

TRAINING PRINCIPLES TODAY & YESTERDAY

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In early September (1997), I attended the World Clinic of the American Coaches' Association in Orlando, Florida.

There were two principal speakers on training – Dr. Orjan Madsen of Norway and Jonty Skinner, a former world record holder for the 100m Freestyle. Jonty is the resident coach at the US International Centre at Colorado Springs for Aquatic Research, and was the coach of Amy van Dyken, an outstanding American sprinter at the Atlanta Olympic Games. Professor Madsen, a former athlete and scientist, is a world authority in the training of age group swimmers. Skinner is believed by many to be one of the outstanding American coaches.

Dr. Madsen with Dr. Wilkie, co-author of the acclaimed book "Training and Development of Age Group Swimmers" spoke of the factors which science has proved important in taking age groupers to their best performances as **mature swimmers**. There was nothing startlingly new in what Madsen said in Orlando, but every coach, Age Group swimmer, parent as well as administrators who plan competitions should consider well the Madsen and Wilkie principles.

Dr Madsen outlined the following points...

1. Children should not be trained to win races **when young**. It was stressed that learning good **TECHNIQUE**, how to be most streamlined was all-important. Unless good technique is learned when young, it is very difficult to acquire this later. Applying **power** with a good technique should come later.
2. The **AEROBIC** system, the delivery of oxygen-carrying blood and development of the enzyme systems for the energy metabolism of oxygen by the muscles can be well trained in the young swimmer but the anaerobic (sprinting) physiology of the young cannot be changed significantly with training until boys are about 14 and girls about 13. Before then the child's **aerobic** capacity is at the critical time during growth and later a window of opportunity will be closed forever. When the young swimmer is more receptive to aerobic training the aim is to gain a **head start** by **hastening slowly** – seemingly a paradox.

What are the implications of the above principles?

Dr. Madsen explained that young children until they are 12 or 13 years of age should do **very little sprint training** or interval training striving to make fast repeats, or to carry out **power** strengthening exercises other than working on maintaining **FLEXIBILITY** and gaining basic **core** strength with routines mainly using the body weight as the resistance.

Early developers, when still young may do well in sprint events in their racing but, in the long run, the child who is allowed to develop with much swimming at moderate speeds and who learns good technique is more likely to keep on improving at the age of 15 or 16 and as an older swimmer. Speed will come after developing endurance.

Inappropriately trained young swimmers who concentrate on practicing for sprint speed in training will cease to improve in the way they should. It is fine to be a champion swimmer when young **BUT** not if the training done is sprint based.

What do we mean by long swimming?

This depends on the swimmer's age, but 400m, 800m repeats and 2,000m swims should be the most common items, Madsen advised.

Dr. Madsen pointed out that providing 50m events at meets was not the way for Swimming Associations to develop swimmers to their best and that many countries in Europe have realised this. There are few 50m events for age groupers. Granted it seems anomalous for FINA to introduce 50m events for form strokes but with development of swimmers we are looking at a different situation.

Fifty metre races should be for school events and for novices who are not in training squads.

Madsen also stated something that knowledgeable coaches understand – that there should be a great deal of aerobic training (**most** of the training session) and with older sprint sprinters and distance swimmers, sprinting and anaerobic interval training should be carefully rationed.

What were the main items in the training for Shane Gould, Jenny Turrell and Karen Moras?

All world record holders they trained in our Ryde/Pymble training groups consistently carrying out more than two thirds of their training at 400 and 800m repeats. It was **speed through endurance** training. Shane broke Dawn Fraser's world record for the 100m sprint and had the World record for the 1500m as well. To-day's swimmers should understand that when Coach asks them to swim the **distance** items their response should not be "how boring". When swimming **distances** they can should be counting strokes per lap and working on changes in technique – like pushing the head down well down, experimenting with more and less kick ... getting the elbows up early at the beginning of the Freestyle stroke – looking for improved efficiency, faster lap times with less effort.

The 6-foot 7-inch former 100m world record holder Jonty Skinner reminded us he was a sprinter, but he soon realised that in order to sprint fast nearly as much long swimming is required as for as the distance swimmer, but swimming at a lower intensity. Skinner asserted that the deteriorating American, distance swimming since 1976 was due to concentrating on sprint races in the colleges, to the false trail of **quality swimming** (doing too much swimming at around race speed) and the general moving away from long aerobic training.

Skinner explained that a great deal of endurance work with his swimmers during the two years before the Atlanta Games meant that his sprinters including Amy van Dyken, who won the 50m Freestyle, had a good base on which to build more **specific** training later. He believed concentrating on sprinting in preparation will not, in the long run, result in personal best performances at **any** age.

So the moral is this. Strive to achieve streamlined swimming and a strong aerobic base without training the anaerobic energy-release systems. If coaches, swimmers and parents are patient, there will be steady improvement and better times will be reached when older.

