World Swimming Coaches Association

Newsletter

volume 2015 • issue 03

Dear Friends,

As you all know by now, WSCA has supported Bill Sweetenham's call for an independent review of FINA, finances, governance and operation, with a view to improving the organization for all of us.

This call is also supported by my employer, the Board of the American Swimming Coaches Association (ASCA), and the Australian Swimming Coaches & Teachers Association (ASCTA). Combined, the three organizations represent over 20,000 coaches worldwide!

Meanwhile, WSCA is looking into creating a *new organization*, titled the **World Swimming Association** (WSA), which we will put in-place formally at the 2015 ASCA World Clinic, on Friday, September 11 (1:00-2:00 p.m.) in Cleveland, Ohio (USA). All are welcome to attend that meeting! WSA will exhibit all the transparency and good governance that FINA has proven to lack.

Also, WSCA has invited the formation of the Professional Swimmers Association, aimed at the top professional swimmers in the world working together in their own best interests, to form events, similar to the PGA and Tennis professionals. That organizational meeting will also be on Friday, September 11, 2015 (2:00-5:00 p.m.), in Cleveland. All coaches and interested swimmers invited.

Meanwhile, in this issue, I would call your attention to the truth about financial reporting for the 60 international sports organizations located in Switzerland *[page 2]*. It is an amazing find, especially considering the blow-up of FIFA this month.

Second, I provide a piece I wrote in response to a public relations campaign that Mr. Dale Neuburger (FINA Vice President) did as a "dog and pony show" to defend FINA to the USA Swimming Board of Directors *[page 3]*. I think you will agree with all my points, as I have heard them from WSCA members for decades now!

Finally, before our education pieces in this issue that relate to coaching, I provide you with a series of emails that I exchanged with Mr. Neuburger when one of our WSCA members wrote to me about the corruption in their federation that meant that the best connected swimmers politically, rather than the best swimmers, got to represent their country at the World Championships *[page 6]*. Again, you all know this happens, regularly, because FINA cares more about keeping those in blazers happy than about *fair sport*. We need to change this. It is the World Championships! The best of each country deserve to be there.

FINA: we all deserve better

-John Leonard

contents

WSCA Board meeting

September 10, 2015

Cleveland, OH (USA)
(at the 2015 ASCA World Clinic)

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On:

Finances of Sports Associations headquartered in Switzerland

by John Leonard

Let us be as clear as possible about the topic above. What we have learned from the FIFA scandal and thousands of resulting news stories around the world:

1. Sport Associations headquartered in Switzerland have no requirement under Swiss law to do *any* reporting of their finances.

2. Which means that when such an organization *does* do a financial report, such report could be 100% accurate, 100% fiction or any combination in-between.

3. Thus, *no financial report* from a sport association headquartered in Switzerland can be considered accurate.

Which, one might conclude from the FIFA results, is *why* they (60 associations, including FIFA and FINA) make Switzerland their home.

Again: Bill Sweetenham and the World Swimming Coaches Association have called for a complete, independent review of FINA in finance, governance and operations. Independent is critical, for the reasons above in 1, 2 and 3. The approximate cost of such an examination could run $350,000-$500,000.

The WSCA call has been supported by the American Swimming Coaches Association.

Further information on this topic can be found in a 3-part series published by *SwimVortex*:

Of Machiavelli, money pools and measures of "professionalism" in Swimming

Why would the USA Board back broken promises and the status quo at FINA?

Which side of the divide are you on in swim schism?

Irrefutable, Factual Evidence by John Leonard

The "standard" above has been recently voiced by volunteer leadership as the basis for when and how USA Swimming will make a decision to change its approach to FINA with regard to the need for independent review of FINA's finance, structure and function, as requested by famed Australian coach Bill Sweetenham and supported by the American Swimming Coaches Association (ASCA), the Australian Swimming Coaches and Teachers Association (ASCTA) and WSCA. The three combined represent over 20,000 coaches, with 13,000 of them coming from the top two historical Swimming nations in the world.

The last time this issue was considered, in May 2015, the USA Swimming Board was treated to a presentation by Dale Neuburger, Vice President of FINA. It is thus both timely and informative to see how Mr. Neuburger's presentation stacks up against "irrefutable factual evidence". I shall proceed point by point.

Under a category called "American Influence", Mr. Neuburger states that the USA has 19 Americans on 20 committees. This is *true* and irrefutable.

However, many (most) of those Americans would tell you that the committees and commissions they are on are basically entities without scope, power or significant influence. Most of the individuals are frustrated, angry and disappointed that their time and efforts are consistently thwarted by the FINA Executive Director and/or Executive Committee. In many cases, their true concerns are not even allowed to be discussed in the committee / commission they are present on. This is especially true of the two committees one would expect us to have the most interest in: the Athletes and Coaches commissions. And this lack of honest input has been true from the opening days of both committees, and as previously expressed by Janet Evans and Aaron Pierson as athletes (the only two American athlete reps) and coaches (Peter Daland, myself and Frank Busch, the three American coaches). But the unhappiness is not limited to coaches and athletes. Members of the Ethics Panel, Disciplinary Panel, and former members of the Doping Panel have expressed the same concerns repeatedly.

So, yes, we have token people in seats. We have very little influence, and it has done us precious little good. Mr. Neuburger's assertion that our 19 positions are critically important is beyond "irrefutable", it is entirely refutable.

In fairness, Carol Zaleski's chairmanship of the Technical Swimming Committee, while not without failure (underwater cameras), has been remarkably successful over a long period of time. 1 of 19 effective positions. Perhaps there are a few more.... Not everyone speaks up strongly, nor do they have a supportive Bureau liaison as Mr. Neuburger has been for Mrs. Zaleski. In fact, in the case of the Coaches Commission, a huge portion of the problem has been that the individuals who have served as the liaisons from the Bureau (in all three iterations of the commission) reports whatever he wants, regardless of what committee minutes say! (What? At $500-a-day per-diem, you expect Bureau Members to actually *read* minutes and reports? Outrageous!)

"Examples" of successful efforts cited by Mr. Neuburger:

1. Prize money at World Champs – true, irrefutable.

But consider… for an organization with net assets well in excess of 100 million dollars, less than 5% of that comes back as prize money. It is a half-truth and anything but "irrefutable". In the NBA, as an example, 50% of all revenues must end up with the athletes. That would be irrefutable evidence of concern for athletes!

2. Athlete representation within the FINA Bureau – true.

But point-of-fact is that the current FINA-chosen representative has contributed not one thing to improved conditions for athletes, nor has he contributed anything visible in any other role on the Bureau. Again, a token representative, *chosen not by other athletes* but by the FINA Executive as a house pet.

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3. "Profile and fabric changes to swimsuits."
Claiming this as a successful FINA venture has to be joke. Coaches and athletes persuaded 189 of 203 Federations at the Congress to change this from plastic bag suits to the current rule, *over the complete objection* of the FINA Bureau, the FINA Executive Director and the FINA President, who put their prestige on the line and lost over this issue. Mark Schubert, Mike Unger, and this author are the reason the rule changed, backed by WSCA. Claiming "success" for any other group in changing this is entirely untrue.

4. Success of "out of competition drug testing".
Please. Irrefutable? Every athlete on an international pool deck can tell you of cheaters who get away with it, day-in and day-out. Not only is FINA not successful at catching the real cheaters, it gives the ones it does catch "free passes" and maneuvers so that the stars (the few who are caught) are able to participate in the next major event that brings in dollars to FINA or its affiliates. Additionally, the profile of substances tested for are selected for each test by the FINA office, who decides what tests to pay for. Again, athletes and coaches will tell you that "selective testing" is indeed the fact, but not in the way it is always presented. The Doping Control Panel decides who gets tested, but who decides what panel of tests are run? And finally, in this section, what *is* irrefutable is that FINA has resisted both the doping passport system *and* using the best available technology to catch cheats... which means they really do not want to catch cheats.

