—with a modest but disciplined approach to training: say, one hour or so a day, four or five days a week. In other words, these results are attainable by ordinary people.

HUGE BENEFITS FOR SWIMMERS

The results of the current study were virtually identical with the results of the earlier study. Here, in a nutshell, is what we found...

Almost all of the decline formerly considered “normal aging” is due to a sedentary, unhealthy lifestyle. “Use it or lose it” is the guiding principle here, and the sad fact is that most Americans simply don’t use it—they don’t exercise enough. Indeed, we have become the fattest nation on earth. But if you exercise regularly, you can retain most of the strength and vitality of youth. In other cultures, such as Okinawa and Abkhasia, men and women remain robust and energetic well into old age (and they live longer than we do as well).

These results are in startling contrast with studies conducted with sedentary people. Men and women who swim regularly can perform physically at levels typical of much younger individuals in the general population. The 1% rule per year after age 25 applies only to a sedentary population. The decline among Masters Swimmers is a small fraction of 1%. Furthermore, for people who swim regularly, physical decline begins not at age 25, but about a decade later. In fact, men and women are actually faster in their early 30s than their 20s, a finding that reinforces my conclusions in 1992.

That’s why I was not at all surprised to see Dara Torres win four medals, including two gold, and swim lifetime bests at the Sydney Games in 2000 at the age of 33; Jenny Thompson swim close to lifetime bests last year at 31, despite having minimal training time due to her medical school studies; Alex Popov win two World Championship titles in 2003 at the age of 32; Gary Hall Jr. repeat as Olympic champion in the 50 Freestyle at 29; or the grand daddy of them all, Ron Karnaugh, swim close to his 1992 Olympic time at the age of 37.

The change that occurs with age is not linear and, as mentioned before, does not begin at 25. Between 25 and 35, a typical Masters swimmer will actually improve a bit. Then, about the mid-30s, a decline begins almost imperceptibly, at about 0.16% per year—about one-seventh the rate among the sedentary.

Between 40 and 50, the rate of decline increases to about ¼% per year, and it increases again to about two-thirds of 1% per year in the decade between 50 and 60.

Through all this time, sedentary folks have seen their physiological functioning and physical performance deteriorating at about 1% per year.

The cumulative effect of these differences, illustrated in Figure 2, is striking.

First of all, the study reveals that if a person remains healthy and swims regularly, he or she can expect to be at least as strong and agile at 36 or 37 as at 25. Sure, it takes commitment and self-discipline to maintain a consistent training program over many years. No one questions that it’s harder to be physically fit at 40 than at 25. And it’s much harder at 60. But
the Karlyn Pipes-Neilsens and Trip Hedricks of the world are not genetic freaks. They represent what virtually all of us can achieve if we take the time and make the effort to maintain our bodies.

The study also demonstrates conclusively that swimmers do not decline at the rate of 1% per year until they reach their early 70s—a time at which the rate of decline is much greater in the general population.

This is a dramatic finding. What it means is that if you live a typical sedentary American life, you will lose about 25% of your physical capacity by your 50th birthday. By your early 70s, you’ll be half the man or woman you were at 25. In contrast, if you swim regularly, the decline is only 3.9% at age 50 and 20.9% at 70. The study suggests that if you can swim 100 yards Freestyle in one minute at age 25, you’ll be able to do about 1:02.34 at 50 and 1:12.54 at 70.

Another way to look at it is this: a 70-year-old swimmer will have the strength and vitality of a “normal” 45-year-old (see Figure 2).

But what happens away from the pool is far more significant than what happens in it. People who are physically fit are happier, healthier and more productive than those who are not. Their lives are far fuller, far richer and, most probably, longer as well.

Seen from that perspective, the decision whether or not to swim—to be fit or fat—is a no-brainer.

People who are physically fit are happier, healthier and more productive than those who are not.

### NUTRITION TIPS

#### EAT RED

Red may almost have disappeared from the world political map, but if you want the most vitamin C from your bell peppers, red should be your choice of pepper. A recent study found that red bell peppers have higher levels of vitamin C than green ones.