TRAINING SCHEDULES – 50 YEARS AGO

At the 1995 Gold Medal Clinic in Hawaii, Coach Gennadi Touretski spoke of the training of dual Olympic sprint champion, Aleksandre Popov. He read out what was published in **1953** in a small booklet (published by Dymocks, Sydney), “Training for all sports” by Forbes Carlile. He said that what he, Touretski, was advocating **today** about training was **not new**. Judge for yourself.

How Australians Trained

It should be noted that this training was recommended when Australian swimmers prepared with **one annual 6-month season**. There was the exception that for top swimmers with every **two** years, Olympic and Commonwealth Games held during the Australian winter Prior to 1960 those selected, carried out additional centralised training for about two months, often in semi-tropical Queensland. In those days, the **total distance** covered in a day’s training session would be less than half, and in a year about one third of the total training miles would be covered today. In those days about 30 or 40 **kilometres** a week was regarded as **heavy training!**

The following schedule places emphasis on **distance** items for both older and younger swimmers.

I acknowledge here the strong influence the late Professor Frank Cotton (1990-1955) had on my thinking in enunciating these **principles**. They were the result of countless hours of discussion. What follows is from my booklet “Training for All Sports” (1953), referred to by Gennadi Touretski at the Hawaii WSCA Conference.

This training schedule was originally drawn up for swimmers of the Palm Beach Swimming Club in 1946 and was followed in principle by many of members of Australian Olympic teams leading up to the 1948 Olympic Games, where I served as swimming coach, and through the 1950s.

The general principles have been adopted by successful runners, rowers, and surfboard paddlers at this time.

Each individual worked to a training program drawn from five training items with **the greatest distance covered being BASIC work for both sprinters and distance performers.**

This is an interesting fact that both the sprinter and the distance swimmer will benefit from a great deal of easy work provided it is done slowly enough. However slow work alone will not give best results. There still should be a blending in of various types of faster, specific, training.

These are the five training categories.

1. **BASIC WORK.** This is the bread-and-butter training for all distances. Basic means relatively long distances covered easily and quite slowly. This should be analogous to walking at medium intensity in everyday living. During the off-season for the swimmer or runner, basic work only should still be carried out; just as the footballer might do slow running during his **off** months. (Of course nowadays, with the glittering financial rewards it is a different story in training for all sports.) For about the first month of the training season the swimmer should concentrate on long distances. Likewise the footballer, in fact all athletes, should always start their training season with long easy running.

2. **RACE PACE, WITH BASIC** (R.P.B. for short). For race distances over 100m the race distance should be divided into 50 or 100m segments alternately swum at approximately the speed of the race (not faster) with every second (**recovery**) segment swum at easy pace.
3. **BROKEN TRAINING**. Alternately, 50 metres nearly (but not quite) flat out, with 19, 20 or 30 second rests at each 50m. About half a mile of this each at each training session. (Interval training?)
4. **EFFORTS, OVER THE DISTANCE OF THE RACE**. About three-race distance **efforts** per training session, should be carried out around the middle of the training period. Only experience and concentration will enable swimmers to finally learn to swim at required speeds. To get the most benefit from this training plan, 100% efforts over the race distance should be kept until trial or race days. We all have a certain, limited, nervous reserve, which should be conserved for the big occasions and major effort. Applying this principle and covering a total of 4 miles or so of this mixed bag of training each day and swimmers will be well on their way to reaching their best. Being too anxious to go **all out** in training has spoilt many an athlete. (But only 4 miles a day!) Most of the sub-maximum **efforts** over the race distance should be between **80% and 90%**. Pace judgement should be based on the times of all -out performances when fresh. Accurately counted heart rates can serve as a good monitor. Don't worry, unless very marked and persistent, if times appear to be slow during the period of hard training. It is the training effect of effort put in that matters. Easing off during the **tapering** period before the big event invariably leads to great improvement compared with training times in the swimmer who is not over-trained and not **nervously depleted** overtrained with too much intensive training. This type of **effort training** might be said to represent training with the pace clock, not against it. Swimmers educate themselves how hard to make the **efforts**, and learn to use necessary intelligent restraint. Most efforts should be around 85%, but in the middle of the session when feeling good the swimmer might include 90% and occasionally, 95% efforts
5. **SPRINTS**. From 20 to 25 yards, **all-out** explosive bursts. This schedule was in essence repeated in my 1963 book "Forbes Carlile on Swimming", with kicking and **pulling** (legs tied), added. These items represented our training **building blocks** in the 1940s and 1950s in Australia. When you think of it, they were not too much different to modern **scientific** training of the 1990s. However, in retrospect we did not do nearly enough training. It was not year-round and we coaches were too careful about expending swimmers' **adaptation energy**. Nevertheless, some spectacular breakthroughs were made by coaches who stepped outside the norm and drove their swimmers hard for those days.

Then coaches did not fully appreciate and have their pupils apply well, what would appear today to be obvious principles of **good technique**. A study of films of past champions makes this very clear.

Progress has only come slowly. As we speculate about why there have been huge drops in the records, even constant **linear** improvement from 1948 to 1976, it is clear that many factors are involved.

However, this paper focuses on **TRAINING**