5. Creation of Coaches and Athletes commissions – yes, true.
But the members of both are *selected* not *elected*. The FINA Executive Director and President select who to appoint. The past three Coaches Commissions have been chaired by a lovely man from Argentina, who has not coached himself in 40 years and is a personal friend of the FINA President. The members tend to be National Team coaches, who, because they are *employed* by their Federations, are easily told what to consider and how to vote. Almost nothing has been accomplished by the Coaches Commission in the years of its existence because the FINA Executive Director controls both the commission's agenda and follow-through. It is a farce.

Athletes Commission: Really? Let us find *one* athlete who has served on it that thinks it has done anything more than be "makeup" for the ugly face of FINA paternalism. "FINA is like a family: a mother, a father, and the athletes are the children" (Cornel Marculescu, FINA Executive Director).

Irrefutable? More like an outright lie.

6. FINA financial picture.
From Mr. Neuburger:

> *"PricewaterhouseCoopers conducts an annual external audit compliant with Swiss Law, Swiss Accounting standards and the FINA Constitution."*

From recent news reports:

> *"Sport Associations headquartered in Switzerland have no requirement under Swiss law to do any reporting of their finances."*
> (*New York Times*, *Wall Street Journal* and *USA Today*, all on May 28, 2015 in connection with the FIFA indictments.)

> *"This is exactly what I have been saying. FINA's financial statements are a joke, but the group doing the audit will only report on what FINA asks them to report."*
>
> -Jim Wood,
> former president, USA Swimming and U.S. Aquatic Sports.

Mr. Neuburger, after 25 years on the FINA Bureau, was either ignorant of the above when he made the statement above to the USA Swimming Board of Directors, or he misled the board.

Irrefutable evidence? If Swiss law has no requirement for financial reporting by its 60 sports associations headquartered there, then what they do report can range from 100% accurate to 100% fiction or anything in between, and there is no legal requirement for anything else.

Other "questionable" statements from Mr. Neuburger's "defense of FINA" presentation:

- "Challenges to USA Swimming."
- "Maintaining sovereignty over our Olympic team selection process." We will discuss this further at subsequent USA Swimming Board meetings. FINA might attempt to disrupt this,

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but *their own* financial interests would be destroyed by disrupting our schedule. Imagine the TV appeal of an Olympic Games where FINA has told the USA Swimming team to "stay home".

- "FINA has more than 100 Million in the Bank." If this is true, why does FINA have to ask professional coaches to work for $100 a day per-diem when they serve the sport doing coaches clinics? There are 100 examples of FINA lavishing money on "the suits", while coaches and athletes are treated extremely poorly. Per diem for Bureau members and committee members is how much again? $400? $500?

  For an organization like this, pointing out that FINA has 100 million in the bank is not a point in its "favor"; it is rubbing salt in the wounds of those who make the sport work: coaches and athletes.

- And for the finale: "Not a single President or General Secretary of 209 National Federations worldwide has expressed support for the WSCA demands." (From Mr. Neuburger's dog and pony show to the USA Swimming Board.) **Of course not: every one of them ride in the system of "grace and favor" of the FINA President and Executive Director.** They sit in thrones. They get huge, unearned weeks of per-diem on trips. They pay for nothing with the per-diem: meals for them and rooms and travel are paid directly by FINA. And then there are the envelopes of cash....

Do you expect that they will turn-over the gravy bowl?

If the President of USA Swimming is to "have his way" and everything said contrary to FINA be done by "irrefutable factual evidence", then is it not fair to expect the exact same from those whom have supposedly represented the USA for the better part of a quarter century at FINA, when that person defends FINA?

My hope is that the USA Swimming Board will see the fairness in upholding the same standard of information for both supporters and non-supporters of FINA and recall that we are not asking the death penalty for an individual where "irrefutable factual evidence" would be appropriate; but instead, **simply asking for an independent review by an outside consultancy on FINA's finance, structure and operations**, as is good practice in many fine organizations including our own beloved USA Swimming (who has done it four times now since 1979).

FINA – we all deserve *much* better.

2015 ASCA World Clinic ~ September 8-13 ~ Cleveland, Ohio (USA)

Further information available at: http://www.swimmingcoach.org/worldclinic/

The Never-Ending Corruption Problem
that FINA Refuses to Address

by John Leonard

On Fri, June 3, 2011 at 8:01 PM, John Leonard wrote to Dale Neuburger

This happens to be current, but I hear this sort of thing all the time… any ideas Dale?
We can't "develop swimming" if we don't have basic fairness. JL

From: *[anonymous]*
To: John Leonard
Sent: June 2011 7:50 PM

Dear John,

You said that day if we should have a problem with the *[Federation]* we should contact you. Well we have the National Championship tomorrow and it was supposed to be in a good standard pool which everyone is ok with. We had issues with the pool, but they forced people to go there just because they get ten percent when swimmers go there and it goes into people's pockets. The Executive Committee voted today and majority won and the constitution was followed; but the chairperson and Secretary General, and Technical Director (who are not in swimming) went back and decided that the gala is on and they are going to select the national team which they don't want the best swimmers to be on.

This team is for Shanghai champ and one of the best swimmers, who is the top swimmer in *[country]* with their time of 25 sec for 50m, while the person they want to send is 28 sec. This is one example and it's because the parents give them money to have their children selected for the national team. What shall I do? All coaches are waiting for my response as the email was there would be no swimming because of the pool and now we go to the president mail gala one, and swimmers of the nation team are there.

They cancelled the national coach so we don't have one anymore. And the times will also be wrong for the swimmers, just because they want to cheat for this swimmer?

I am waiting for your help what shall I do

-[anonymous]

- - Original Message - -
From: Dale Neuburger
To: John Leonard
Sent: Sunday, June 05, 2011 10:58 AM

John,

I wish that I had an easy answer, but I do not. However, I think that these kinds of issues are more often, and perhaps more appropriately, solved by the Continental Association, than by FINA.

Dale

On Mon, June 6, 2011 at 6:47 AM, John Leonard wrote:

Thanks Dale. I do recognize that this is a tough one to deal with.

Is it clear, however, that expecting "development" of swimming around the world is a ludicrous and semi-comical expectation when ultimate fairness of the simplicity of "the fastest swimmer goes to the next meet at the next level" is not recognized or accepted?

Why "get better" when that "does not matter" for competitive opportunities? I would hope that USA Swimming would factor considerations of this sort into play, when asked for aid from a nation… do they recognize the rights of fair play or not?

I have no great ideas either. I just know we won't successfully "develop" world swimming until this issues does not exist anymore. JL

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From: Dale Neuburger
To: John Leonard
Sent: Monday, June 06, 2011 7:02 AM

John,

The FINA Development Commission has focused on governance of National Federations, understanding this is where "the rubber meets the road."

A development handbook, including lesson plans and teaching aids, was distributed at the FINA World Aquatics Conference in Uruguay last fall. It was divided into five sections: creating your plan (strategic planning); securing your structure (governance); promoting your brand; choosing your people (volunteer leadership); and, increasing your income (membership and sponsorship). We have tried very hard to motivate a more "professional" view of developing and governing the sport.

However, honesty and ethical behavior cannot be taught in a book. I wish I had a better answer, but in some countries, there are different stands of acceptable behavior. It is very hard to change cultural standards which go far beyond swimming, or sports generally.

In terms of assistance, your concept is generally correct. Sometimes, however, we may have to take a chance on a "reformer" in a country which has had a bad previous track record, I thin k. But then we need to have high expectations for continued help and support.

No easy answers…appreciate your effort to draw attention to this.

Dale

From: "Dale Neuburger"
To: "John Leonard"
Sent: Monday, June 06, 2011 9:38 AM

Although each situation is different and can have various interpretations, going to the "next level" can be helpful. This means, in some cases, the Olympic Committee; in others, the Sports Minister or government officials; and, in others, the regional or continental swimming organization. Good organization governance is important, and coaches can and should play a role in ensuring equity and fairness in the sport.

John, hope this might serve the purpose?

Dale

Our entire sport is tainted when the developing world of nations that have coaches attempting to elevate Swimming in their nation are thwarted by federation officials accepting bribes to put athletes on teams instead of having the best athletes in the country represent that country at the World Championships.

