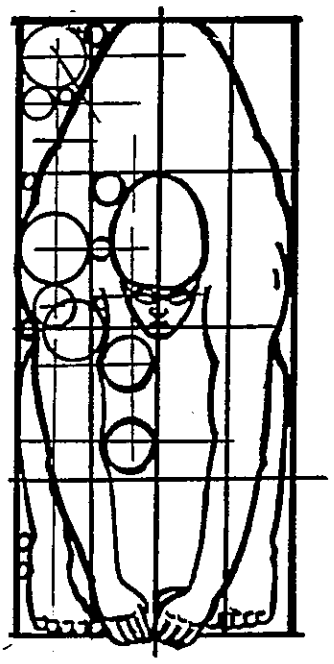

AUSTRALIAN MASTERS SWIMMING COACHES NEWSLETTER

VOLUME 8 NUMBER 1

FEBRUARY 1996

.....The Drugs in Sport issue has certainly hit the headlines in a manner we never could have imagined, and in our own back yard.

The Chinese problem has sensitised the world to the issue and an interesting article in the last issue of the Australian Swim Coach (January - February 1996 Vol. 12 No. 1) by John Leonard, shows just how difficult the problem is to control.

He believes that swimming there is treated by local Government as a business. Coaches and swimmers are receiving money from the City of Provincial Government based on performances at their National Games. This is by far in excess of any money earned from the Chinese Swimming Federation for international performances. To further complicate matters, 'the Mayor or Provincial Head is promoted to his next position based on the productivity of his industries.'

To quote the article 'There is no reason NOT to cheat. The government monetary rewards are huge. The average Chinese athlete and coach has NOTHING (literally). They may only be eating one meal a day without sport. When they have the chance to use drugs and advance themselves, what do they have to lose? If they get caught, so what? They go back to having nothing. In the meantime they have made a lifetime fortune.'

'The money comes from the government. The Chinese Swimming Federation can suspend them, but the money comes from a different source. Until they are suspected, they make more money than they can earn any other way. ..... (They can catch the cheats, but they can't stop the cheating...)'

On the other side of the world the USA has been split by 15 year old Jessica Foschi, who returned a positive drug test for steroids. In a recent article in Swimming World (January1996 Volume 37 Number 1) editor Phil Whitten states '....a Review Board of United States Swimming voted 2 - 1 to place 15-year-old Jessica Foschi on two years' probation. The vote, which surprised and angered many observers, resulted in a torrent of media and foreign criticism. Many, including USS President Carol Zaleski, argued that Foschi should receive the same two year ban as Chinese (and most other) swimmers who had tested positive for steroids.'

The article goes on to present the opinions of Bill Stapleton, who was on the Review Board of USS which handed down the decision based on their conclusion that Jessica Foschi was sabotaged; Jerry Olsen Chairman of USS International Affairs Committee who argues that there should have been a strict interpretation of the law and that irrespective of the reasons, she should have been suspended for two years; and an emotional letter written by Jessica to 'set the record straight'.

The letter was quite convincing and presented the following points:

- They asked for a re-test but were refused
- Coach, parents and swimmer all took an independent polygraph test (a lie detector test) which confirmed they were telling the truth (this is inadmissible).
- The drug is a small pill which is easily dissolved in food or drink and must have been taken within a day of the test. Steroids apparently take several weeks to positively affect performance and until then they can

adversely affect performance. If this is true, why would a swimmer knowingly take a drug so close to an important meet?

In Jessica's own words 'The rules say they are designed to punish those who "cheat" and those who "dope" themselves, and hearings and due process are meant to protect those who are innocent of cheating or doping. The FINA rules never suggest that innocent people should be punished.'

The Scott Volkers / Samantha Riley drug scandal in my belief, can not be treated in the same manner as the Chinese who deliberately set out to cheat the system. The drug was not a performance enhancing drug as in the Jessica Foschi incident, and there is every indication that it was taken inadvertently.

Again, there are those who say a strict interpretation of the law should have been enforced. In our society in all areas of law there are shades of grey that allow for individual interpretation. If this were not the case, we would hand out the same sentence for manslaughter as we do for the person who deliberately pulls the trigger of a gun in a cold and brutal murder.