#### AN APPLE A DAY

Turns out, there really is something to that old admonition ... an apple a day keeps the doctor away. Apples provide your body with quercetin, a flavonoid antioxidant that protects cells against wear and tear that can contribute to chronic conditions such as heart disease and cancer. Most of the quercetin found in apples is in the skin, so it’s best not to peel them. Wash them thoroughly and eat them whole.

### SWIM TO PROTECT YOUR MEMORY

Does this sound familiar? You’re at a party with your wife and are about to introduce her to a friend or colleague when you find you can’t quite recall his name. You’ve spoken with him once or twice a week for the past few months and his name is at the tip of your tongue, but still it eludes you.

Don’t panic. This common experience is not a sign of incipient Alzheimer’s disease. According to *The Tufts University Health & Nutrition Letter*, it’s simply a memory lapse that is part of “normal aging”. Generally, as we age, the synapses between our nerve cells break down, slowing the movement of nerve impulses in our brain, a process that is caused by oxidation. This hinders the flow of blood to the brain, disrupting brain function, including memory.

Fortunately, says Gary Small, M.D., director of the Aging and Memory Research Center at UCLA, there’s a six-step solution that will keep the blood flowing to your brain and your synapses firing.

1. **Swim**—research shows that even moderate exercise protects brain function and swimming, of course, is the best exercise of all.
2. **Exercise mentally**—the brain, which operates on the principle of “use it or lose it”, responds to mental stimulation. This results in increased blood flow and stronger cells and synapses.
3. **Manage stress**—chronic excess stress makes the brain vulnerable to destructive
free radicals. Manage your stress through yoga, relaxation techniques or swimming.

4. **Manage chronic conditions**—high blood pressure, heart disease and diabetes have all been shown to hamper memory. By swimming 30-45 minutes most days, lowering your body fat, limiting your consumption of red meat, trans fat and alcohol, and eating lots of fruits and vegetables, you can minimise the impact of these diseases.

5. **Eat a diet rich in antioxidants**—Vitamins B, C, E and beta-carotene, as well as other antioxidants, are essential to optimise brain function. You can get most of these vitamins through your diet, though some supplementation may be helpful as you get older. Research has shown these vitamins are highly correlated with improved memory in people over 60.

6. **Review your medications with your doctor**—some medications in large doses or in combination with other medications can affect memory. Your doctor may want to change your meds or lower the dosage.

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**THE BEAUTIES OF AGE**

Masters activities in Japan attract thousands of athletes

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Chisako Oishi – one of the 402 athletes present in Riccione

“I used to be a swimmer. Breaststroke was my speciality. At 50, I started being attracted by synchronised swimming. At the beginning it was just a hobby, it helped me filling my days after my daughter had married and had moved to Tokyo. Soon I started to take part in master’s championships in Japan. Now I belong to the ‘Water Waltz’ club and train twice a week in an indoor swimming pool next to where I live.”

Aged 81 years old, Chisako Oishi was one of the enthusiastic participants in the 10th FINA World Masters Championships 2004 that took place in Riccione (ITA)/San Marino and won for Japan the gold medal in the synchronised swimming solo event in the group 80-85 years. The short explanation about her competitive career is a perfect example of the popularity Masters has in Japan, attracting thousands of athletes, capable of shining at the national and international level.

The first Masters Swimming Championships was held in the country in 1977, with the participation of 350 swimmers and the Japanese Masters Swimming Association’s activities began to take off after 30 Japanese swimmers participated in the United States Masters Swimming Championships in 1981.

Following its official establishment in March 1984, the Japan Masters Swimming Association hosted the FINA 1st World Masters Championships in July 1986 and the 4th Pan Pacific Masters Swimming Championships in July 1991, both held in Tokyo. In 1999, the Association was incorporated as a representative body of Japanese Masters Swimmers.

As of December 31, 2004, the Association has 2,384 teams and 42,453 individuals registered as members, of which 3,580 individuals are aged between 18 and 24. Those aged 18 or older are eligible for enrolment, and are divided by age group (every 5 years) from age 25. Among the members are 127 individuals aged between 85 and 90, 46 aged between 90 and 94 and, amazingly, 7 over 95 years old. At the 2004 FINA World Masters Championships, in which 402 Japanese participated, the Japanese team won 94 medals (31 gold, 26 silver and 37 bronze medals).