When FINA turns a "blind eye" to this horrible practice, they undermine the entire basis for our sport, discourage our most courageous athletes and coaches who attempt to do their best in order to represent their nations. **Corruption must be rooted out everywhere!**

And if our International Federation will not do it, then we need a new International Federation.

FINA: we all deserve better.

The Physiology of Aging as it Relates to Sports

by Edward Nessel, Garden State Masters (USA)

Overview

There are several aspects to physiologic aging which can interact to diminish the body's ability to perform vigorous activity. It is the intention of this writing to delineate those aspects and assess what, if anything, can be done to delay, stop or even reverse the negative effects of time on the human body.

It seems that today athletes of all ages and abilities are on a quest for optimum performance in their chosen athletic endeavor. More so than ever, age is becoming secondary importance, allowing one to compete in the next-older bracket or, more remarkably, in open competition as evidenced at the 2000 Olympic Games, but without diminished performance. Opportunities are more available now than ever for older athletes (now called Masters or Senior athletes) to compete in various sports activities ranging from marathon running to swimming to cycling to weight lifting.

However, although these older athletes exhibit strength and endurance capacities far greater than those of untrained people of similar age, even the most highly trained older person experiences a decline in performance after the fourth or fifth decade of life.[1]

In modern societies, the level of voluntary physical activity begins to decline soon after people reach adult maturity. Included in trying to reduce stress as we age is the reduction in muscular effort. Modern technology has afforded us the fact of life that things are now much less physically demanding. Considering the above, one wonders why some older individuals choose to remain physically active when the natural tendency is to become sedentary.

It is common knowledge, at least to those who are generally aware of what it takes to feel physically sound, that repeated vigorous activity is extremely important to maintaining robust health into advanced age. But to diminish the differences in physiologic parameters due to chosen reduced activity (as seen with many as they get older) and advancing age proper, one need only to study Masters competitors, regardless of chosen sport. It is all too obvious that as we age, we need more rest between work bouts as compared to younger athletes. Even at a high level of conditioning, the older athlete requires more recovery time to engage in a repeat maximum effort than a younger athlete.

Of course, there is another element that should be addressed regarding one's ability to develop and retain aerobic and anaerobic capacities regardless of age. That element is simple genetics. It has been shown that "picking the right parents" and being the recipient of a great mix of DNA can influence up to 50% of an athlete's ability to perform at a superior level.[2] Those such blessed and devoted to continuous hard work to maximize their athletic potential are the ones we usually see representing the USA at the Olympic Games. How much they retain is in their hands, however, due mainly to how much they choose to exercise vigorously throughout their later years.

Parameters to be discussed and illustrated will include: sports performance comparisons by age, respiratory changes with aging, cardiovascular changes with aging, changes in strength with aging, body composition with aging, trainability of the older athlete, and how training can delay the decline in exercise performance.

Sports Performance

Records in running, swimming, cycling and weightlifting suggest that we are in our physical prime during our 20s or early 30s. Although older runners have achieved some exceptional records, running performance in general declines with age, and the rate of this decline appears to be independent of distance. Longitudinal studies (testing the same athletes repeatedly as they age) of elite distance runners indicate that despite a high level of training, performance in events from the mile to the marathon declines at a rate of about 1.0% per year from the age of 27 to 47 years.[3 4] It is also interesting to note that in a cross-sectional

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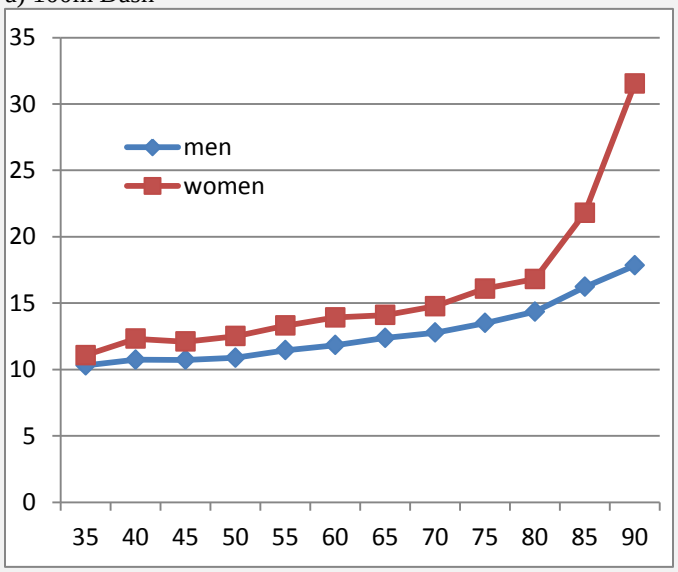
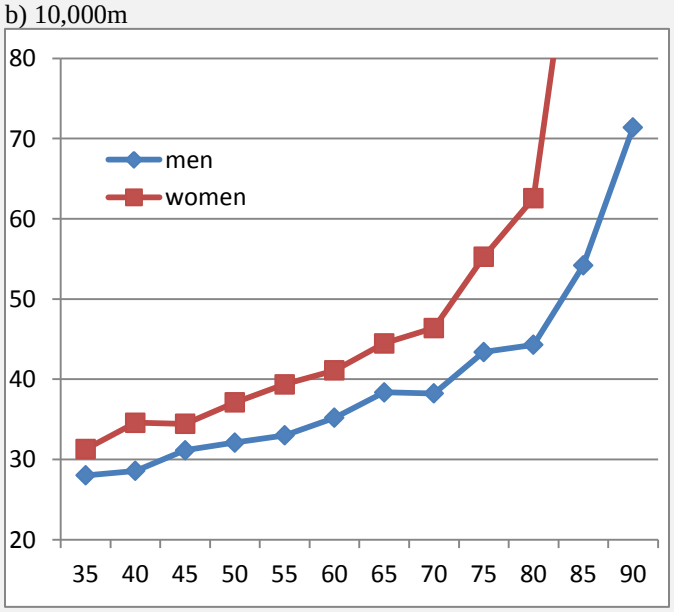
analysis (results of different athletes representing the different age groups), American Records for both the 100m and 10K runs also decrease by about 1% per year from age 25 to 60. Beyond age 60, however, the records for men slow by nearly 2% per year. Another cross-sectional sprint-running test of 560 women between the ages of 30 and 70 revealed a steady decline in running velocity of 8.5% per decade (0.85% per year). The patterns of change are about the same in both sprint and endurance running performances. *[see figure A]*

Figure A
Change with age in national Masters records of USA Track & Field for (a) 100m and (b) 10,000m. Note that these running records slow at a much faster rate after the age of 50-60 years. (time is on Y axis, age is on X axis)

a) 100m Dash

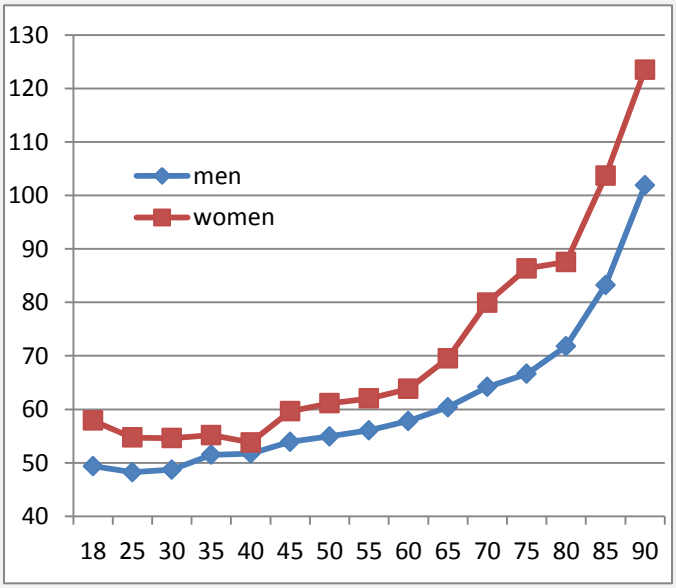


b) 10,000m



A study of past national Masters Swimming championships (1991-1995) shows that for the 1500-meter freestyle, both men and women slowed steadily from age 35 to about 70, after which swimming times slowed down at a faster rate. Additionally, the rate and magnitude of the declines in both the 50m and 1500m freestyles were greater for females than males (a possible strength component here).[5] Another analysis *[see Figure B]* shows a comparison of U.S. Masters Swimming records in the 100m Freestyle; the times get slower by about 1% per year for both men and women from age 25 to age 75. But because success in this sport depends on skill as well as on strength and endurance, some U.S. Masters swimmers have achieved their personal best performances at 45 to 50 years of age.