Fortunately the outcome was not as devastating as was originally thought. I believe the decision was fair and just. A mistake was made and a penalty has been extracted. The true impact of the decision will not be felt until Scott Volkers' swimmers take the blocks in Atlanta.

Meanwhile Samantha faces another challenge with the demise of her World Record to a South African swimmer. There will be those who want to see her fail in Atlanta. Hopefully, like the Phoenix rising from the ashes of a difficult year, she will prove yet again the spirit of a true champion.

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TAILORING A PROGRAMME

A COACHING SEMINAR WITH ANITA KILLMIER

A transcript of this 2 day seminar conducted by AUSSI Tasmania is now available in booklet form to all members. Cost is $5.00 which includes postage and **all money goes directly to purchase more videos for the AUSSI Resource Centre.**

The booklet is also available as a video to borrow from your branch or the Resource Centre and contents include;

- Elements of physical fitness
- Energy systems used in swimming and how to train these systems for specific events
- Pulse rate counting
- Goal Setting
- Devising a Seasonal Plan

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PRINT OVER RUNS

Every issue I print more than the subscribed numbers of newsletters. When people re-subscribe late, they usually request to have sent the issue that they've missed.

If you have re-subscribed, requested an issue but not received it, it means I have run out of the over runs and will not be printing anymore. Your subscription will begin with the next issue if this is the case.

To guarantee continuity of newsletters you must re-subscribe by the date on your envelope label.

TRAINING WITH AUSSI

"AUSSI is a Training Organization" - but why limit it to swimming?

Regardless of age or ability, we swim regularly together in order to promote fitness and improve general health. Regardless of age or ability, many of us have also taken on tasks necessary for the operation of AUSSI and gained many benefits from that too.

Too often we look for a stenographer in our Club to be Secretary, an accountant to be Treasurer and a manager to be President.

To an accountant, being Treasurer is just another job and has little or no opportunity for learning. Whereas an accountant taking on the position of President or Coach, could bring out those extroverted personality traits that have been suppressed all those years

The beauty of extending yourself and taking character risks as a volunteer in a Club, is that you have your Club mates around you to help and pick up the pieces if it does not work out. Even if you loose your job, you don't loose any money and you've learnt something.

Try it - look for people in your Club who are prepared to reach out and "give it a go". But please - help them and don't let them flounder, and never be critical of their failings (unless its constructive and put diplomatically) - focus on the positive, their successes.

However - an accountant as Treasurer and a professional secretary as Secretary in a Club is a good idea from time to time, to set things up and put good business practices into place - for the trainees to follow later. Good procedures should include a duty statement and "Duty No 1" should always be: "Look for someone to train as your successor"

Happy Training

CERTIFICATE of MEMBERSHIP

The National Office is receiving numerous requests for "Certificates of Membership" for those people wanting to enter the Sheffield World Swim.

The Office has to check with the respective Branches each time to see if they are currently registered, as only a few renewals have reached them at this stage. In a few cases it was found that the person had not renewed their Membership, so the certificates have not been issued.

Can you please make your application through your Branch Registrar so the current membership can be verified before the request comes through to the National Office.

OFFICIAL OF THE YEAR 1995

PAULINE SAMPSON
of the Talays AUSSI Masters Swimming Club
in Hobart Tasmania.

Pauline has been chosen as AUSSI Masters Swimming's "Official of the Year - 1995"

Pauline is a National Board Member and is the Director of Technical Development. Previously the Director of Programmes in 1993 when she first joined the board, it was in April 1994 when Tasmania took responsibility for the Technical Development that Pauline's talent really shone. At this time we had the Technical Officials Training and subsequent courses in a state of disarray.

A National Workshop was organized with funding from the Australian Sport's Commission, to redesign the courses and the method of delivery. Chairing the two day Workshop, Pauline then single handedly produced the first draft of the training manuals based on the out come of the Workshop.

Together with the National Technical Committee, they have produced papers for all technical positions in swimming and as a result courses have been conducted in all States.

The AUSSI Masters Swimming Technical Officials courses have now been inducted into the National Officiating Accreditation Scheme. Copies of these manuals have now been passed on to our colleagues in America and Canada for adoption in those countries.