Of 88 swimming competitions which were held in Japan in 2004, the Association organised 24, including the Japan Masters Swimming Championships, with 6,649 participants during four days, the Short Course Masters Swimming Championships, which was held at 21 different places with 24,264 participants, the Long Course Swimming Championships (1500m, 800m, 400m Individual Medley) with 643 participants and the Women’s Swimming Championships with 3,779 female participants. The Association authorised the remaining 64 competitions. It also issues the “Top 50 Swimmers Rankings” detailing records achieved each year (categorised by sex, age classification, stroke, and distance) in honour of outstanding swimmers. The Association’s quarterly newsletter “Masters News” keeps its members posted on other swimmers, competition
schedules and health and nutrition related issues.

Additionally, doctors are invited to speak at “Health Clinics” for participating swimmers each year on the sidelines of the Japan Masters Swimming Championships. The Association also holds seminars on swimming style and management for swimming instructors and competition managers two or three times a year.

With this important activity, it is easy to understand the “secret” of the Japanese success in Masters competitions.

The Future

“Swim for oneself, on one’s own and for fun”, it’s the motto of the Japan Masters Swimming Association, expressed by its President Yoshihiko Osaki.

Mr. Osaki continues by saying: “Masters Swimming is based on the spirit of Fitness, Friendship, Understanding and Competition. It is important that every Masters Swimmer tries to understand and respect each other in their efforts to stay in good health through swimming and in nurturing friendships with other swimmers through daily training and competitions, or in managing competition events or being there as part of the audience. This spirit of mutual understanding will become increasingly important in our daily lives as well as in swimming as the falling birth rate and population aging continue. Each of us needs to maintain good health in our own right and develop an enjoyable and purposeful lifestyle.

Masters Swimming, based on the spirit of ‘swim for oneself, on one’s own and for fun,’ is vital for such a lifestyle, and its importance will surely grow in the future. As members of the Masters Swimming Association, we are all committed to expanding these wonderful ties and creating an active and sound society.”

A successful athlete – Mrs Yoshiko Osaki, Masters Swimmer, International Swimming Hall of Fame Honouree

Having made great achievements including the participation in the Melbourne Olympics in 1956 and the Rome Olympics in 1960, as well as in seven consecutive national championships (1955-1961) in 200m Freestyle, Yoshiko Osaki retired from competition upon getting married. After a 20-year absence during which she dedicated herself to raising her children, she made a comeback to Masters Swimming, and set her 136th Masters world record. She became the first Japanese swimmer to be honoured by the International Masters Swimming Hall of Fame in Ft. Lauderdale (USA) in January 2004.

She returned to swimming with her participation in the 1st Japan Masters long Course Swimming Championships in 1984, when she set a Masters record of 32.75. Mrs Osaki has since continued to beat her own record to this day, and she now belongs to the 65-year-old age group. In Riccione, at last year’s FINA World Masters Championships, she conquered five gold medals: 100/400/800m Freestyle, 100m Butterfly and 200m Individual Medley.

Mrs Osaki, whose husband is the president of the Japan Masters Swimming Association, says she is fortunate to be able to enjoy all her roles of wife, swimmer and Masters course instructor “thanks to my supportive and understanding family.”

FROM THE LANES

By Nikki Burger

Hi! You all know me; I’m Nikki, Marni’s mum. I am 37 years old and I hop in the pool most days and train with your squad. Thanks for having me, I always enjoy myself (and sleep well at night, as well!)

What you probably don’t know is that I swam and competed as a junior (the scruffiest 10-year-old you can imagine!) and never went any further other than a bit of training as teenager (about 3x45-minute sessions a week) and a handful of club and school competitions. That’s it. In fact, the thought of competing made me so nervous and anxious, that I avoided it all together and gave it all away as soon as I finished school.

Why did I start swimming again? Mostly for health and fitness, but also because I saw Marni enjoying it and I realised that I missed the water. That was 3½ years ago and a few people encouraged me to enter some competitions and I decided it was time to
confront my anxiety over racing. That was my primary goal.