Figure B
Change with age in national Masters records of U.S. Masters Swimming for the long course 100m Freestyle.
(time is on Y axis, age is on X axis)



Cycling performances are best seen in the age range of 25 to 35. Male and female cyclists' records (40-kilometer distance) drop at about the same rate with age; an average of 20 seconds (0.6%) per year. The U.S. national cycling records for the 20-kilometer distance show a similar pattern for both sexes. For this distance, speed decreases by about 12 seconds (0.7%) per year from age 20 to nearly age 65.[6]

In general, maximal muscle strength is achieved between the ages of 25 and 35. Beyond that age

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range, the ability to lift weight declines at a steady rate of about 1.8% per year. Of course, as with other measurements of human performance, individual strength varies considerably. Some individuals, for instance, exhibit greater strength at age 60 than people half their age.

Thus, to summarize the above:

a) records in running, swimming, cycling and weight lifting indicate that we are in our physical prime during our 20s and early 30s;
b) in all of these sports, performance generally declines with aging beyond our physical prime; however, with swimming, which relies heavily on skill, some older athletes attain their personal best performances in their 40s and 50s;
c) most athletic performances decline steadily during middle and older age, primarily due to decrements in endurance and strength.[7]

Now we will look at the specific parameters which tear at us through the years and act to cause inevitable declines in athletic performance.

Changes in Cardiorespiratory Endurance with Aging

To a large extent, changes in endurance performance that accompany aging can be attributed to decrements in both central and peripheral circulation. Measurements of cardiac output and limb blood flow are not easily performed, so early studies of the effects of aging on the physiology of endurance exercise examined maximum oxygen uptake (VO_2 max), which correlates well with maximal cardiac output. *[see Table 1]* More recently there have been efforts to measure blood flow and oxygen exchange in the leg muscles of exercising older subjects, but these studies are limited in number, so for the most part the explaining of the decline in endurance performance is limited to changes in maximal oxygen uptake (aerobic capacity).

Table 1
Changes in aerobic capacity and maximal heart rate with age

Age (years)	**Weight** (kg)	**VO_2 max** (L / min)	**VO_2 max** (ml / kg min)	**HR_{max}** (beats / min)
21.3 (±1.6)	63.9 (±2.2)	4.41 (±0.09)	69.0 (±1.4)	189 (±6)
46.3 (±1.3)	66.0 (±0.6)	4.25 (±0.05)	64.3 (±0.8)	180 (±6)

Studies of normally active people

The first studies of importance and relevance regarding the aging process and physical fitness were done in the late 1930s.[8] What was ascertained from these studies was the fact that maximal oxygen uptake in normally active men declined steadily from age 25 to age 75 at about an average of 1% per year *[see Table 2]*, which is the same rate of decline seen in endurance running, swimming and cycling performances. More recently, a review of 11 cross-sectional studies, most involving men under age 70, examined the rate of decline in VO_2 max with age; these showed a decrease from 0.8-1.1% per year.[9]

Table 2
Changes in VO_2 max among normally active men

Age (years)	**VO_2 max** (ml / kg min)	**% change** (from 25 y.o.)
25	47.7	-
35	43.1	-9.6
45	39.5	-17.2
52	38.4	-19.5
63	34.5	-27.7
75	25.5	-46.5

In the few longitudinal studies performed in this area,[10 11 12] a wide range of decline in aerobic capacity was seen, but these variations can be attributed to the subjects' different activity levels and ages at the beginning of the studies. Nevertheless, the rate of decline in VO_2 max is generally agreed to be approximately 10% per decade or 1% per year (0.4 ml/kg min) in relatively sedentary men.

Some studies have shown that, on average, women demonstrate a lower rate of VO_2 max decline with age (0.2-0.5 ml/kg min) per year than men,[8] while others show no difference.[13 14] But there is one variable many women have over men: due to their less consistent physical activity as they grow into maturity, many women not involved with sports or training start their decline in VO_2 max earlier (late-teens) than men (mid-20s).

To provide a more accurate comparison of VO_2 max values in men and women, simply comparing values with the increased body weight component as one ages is inadequate and will give inappropriately low values of aerobic capacity. One should use actual

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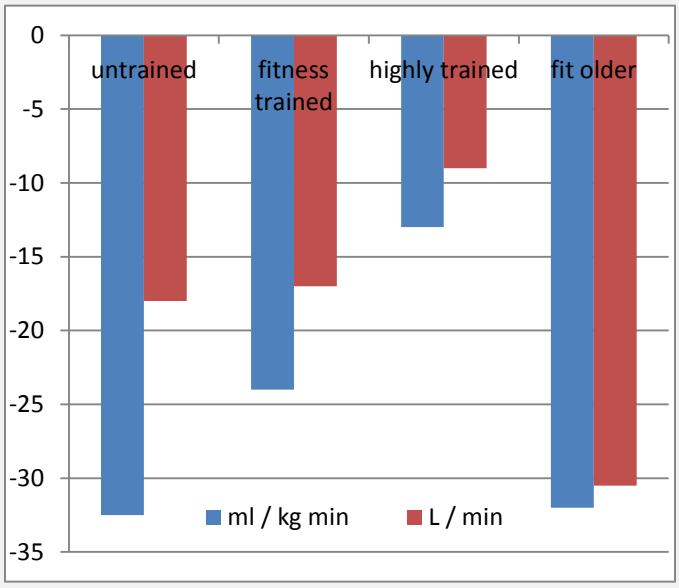
readings of liters per minute of oxygen uptake rather than the relative reading with the increased body weight component to get a more appropriate comparison of aerobic capacity with aging. *[see Figure C]*

Figure C
Percent change in VO_2 max of untrained, trained (for fitness & higher), and older fit men after 22 years. Shown relative to body weight (ml / kg min) and in absolute (L/min) terms.



Also, comparisons of such aerobic capacity values do not take into consideration the individual's initial VO_2 max values. For example: a decline of 0.5 milliliters per kilogram-minute (ml/kg min) in someone with an initial value of 30 ml/kg min would have a greater impact than in someone with a value of 50 ml/kg min. It would be better (and more accurate) to compare groups of people in terms of their percentage change in VO@max, which can be calculated as follows:

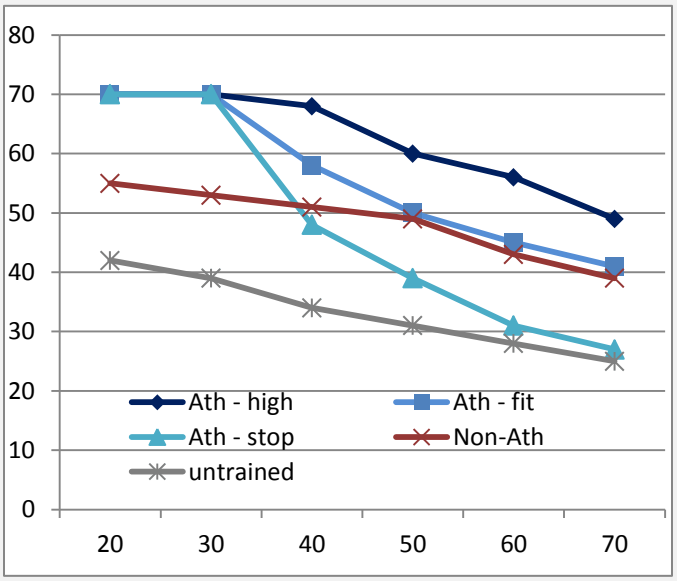
$$\% \text{ change} = \frac{VO_2\text{max} - \text{initial } VO_2\text{max}}{\text{initial } VO_2\text{max}}$$

Using the above formula, it has been shown that both men and women lose about 1% per year in aerobic capacity. This decline is caused primarily by a reduction in maximum heart rate and stroke volume. These reductions decrease cardiac output, which then limits oxygen transport to the muscles.