As National Director, she constantly oversees the conduct of examinations and accreditation's throughout Australia and maintains the register of all technical officials within AUSSI Masters Swimming. Pauline is also the keeper of the National Register for the Medical Disability Certificates within Australia.

In addition to all this Pauline is an active accredited AUSSI Referee, and also participates in a number of positions within Tasmanian Swimming Inc. Pauline also conducts workshops for technical officials for accreditation, is the Branch Recorder, and also the AUSSI Tasmanian Delegate to Tasmanian Swimming Inc.

Congratulations Pauline for a job well done and the high profile our Technical Officials Accreditation Scheme is getting both at home and overseas.

From the National Newsletter

PERSPECTIVE

The following question was asked at the Victorian Short Course Championships in September 1995 .

Question: Do you prefer the one day or two day meets?

Mark Deunk age 32 Stingray Masters; I prefer one day meets because it's harder to keep people motivated over two days. It's also harder to 'sell' the idea to members.

Heidi Pertzell aged 27 Stingray Masters; I prefer the one day meets if it is a long way to travel and you have to stay over. The Warnambool meet was great though because the weather was great and we could make a bit of a holiday. (Referring to the year Vic. Long Course was held at the country location of Warnambool.)

Don Warner aged 43 Parkdale; I like one day meets better because it is too long to sit through two days. You miss the whole weekend and you don't get to see your family.

John Wilson aged 44 Altona; I prefer the one day meets because of work commitments. I find it hard to get the time off.

Andrew Gibson aged 44 Frankston; I like the two day meets because you can get in all the events that you want to do and there are more relays. In this meet there are no Men's or Women's 4 x 50m Freestyle relays which I consider to be the blue riband relay event.

Question: Do you prefer Open Water swimming or Pool swimming?

Noel; Open Water swimming is more challenging to me because every course is different. I prefer the ones a bit later in the season because the water is too cold earlier.

Linda Altona; Open Water is more entertaining and stimulating because of the changing conditions. You also need experience and local knowledge.

Jenny Donaldson aged 38 Sale Sadists; I prefer pool swimming. Conditions are much more controlled and predictable and you can see where you're going!

Ellen Pape aged 34 Powerpoints; No preference I enjoy them both. Open Water is good because there is no advantage to anyone but in the pool you can beat your PB.

Lloyd; Open Water because you can get into a rhythm and stretch out.

Don Warner; Open Water is great because you can make a picnic of it if you want and it's over quickly. You don't have to make a whole day of it unless it's a long drive. The Bay swims are convenient and quick.

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Those who criticise the younger generation seem to forget who raised it.

The following workouts are part of a series produced by Masters Swimming Canada (Inc.) called 'Sept.- June Workouts' by Jamie Connors. The workouts printed here are continued from those reprinted in previous issues.

FAST

MAY

Monday	Wednesday
7x100 50 swim/50 kick	10x50 choice :10
3x400 200 free (3:30) + 8x25 sprint (:45)	4x400 free 7:30
10x50 25 drill/25 sprint	10x75 25 fr/25 str/25 fr :15
	50 ez
Total 2400	Total 2850

Friday	Monday
8x100 choice :10	1x800 swim choice
9x200 free ↓(1-3) 3:30	12x75 free ↓(1-3) 1:30
5x50 kick :10	12x50 free ↓(1-3) 1:00
50 ez	10x25 breast :10
	----------150 ez
Total 2900	Total 2700

Wednesday	Friday
5x150 50 fr/50 str/50 free :10	3x200 choice :10
6x300 free 5:30	8x75 fly/bk/br 1:40
odd - 25 DPS/25 sprint	15x100 free ↓(1-3) 2:00
even- fast	100 ez
12x25 alternate on :40	
kick/swim and swim/kick	
odd-hard / even-easy	
Total 2850	Total 2800

TERMS

-4x100 swim 100 m (yds) 4 times.
- :15 15 seconds rest - numbers this low refer to rest period.
-100m 2:00 swim 100 meters distance every 2 minutes.
-100m :15 swim 100 meters and take :15 seconds rest -use judgement as to whether stated time is rest time or pace time.