In 2004, I have broken five State records in my age category (35-39) and in July of this year, I qualified to compete at the Maccabiah Games in Israel in July 2005 (a kind of Jewish Olympics), a huge personal achievement for me. To make the team, I had to break 30 seconds for 50m Freestyle. I swam 29.95 and was so overwhelmed when I touched the wall, that I started crying and didn't stop for an hour. Breaking the 30-second barrier had been a goal of mine for two years.

When I train these days, apart from my bathers, cap, goggles, fins, etc., I take 10 things to the pool with me in order to help me achieve my personal goal to be the fittest, fastest, most powerful and best prepared (physically and mentally) athlete I can be when I get up onto the blocks next July...

1. **Eagerness to learn**: And improve. I want to find out ways to become stronger and faster and Len can help me achieve this. I ask questions and I ask for help when I need it. I also keep a training log book, record all my PB'S and have a list of my goals. I refer to these regularly and monitor them closely.

2. **Dedication**: I know what I want and am prepared to take a risk and go for it. I try new strokes, new distances and new events, all in an effort to become a more complete athlete. Other swimmers help as well. When I see their dedication to their training and sport, I feel inspired. I love this journey and all that I am learning along the way.

3. **Commitment**: To myself as an athlete and as a healthy and fulfilled human being. I am committed to learning about my body, how it responds to training and what elements I can use to improve my swimming. I love to eat beautiful and healthy foods, lots of carbohydrates for recovery and I stretch twice a day. I need time out to recover from the stress of a hard session and I go to the physio to manage any injuries.

4. **Attention to detail**: Swimming demands enormous attention to detail and I apply myself to learn and understand what the sport teaches me. I work on my Freestyle catch, my hypoxic breathing and my breaststroke rhythm. These are just a few details that ask for my complete concentration. Oh! And a new one that Len has recently brought to my attention; improving the strength of my second kick in Butterfly!

5. **Give 100%**: In every set I do and in every lap I swim, I try my hardest. When I finish a session, I know I have given 100% and I like this feeling. I am prepared to tough out any set Len gives us (gulp!). I love the feeling of working hard in the water and the knowledge that I will improve and race faster. So many things in life that are really worthwhile come through perseverance.

6. **Positive Attitude**: Every time I enter the water is an opportunity for me to learn and improve. I enjoy interactions with other swimmers who share similar goals and outlook. Sometimes things don't go so well; perhaps at training, or in a race. I accept this and am prepared to face situations head on so that I can keep moving to a better place. Don't be afraid.

7. **Gratitude**: Many people come together to help me achieve my goals. My family support me and Len is always available to help and provide sessions that enable improvement. I also call on my Masters friends and past and present swimmers to guide me as well as the other H2O coaches. These people are my personal team, and I am ever-grateful to them for their interest and support in me as an athlete. I am also grateful for my health, as there have been long stretches in my life where I was unwell. I do not take my health for granted and put effort in to maintain and enhance it.

8. **Awareness**: Of myself and of others. I swim in a group and what I do and how I interact, has an impact on others. I like this to be positive. I do not want to let others down in my lane, because how I swim and how I act affects them.

9. **Passion**: I swim with passion and love what I do. I love the water, how I feel in it and the relationship I have with it. I do what I do with a sense of purpose. This gives me inner confidence and pride.

10. **Reward**: When I reach a goal or train really well or put in a mega effort to swim a good time at the end of a hard set, I tell myself that I am doing a great job. When my team mates swim well, in training or in a race, or persevere with a technical skill that takes a long time to master, then I like to congratulate them. They deserve that their efforts have been noticed.

Congratulations Amy for working so hard on your Freestyle catch and congrats Marni for your dedication to learning Breaststroke kick and qualifying for States in that stroke, which I
don’t think you would have dreamed of a year ago!

When I arrive in Israel next July, I will be competing as an Open swimmer, racing against girls who are 20 years younger than me. I will have achieved this goal and received this incredible opportunity because of a combination of personal and external factors.

Don’t be afraid to set goals and reach for the stars and remember to enjoy the journey along the way.

(Editor’s note: Since this article was written, Nikki has improved her 50m Freestyle time over a second and is now under 29.00. She has also broken her own State Master’s record for 50m Breaststroke and been part of an Australian Masters record-breaking Relay team.)