Studies of older athletes

Scientists at the Harvard Fatigue Laboratory have done some longitudinal studies on former elite runners encompassing about 30 years. What information that came out of the study showed that runners who did not continue to train during middle age showed much larger declines in aerobic capacity (43% decline on average from age 23-53) than those who "stayed in shape".[15] These facts seem to prove that prior training offers little advantage to endurance capacity in later life unless a person continues to engage in some form of vigorous activity. *[see Figure D]*

Figure D
Changes in VO_2 max (Y axis) with age (X axis)



Another study observed that over a 10-year period, older track athletes (age 50-82) who continued to train and compete were able to maintain their VO@max values at a fairly high level, whereas those who reduced their training showed a significant decline in aerobic capacity.[16] The main premise from this study emerged to show that, as one passed middle age, vigorous training was the main component to keeping Father Time (aerobic capacity in this case) relatively in check, or at least in slowing down his agenda for us all. However, other changes were the same for both groups:

a) maximum heart rate decreased by about 5 to 7 beats per minute per decade;
b) body weight increased from an average of 154 pounds to 164 pounds;
c) body fat increased significantly from about 13% to over 18%.

More recent longitudinal studies of older runners and rowers have reported a decline in aerobic capacity, cardiovascular function, and changes in

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muscle fiber composition with aging.[17 18 19 20] These athletes were studied for as long as 28 years, during which time some continued to train for competition and others became quite sedentary. Those athletes who trained hard experienced a 5% to 6% decline in VO_2 max per decade. Those who stopped training when young experienced nearly a 15% decline in aerobic capacity per decade... the combined effects of deconditioning and aging.

It is now commonly accepted that reducing the effects of aging (on endurance) depend to a great extent on the individual's training adaptability, a fact found to be as much dependent upon genetics as hard work.. It also appears that highly intense training has a slowing effect on the rate of loss in aerobic capacity during the early and middle years of life (30-50 years old), but less effect after age 50.

Respiratory Changes with Aging

In dealing with the lungs and ancillary anatomy (chest wall and respiratory muscles), as one ages, it seems that simple loss of lung tissue elasticity and attendant stiffening of the chest wall are the prime factors in reduced respiratory capacity, demanding more effort and energy to breathe. This occurs almost universally in sedentary people as they age.

What is seen from all this is a reduction in both vital capacity (the total volume of air expelled after maximal inhalation), and forced expiratory volume in one second (the greatest volume of air exhaled in one second). These decline linearly with age, starting at age 20-30. While these decrease, residual volume (RV), the amount that cannot be exhaled, increases, and the total lung capacity (TLC) remains unchanged. As a result, the ratio of RV to TLC increases, meaning that less air can be exchanged. In our early 20s, RV accounts for 18%-22% of TLC, but this increases to 30% or more as we reach age 50. The absolutely damaging habit of smoking accelerates this increase.

These changes are matched by changes in maximal ventilatory capacity during exhaustive exercise. Maximal expiratory ventilation (VE_{max}) increases until physical maturity then decreases with age. VE_{max} values average about 40 liters per minute for 4-6 year-old boys, increases to 110-140 L/min for fully mature men, then decrease to 60-80 L/min for 60-70 year-old men. Females follow the same general pattern, although their absolute values are considerably lower at each age, primarily because of smaller stature.

During middle and older age, endurance training reduces the loss of elasticity from the lungs and chest wall. As a result, endurance-trained older athletes have only slightly decreased pulmonary ventilation capacities. Decrease aerobic capacity among these older athletes cannot be attributed to changes in external respiration. Also, during strenuous exercise, both normally active older people and athletes can reach nearly maximal arterial oxygen saturation (97%).[21] Thus, neither changes in the lungs nor in the blood's oxygen-carrying capacity appear to be responsible for the observed drop in VO_2 max reported in aging athletes. Rather, the primary limitation is apparently linked with oxygen transport to the muscles. Aging results in a general decrease in maximum heart rate and stroke volume, which lower maximal cardiac output and blood flow to the exercising muscles. In addition, less oxygen is extracted by our muscles as we age.

Cardiovascular Changes with Aging

Cardiovascular function also diminishes as we age. One of the most notable changes that accompanies aging is a decrease in maximum heart rate (HR_{max}). Whereas children's values frequently exceed 200 beats per minute (bpm), the average 60-year-old has an HR_{max} of approximately 160 bpm. HR_{max} is estimated to decrease slightly less than 1 bpm per year as we age with the average HR_{max} for any age calculated by the formula: HR_{max} = 220 - age. However, this equation is, at best, only a good approximation for the average population; there can be individual variation with as much as ±20 bpm or more.

The reduction in maximum heart rate with age appears to be similar in both sedentary and highly trained adults. At age 50, for example, normally active men have the same HR_{max} values as former and still-active same-aged distance runners. This reduction in HR_{max} might be attributable to morphological and electrophysiological alternations in the cardiac conduction system, specifically in the

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sino-atrial node and in the bundle of His, which could slow cardiac conduction.[22] Also the heart becomes less sensitive to the body's chemical stimulation (with catecholamines).

Another parameter negatively influencing aerobic capacity is the decrease in [maximum] stroke volume (SV_{max}: the maximum amount of blood pumped out with each heartbeat); this is due primarily to increased total peripheral resistance from reduced pliability ("hardening") in the arteries with aging and possible reductions in left ventricle (the main chamber of the heart that pumps blood to the body's muscles and organs) contractility.

The decrease in VO_2 max with aging and inactivity then is largely explained by decreases in cardiac output (CO = HR x SV), along with the body's lessened ability to extract oxygen from the blood supply.

When compared to sedentary men of the same age, those who were consistently active had higher VO_2 max values because they had greater SV and thus also greater maximal CO, but as stated above as an inevitable part of aging: regardless of present condition, an older athlete will have less of all three important CO functions than a younger athletes. *[see Figure E]*

Figure E
Effects of aging on maximal values for cardiac output (CO), strove volume (SV) and heart rate (HR), as a percentage of 20 year-old maximum.

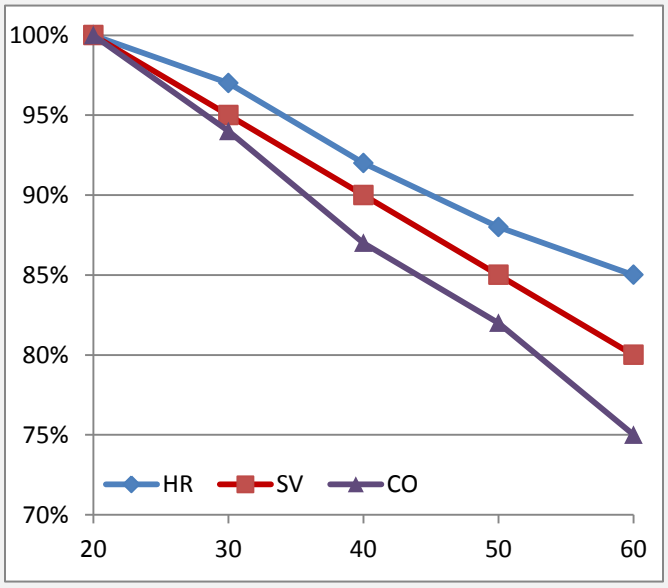
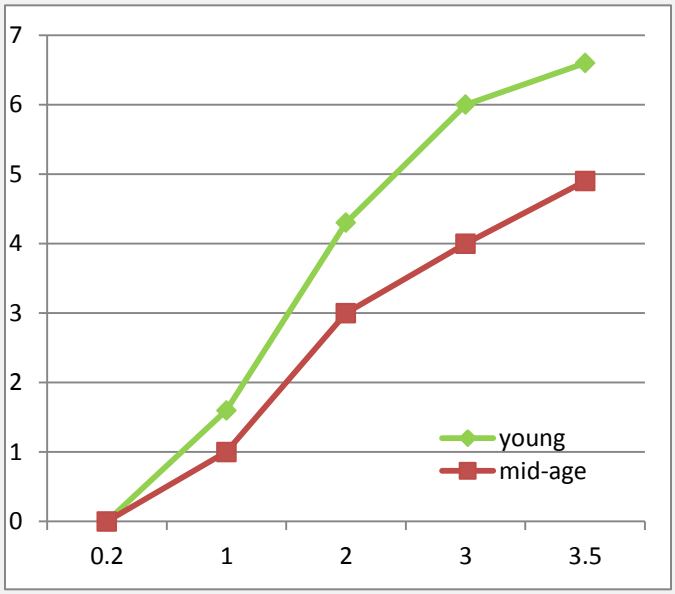


Figure F
Leg blood flow (Y axis) vs. oxygen uptake (X axis) during cycling exercise for young and middle-age athletes.