FAST

MAY

Monday		Wednesday	
10x75	25 ez/25 mod/25 hard :10 odd - free even- str	5x200	choice :20
10x50	kick choice 1:15	4x400	free 7:30
6x200	free odd - broken at 50's :05 even- swim		--------100 ez
	150 ez	6x50	25 drill/25 swim :15
Total 2600		Total 3000	

Friday		Monday	
16x50	alternate 50 free/50 str :10	8x75	odd - free :10 even- str
9x200	free ↓(1-3) 3:30 extra :30 after ea 3	10x50	kick 1:20
4x75	breath control breathe ea 3,3,4,5 strokes	3x400	200 free -steady (4:00) + 8x25 all out (:40)
			--------100 ez
		8x25	choice build ea 25 :10
Total 2900		Total 2600	

Wednesday		Friday	
5x150	50 fr/50 str/50 fr :15	4x200	choice :15
8x250	free 4:15 odd- alternate 25 DPS/25 sprint even - fast	15x100	free ↓(1-3) 2:00
			----------100 ez
	150 ez	6x50	stroke :15
Total 2900		Total 2700	

-build means increase speed as you progress - e.g., swim 200 meters and build 50's means each 50 m becomes increasingly faster but maintain steady pace during that 50 m portion.

-DPS Distance-per-Stroke - extend reach and pull back far as possible - not fast but efficiently.

-H.R. Heart Rate - take heart rate after every set indicated.

FAST

JUNE	
Monday	**Wednesday**
12x50 odd- free :15 even- stroke 18x75 ↓(1-3) 1:30 3-free 3-stroke 10x50 swim start with dive 1:15	4x200 choice :15 10x50 kick 1:20 4x400 free 7:30
Total 2450	Total 2900
Friday	**Monday**
12x50 choice :10 9x150 free - ↓(1-3) 2:45 ----------100 ez 10x75 odd - free :15 even- str	1x1000 swim easy 24x50 ↓(1-3) 3- free 1:00 3-str 1:15 8x25 free - drill :40
Total 2800	Total 2400
Wednesday	**Friday**
10x75 choice build :15 6x200 free ↓(1-3) 4:00 100 ez	SUMMER VACATION !!!
Total 2050	

-fr/bk/br	free/back/breast
-stroke	other than freestyle - bk/br/fly.
-choice	any one of fr-bk-br-fly.
-1/2L	1/2 the length of the pool.
-ez	easy - swim as cool-down.
-↓(1-3)	descending 1-3 - e.g., (2 sets of 3 [100's] - ↓[1-3] means swim each of the 3x100m with increasing speed (descending swim time) and repeat the set twice.

How do you rate as a coach?

Cartoonists often portray the sports coach as being like a drill-sergeant, forever shouting and abusing the players.

Although certainly undesireable, it may be true that these coaches do indeed exist. Hopefully, like the dinosaur which was featured in AUSSIE SPORT Community Service Announcements a couple of years ago, these coaches are rapidly becoming extinct.

In reality there are many styles of teaching and coaching. Athletes respond differently and the good coach will recognise this and employ a style best suited to the individual.

Why children play sport

Many researchers at universities and colleges have spent a great deal of time trying to work out why children play sport. Ian Robertson, of South Australia, has done many such studies, his most recent being featured in **AUSSIE SPORT *action*** Spring, 1991 issue (Vol 2 No 4).

Knowing why your group has enrolled to play will help you become a more effective coach. Why not ask them at an early training session?

Often the reasons children give for wanting to play sport are vastly different to the reasons adults might suggest. Things that adults often assume are important to children, such as beating opponents and winning trophies, are low priorities on children's lists.

Children play sport to:
- have fun;
- learn and/or improve skills;
- be with friends;
- be actively involved.

When asked what they liked in a coach, children said they wanted coaches to:
- be energetic and enthusiastic;
- be patient and understanding;
- be encouraging;
- be caring;
- have a sense of humour.

Evaluation

Evaluation is a very important factor in any coaching program. As coach you are constantly evaluating your team's performance and that of individual members. A conscientious coach will maintain records of performances, attendance at trainings and players' attitudes.