Cardiovascular deconditioning that accompanies reduced activity aside, it is the combination of increased peripheral vascular resistance (inhibiting blood flow to muscles, etc., *[see Figure F]*), increased body weight, and age-related negative changes in the respiratory and cardiovascular systems that combine to decrease VO_2 max in men by about 10% per decade after age 25. But if the body composition and physical activity are kept constant, deterioration due to the gaining process in itself results in a VO_2 max decline of only about 5% per decade. *[see Table 1, p.10]*

Some research indicates that older athletes who train with the same intensity and volume as their younger counterparts can have as little as a 1%-2% decrease in aerobic capacity per decade until age 50; but after age 55, reduced cardiovascular capacity will eventually slow down even these remarkable athletes.

Changes in Strength with Aging

The level of strength needed to meet the daily demands of living remains unchanged throughout life. However, a person's maximal strength, generally well above the daily demands early in life, decreases steadily with aging. The ability to stand

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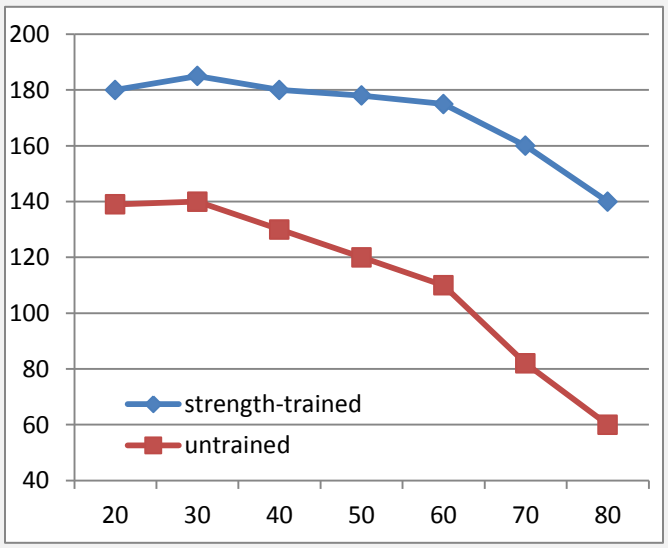
from a sitting position, something we all take from granted, is compromised at age 50, and by the age of 80, becomes impossible for some. Another example of a physical requirement that most take for granted is the opening of a sealed jar. When set at a specific resistance, this task can be accomplished by 92% of men and women in the age range of 40-60; but after age 60, the failure rate becomes 68% and by the age of 71-80, only 32% can open the jar![21]

As can be seen from Figure G, similar data describe leg strength changes with aging in men. Knee extension strength in normally active men and women decreases rapidly after age 45-50, but strength-training the knee extensor muscles enables older men to perform better at age 60 than most normally active men at half that age.

Figure G
Peak knee extension strength (Y axis) as one ages (X axis)



Age-related losses of muscle strength result primarily from the substantial loss of muscle mass that accompanies aging or decreased physical activity. Sedentary older adults can show both a large loss in muscle mass and an increase in subcutaneous fat.

It has also been found that swimming, generally noted by the average sports enthusiast as exercising most of the muscle groups equally, actually does not. When tested with CT scans, swimmers who did not train with weights nor did dryland exercises had a dominance of triceps (back of upper arm) muscle development at the expense of the biceps (front of the upper arm). Those who swam and trained with weights or did dryland exercises developed a balance of the opposing muscle groups.

It has been concluded from numerous studies covering a period of over 20 years that the amount or intensity of activity, or perhaps both, might play an important role in fiber-type distribution with aging.[23 24] The apparent increase in slow-twitch (ST) muscle fibers with aging and/or disuse is due to the decrease in the number of fast-twitch (FT) fibers. Though the precise cause of this is unclear, it has been suggested that the number of FT motor neurons decreases during aging, which eliminates innervation of these muscle fibers. Fibers that cannot be activated gradually atrophy and eventually become absorbed by the body.

An additional factor of aging and muscle fiber function comes into play with the observation that with advancing years, the maximum discharge rate of the motor-neuron unit is distinguishably less than with the young. This causes strength reduction due to an impaired ability to fully drive the surviving motor units.[25] In addition, with aging, the nervous system's ability to process or detect a stimulus is slowed, thus delaying a response to the muscles, though people who remain physically active are only slightly slower than younger active individuals.

Documentation from numerous investigations has shown that a decrease in both the number and size of ST and FT muscle fibers occurs with aging. Research indicates that approximately 10% of the total number of muscle fibers are lost per decade after age 50, which can explain, in part, the muscle atrophy that occurs as we age.[26]

It was thought for some time that any type of training would have an effect on preserving the musculature, but what is now known is that only strength training can preserve, even enhance, the cross-sectional area (increase in amount) of the trained muscles no matter what the age. Endurance training had a negligible effect in this area. But endurance training was shown to cause a positive adaptability by maintaining an adequate capillary supply to the muscle and an adequate positive stimulus to the oxidative enzymes there, thus allowing for only a 10%-15% decline from younger

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athletes... all of which suggests that the aging process has little effect on skeletal muscle's adaptability to endurance training.

Body Composition and Aging

There are three things that mainly affect how much fat our bodies accumulate as we grow and age:

a) how much and what we eat,
b) how much and how intense we exercise, and
c) our individual heredity.

Body-fat composition from early age is dictated to a great extent by how many fat cells are present in our constitution and how full of fat they become. If one has a tendency to be overweight and goes on a diet, the fat cells do not disappear, they shrink in size. The end results is a thinner person with less body fat; but the caveat here is that if calorie intake exceeds expenditure, the fat cells will just fill up again and produce the same overweigh condition. Also, many people just reduce calorie intake when they want to lose weight; they do not add lean body weight (muscle) with exercise, so we may see a lighter (in weight) person but not necessarily one who is relatively leaner.

Beyond age 30 the body has a normally-reduced ability to mobilize fat which adds to the propensity of weight gain. This coupled with the gradual decrease in lean-body mass from lessened physical activity, allows for an increased percentage of total body fat.

As one might anticipate, the body fat content of physically active people is significantly lower than that of age-matched sedentary people. Highly-trained male and female runners at an average age of 45 years, for example, have been reported to average 11% and 18% body fat, respectively; considerably lower than those reported for sedentary people of similar age: 19% in men and 26% in women. Interestingly, older competitive swimmers (average age 50 for men and 43 for women) have less body fat than age-matched sedentary people, yet these athletes are fatter on the average than a group of equally fit distance runners; the male and female swimmers average 15% and 23% body fat, respectively. This is due, in part, to the gravity-free environment of the water and to the supine position of the body while swimming, both allowing the body to exercise vigorously but at a lower heart rate and, therefore, with less caloric consumption per unit time.

Though we see that athletes of any age are leaner than their less active counterparts, older ones, for the most part, have substantially more body fat than younger athletes.

Trainability of the Older Athlete

Despite the decrements associated with aging, older athletes are capable of exceptional performances. Their ability to adapt to endurance and strength training is well documented. Recent studies have shown that improvements in $VO_{2\ max}$ with training are similar for younger (ages 21-25) and older (60-71) men and women.[27 28] Though the baseline readings for $VO_{2.max}$ were lower for the older athletes, the absolute increases with training were similar. In other words, the trainability of the older athlete was similar to those much younger. This can be explained by the fact that in older individuals there was greater improvement in the muscles' oxidative enzyme activities, whereas improvement in younger people is largely due to increased maximal cardiac output. But to put this into perspective: this does not mean that endurance training can enable older athletes to achieve the performance standards established by younger athletes.

Loss of strength might be attributed to a combination of aging and reduced physical activity that produces a decline in muscle function. But although it is difficult to compare the adaptations to strength training of younger and older people, aging appears neither to impair the ability to improve muscle strength nor to prevent muscle hypertrophy (larger mass).

In essence, then, the scientific literature has shown that, though we cannot halt Father Time and his inexorable march toward our decline with aging, we can fight back to a large extent by taking up the cause of regular endurance training, strength training, and proper and appropriate nutrition (for weight control).

Youth may be wasted on the young, but a wise

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person of years need not be envious: he can make the best of his existence and enjoy a healthy and vigorous life.[29]

In Perspective

Over the past several years, I have had the privilege of coaching, acting as a mentor to, and training with, the greatest proponent of physical conditioning and healthy lifestyle I have ever known: 1992 Olympian Ronald Karnaugh, MD. "Doctor Ron", as he is known in swimming circles, over the years has demonstrated time and again what one can do to maximize one's physical potential. Standing over 6'5" and weighing an average 210 pounds with 7% body fat, Ron has belied his years and did combat in the pool with opponents almost half his age. At 33, he became the oldest medal winner (bronze) in history at the World Championships in 1998, and, swimming against America's best, who were 10 years his junior, he just missed making the 2000 Olympic Team in the 200 IM at age 34. Ron has also moved Masters Swimming up a couple of notches by setting several records (while competing for my team) that would be the envy of many world-class swimmers. He is, in my opinion, one of the greatest physical specimens I have ever seen, and this work is dedicated to him and what he represents.

Though most of us were not blessed with Ron's talent (physical and athletic), we can glean from his experiences the fact that the pursuit of one's optimum fitness is within our own reach. If we choose to take the "high road" to physical fitness and make it a constant part of our lives, with a little luck, the quality and probably the quantity of our days will be extended to the max.

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Development and Critical Training Periods in the Life of a Swimmer

by Mirko Mirkov, Midway Aquatics (USA)

In the following, I share my thoughts on the development of and critical training periods in the life of a swimmer. I have developed this document pulling from the book Developing Swimmers by Michael Brooks and from the expertise of USA Swimming and the content on their website.

As swimmers age and develop, their training needs change dramatically. What is proper training for a 10-year-old is not appropriate for a 14-year-old or a high school senior, and the level of commitment expected of an older athlete training for senior nationals cannot be expected of a novice learning the fundamentals of freestyle. The team as a whole is split into distinct training groups to meet swimmers changing needs.

All of these training groups develop on three dimensions, called the *training triad*:

- Mental – training program aims to create a team culture based on a philosophy referring to all-encompassing excellence. Kids who think like champions act—and swim—like them.
- Technical – work on technique at all times, even in main sets that have physiological focus. Efficiency in water matters. Beauty matters.
- Physical – program in the water emphasizes building an aerobic base through training all four strokes and individual medley. For out-of-water training, we include work on general athleticism (coordination, agility, quickness, core strengths, flexibility in key joints) and play.

The groups use different type of training, volumes and intensities of training, speeds of training, and levels of commitment to swimming, all of which are developmentally determined. Generally, as swimmers age and develop, the demands, skills levels, and performance levels rise gradually.

Although these phases are generalizations you can often see that characteristics overlap into different phases. The definition of these sensitive periods are general guidelines, not ironclad rules. Depending on the rate of your swimmer's own growth and development, you may see some characteristics occur either earlier or later. What is important is to know the progression that usually occurs and to be able to apply it to each swimmer. Coaches work with groups of children, usually girls and boys combined, and within a group each individual is on his own maturation timetable. **Theories describing precise critical periods for so-called normal children will be in error for most of the group. Further, the critical periods often differ for boys and girls, though they overlap significantly.**

Beyond physiology, these keystone years in a swimmer's development help form his or her competitive psychology, which is highly transferable to other areas of life. In these years we are teaching them to be swimmers, to think like champions, to understand hard work and commitment, to think correctly about failure and success, to expect a lot from themselves and to set high standards, to build confidence in their abilities, to enjoy their strength and toughness, and so on.

8 & Unders

These are the youngest novice swimmers on the team, most of them fresh out of lessons, and they are initially only able to swim a little backstroke and freestyle. Their attention spans are brief, their energy levels are high, and their control over their bodies in the water is low. But their daily improvement is noticeable, to a good coach; they are as moldable as soft clay to a potter.

1) Teach them love of swimming
2) Teach all four strokes, starts and turns
3) Help them become swimmers

9 + 10 year-olds

Most swimmers in this group began in the novice program, so they have a background in technique. They know how to do the four strokes legally. They know how to read the clock in theory, and so on. They are still high energy and low focus, but they have more control over their aquatic selves

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compared with the younger swimmers. At this age, girls tend to learn technique quicker and focus better than the boys.

1) Keep them happy
2) Teach team culture
3) Emphasize skill development as the primary focus of training
4) Emphasize aerobic development as the secondary focus of training
5) Coaches may need to increase the aerobic work for many of the girls to take
1) advantage of their earlier critical period for aerobic development
6) Target certain events
7) With dry land, emphasize coordination, flexibility, core strength
8) Continue teaching them to be swimmers

11-14 year-olds

These are the most important years for creating future national-level senior swimmers. With their training, swimmers are determining what level of athletes they will be later. During this time, there is a gradual and progressive buildup in the intensity and volume of training. Also, we begin to differentiate in the training groups between those swimmers who are more advanced, more committed, and higher performing (fast-track swimmers), compared with the others (the slower-track swimmers).

Puberty complicates things. As boy become men, they lose fat and gain muscle, getting bigger and stronger. As girl become women, they gain height and strength, though not nearly to the extent that boys do. And they add fat deposits. With proper nutrition (which does not mean starvation diets or eating disorders) and proper training (lots of consistent aerobic work), any adverse effects of these biological changes on swimming can be kept to a minimum.

In the process of becoming adults, all children go through the same process, but they go through it at different times and rates. Early developers get bigger and stronger earlier than the others, which mean they are more likely to win their races. However, because they can often win without having to work hard and to work on their technique, they may not develop solid work ethic, and their technique may be poor as they build through the water. However, if the coach and parents can help the late bloomers to stick it out through the lean years, and if the swimmer relies on technique and hard work to overcome the temporary physical deficit, the he or she will be in the driver seat in a few years. Late bloomers tend to be taller and leaner, and the extra work on technique and endurance development before maturation should lead to higher performance in the end.

1) Place greater emphasis on team culture and swimmers responsibilities
2) Focus on aerobic development
3) Target certain events for training
4) Continue technical improvement
5) Emphasize the connection between training and racing
6) Continue with general dry land training
7) Account for gender and individual differences in maturation and development

15 & Over

This phase of training is mainly specialization. By the time you get to this phase you may be on the tail end of puberty or have entered adolescence. In this phase, you can start to work at higher intensities and put in higher quality workouts, if you have a strong aerobic base. You really begin to refine race strategy and take more responsibility for your own training. Because you may be more physically developed you may even begin a structured dry land program. This is also the point where athletes choose one sport to focus on and will put more time into that sport.

The final phase of training will hopefully take you to the end of a very successful and satisfying career in swimming, where you are fully mature as an athlete. Athletes in this phase are really ready to put on more muscle mass, train at top end speeds with the balance of recovery, and also realize the importance of other training factors such as sleep, nutrition and psychology. Athletes in this phase are expected to be highly motivated and take an active role in planning their training.

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Suggested Age Group Training progression					
Age (level) of swimmer	**Sessions per week**	**Time in water per session**	**Time for dryland**	**Average volume per session**	**Break between seasons**
8	3	45 minutes	15 minutes	n/a	Spring – 3 weeks Fall – 3 weeks
9-10	4	75 minutes skill: aerobic training	15-30 minutes	n/a	Spring – 3 weeks Fall – 3 weeks
10 (advanced)	5	90 minutes skill: aerobic training, speed	30 minutes	3,000 yards	Spring – 3 weeks Fall – 2 weeks
11-12 (slower track)	5	90 minutes skill: aerobic training, anaerobic training, speed	30 minutes	4,000 yards	Spring – 3 weeks Fall – 2 weeks
11-12 (advanced)	5-6	105 minutes skill: aerobic training, anaerobic training, speed, racing strategies	30 minutes	5,000 yards	Spring – 2 weeks Fall – 2 weeks
13-14 (slower track)	5-6	105 minutes skill: aerobic training, anaerobic training, speed, racing strategies	30 minutes	5,000 yards	Spring – 2 weeks Fall – 2 weeks
13-18 (advanced)	6-8	120 minutes skill: aerobic training, anaerobic training, speed, lactate training, racing strategies	30 minutes	6,000 yards	Spring – 1 week Fall – 2 weeks

Key Issues in Athletic Development

Thus far we have discussed the training program, its parts, and how these parts are implemented for swimmers at varying ages. But no two swimmers are alike, and the complications of real life will always give rise to questions and concerns. Here we discus some of the recurrent issues that arise from the application of our general training principles.

1) Early specialization - Swimming is unique, and for that reason, an early start in swimming is highly beneficial for much-needed technical proficiency if one is to reach high levels in the sport. This does not mean that kids should participate in swimming only, but that swimming should be a major part of their physical activity from a young age.

2) Participation in other sports - Kids will be better swimmers later if they become better athletes now,

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and playing helps them to do that. Swimming alone does not necessarily give a young athlete all the physical tools he will need to be a top swimmer later. This is why dry land routines focus on building flexibility, strength, core stability, shoulder stability and general athleticism. It is why much of the dry land incorporates outside games and play. Kids should be out playing different sports - you want them to develop skills, learning to coordinate their bodies, and becoming better athletes - but you do not want necessary them joining other organized teams. When a swimmer joins another team(s), a massive scheduling conflict is created, with opposing coaches protecting their turf and wrestling for the child's time and attention. All this being said, if swimmer are to reach higher level of performance, eventually they need to decide that they are swimmers and concentrate on swimming.

3) Burnout and levels of interest - Swimmers do not burnout because they are working hard, or because they swim fast. Instead, kids lose motivation and interest when they put a lot of time and effort into activity but do not seem to get any rewards. Well-designed programs that keep kids improving are the best method to lessen the burnout problem. When swimmers are improving their times, improving their skills, and getting stronger and faster, they will be motivated to swim. More children bore themselves out of sports than burn out. If a swimmer is not committed to the sport, he or she make little or no progress, falls behind his peers, never gets excited about swimming and gradually loses interest in the sport. Without consistent attendance and hard work, swimmers are not going to improve, and without that, they do not have fun.

A common occasion for burnout occurs with boys at about age 12-14 due to interest in other sports, or with girls of certain age, usually 15-16. The amount and intensity of work that got a swimmer satisfactory results when she was are 11-12 and built like a pencil will not suffice when she has the body of young women. Improvements are smaller, and they take a lot of commitment and hard work.

4) Late starts and missed steps - The lack of technical skills shows in the level and consistency of training for those who missed the early aerobic focus. It is frustrating for swimmer, coach, parent to see swimmer who wants to be great but is held back by a poor foundation. This is strong argument for parents getting their kids involved in the best program they can find from the beginning so that each step is well founded.

5) Meeting individual needs in training groups - There are many ways to divide into training groups, depending on the priorities of the club. Swimmers can be grouped by age, sex, ability, training and meet performance or a mixture of all of these.

6) Fast tracking swimmers - A coach or a program should never be an obstacle in the way of a swimmer getting faster. The common method of treating everyone in a group equally by giving everyone the same practice (the same sets, send offs, and expectations) benefits only a few swimmers and offers no incentive for swimmers to strive higher. Each swimmer needs to be given challenging practices that will help them reach their goals. Accelerated move ups need to be handed carefully and wisely, because mixing younger and older kids is not always the best option; younger swimmer may miss developmental steps he needs.

7) Move-ups in the training progression - Swimmers should move through the program as they age and develop. Unfortunately, move-ups can be contentious because often parents think that their child should be moving up training groups more quickly than the coach thinks he or she should. Decisions regarding group promotions should always be in the hands of the coaches. When considering promoting a swimmer from one to another group, these factors are most important: swimmer is leading his or her current group, swimmer is consistently training in higher tier of group, and swimmer has commitment level of higher group. The other factors can be: age, psychological maturity, physiological needs, competitive maturity, independence, leadership abilities, coachability, self-reliance, and willingness to be accountable for training and racing.

8) Double practice - Double practices (two-a-days) allow more time to develop feel for the water, and when the stresses of the training week are allocated intelligently, kids get much better and still stay healthy. During the school year, doubles do not make sense for age group swimmers, but summer allows for more water time.

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Working with parents

A crucial part of a swim coach's job is developing good swim parents. This is just as difficult as developing good swimmers. **Parent's attitudes toward swimming, the program, the coach, and their child's participation are keys to the child's attitude and performance.** Often the young swimmer takes parental cues negatively. On the positive side, when parents support their child's interest in swimming by showing that they value both swimming and the lessons learned while swimming, then their children are implicitly taught to enjoy the sport and are more likely to stick with it. Because of strong parental influence, it is crucial that the values and behaviors thought at the home mirror those taught at the pool. Thus, coaches must ensure a good fit between family and program before a swimmer joins the team. Once families are on the team, it is the coach's job to educate them. Most teams like ours have newsletters, web sites, blast emails, team handbooks to help parents.

Next comes the question of what parents need to learn. The coach must teach parent how to be good swimming parent. When parents know what to expect, they are better able to take their child's victories in stride and are less likely to overreact to each setback. By living and teaching hard work, discipline, consistency, and commitment at home, they are teaching their kids to be hardworking, disciplined, consistent, and committed swimmers. By supporting the swimming program and coach, they are teaching the child to respect and obey his or her coaches so that the lessons they are trying to teach get learned. Even when parents understand and practice all this, there is a need for day to day communication. People want to know what is going on. So we try to keep parents informed about what has happened, what is happening, what is about to happen. Parents should to communicate with the coach if they have question or concern. For our team, email is often the best place to start, by describing the issue or question and requesting a meeting if needed.

We do feel that whenever possible, it is the best to deal directly with swimmer. Sometimes there will be an issue that is obviously under the control of the parent, in these instances, discussing the matter with the parent is warranted. Attitudes—good or bad—often run in families. Swimming coaches have little control over these attitudes, even if they do their best to warn about consequences down the line. Conflict of some sort may be inevitable, but this is not necessarily a bad thing. When done politely, working through a conflict clarifies positions, gets people off the fence, and forces decisions that can lead to real progress. Remember, the coach is there to be coaching, not to be a friend.

Please, remember that:

- Parents should be parenting
- Swimmers should be swimming
- Coaches should be coaching

Thank you.

About Coach Mirkov

Mirko Mirkov has 13 years of coaching experience. In recent years he coached with Hornet Swim Club (Head Coach), where he doubled the program in size by number of swimmers, coaches and number of facilities available for practices. His responsibilities also included educating swimmers and parents on the science and general knowledge of the sport. Presently he coaches at Midway Aquatics as an Age Group Head Coach. He has coached Regionals, State, Zone, Junior Nationals and Scholastic All America qualifiers; coached individual and relay state champions and medal winners. Coach Mirko is an member of the American Swimming Coaches Association (ASCA) 2014 Fellow class, and holds an ASCA Level 3 certification. He was selected as a coach for Team Illinois for the Mega-Zone Meet in 2008; the Zone meets in 2010, 2012; and Junior Elite Camp in 2014. Coach Mirkov is serving as a member of Age Group Committee at Illinois Swimming. Growing up in Serbia, he was an accomplished swimmer, specializing in butterfly and Individual Medley. He held numerous national titles and competed internationally. He received a B.S. in Economics at the University of Belgrade (Serbia) before moving to the United States. He has multiple finishes in top three in Illinois Masters Swimming state meet and finished two Chicago Marathons. Mirko is married and lives in Chicago, Illinois with his wife and daughter.