Just as important, however, is for the coach to evaluate his/her own performance. Problems at trainings or weaknesses exposed in a game situation aren necessarily the fault of the players. coach should examine his/her own efforts as well as analysing the team or individual effort.

When evaluating your own performance give players, parents and club officials the opportunity for input.

Your rating as a coach

This coach's checklist provides a handy self-evaluation form for the coach.

Complete the checklist regularly throughout the season and keep a record of your score. Perhaps you could ask that somebody else observe you and complete it for you. The checklist could be completed at a training session or at a game.

The coach has an obligation to correct errors in players' techniques as soon as possible but should be careful not to 'over-coach' by giving too many instructions.

Tick the most appropriate answer for each question. When finished score the checklist.

1 Did I reinforce the actions of my players in a positive manner when they performed correctly?
- ☐ most of the time;
- ☐ sometimes;
- ☐ hardly ever.

2 Did I reward effort as well as outcome?
- ☐ most of the time;
- ☐ sometimes;
- ☐ hardly ever.

3 Did I give compliments sincerely and honestly?
- ☐ most of the time;
- ☐ sometimes;
- ☐ hardly ever.

4 Did I use sarcasm to get my message across?
- ☐ most of the time;
- ☐ sometimes;
- ☐ hardly ever.

5 Did I correct errors as soon as they were made and in a positive manner?
- ☐ most of the time;
- ☐ sometimes;
- ☐ hardly ever.

6 Did what I said to my players match my non-verbal actions towards them?
- ☐ most of the time;
- ☐ sometimes;
- ☐ hardly ever.

7 Was I consistent and fair in my treatment of all my players?
- ☐ most of the time;
- ☐ sometimes;
- ☐ hardly ever.

8 Did I over-coach during training/game by giving too many instructions?
- ☐ most of the time;
- ☐ sometimes;
- ☐ hardly ever.

9 Did I listen to my players when they had something to say?
- ☐ most of the time;
- ☐ sometimes;
- ☐ hardly ever.

10 Did I reinforce team rules fairly and consistently?
- ☐ most of the time;
- ☐ sometimes;
- ☐ hardly ever.

11 Did I show the enthusiasm while coaching that I expect from my players?
- ☐ most of the time;
- ☐ sometimes;
- ☐ hardly ever.

12 Did my players have fun during training/the game?
- ☐ most of the time;
- ☐ sometimes;
- ☐ hardly ever.

13 Did I have to push my players to do their best?
- ☐ most of the time;
- ☐ sometimes;
- ☐ hardly ever.

14 Was I aware of any pre-game nervousness experienced by my players and did I help reduce this?
- ☐ most of the time;
- ☐ sometimes;
- ☐ hardly ever.

15 Did I emphasise winning too much?
- ☐ most of the time;
- ☐ sometimes;
- ☐ hardly ever.

16 Was I prompt in arriving at training/the game?
- ☐ yes;
- ☐ no.

17 Was I well prepared and organised for training/the game?
- ☐ yes;
- ☐ no.

18 Did I play every player?
- ☐ yes;
- ☐ no.

19 Was I able to analyse skills and correct errors when they occurred?
- ☐ most of the time;
- ☐ sometimes;
- ☐ hardly ever.

20 Did I exercise self-control in situations that may have made me angry?
- ☐ most of the time;
- ☐ sometimes;
- ☐ hardly ever.

21 Was I sensistive to the individual needs of all my players?
- ☐ most of the time;
- ☐ sometimes;
- ☐ hardly ever.

22 Did I personally demonstrate good sporting behaviour?
- ☐ most of the time;
- ☐ sometimes;
- ☐ hardly ever.

23 Did I argue with and/or complain about officials?
- ☐ most of the time;
- ☐ sometimes;
- ☐ hardly ever.

24 Did I make parents feel welcome at the game?
- ☐ most of the time;
- ☐ sometimes;
- ☐ hardly ever.

25 Was I patient and tolerant with all players regardless of individual skill level?
- ☐ most of the time;
- ☐ sometimes;
- ☐ hardly ever.

Scoring your checklist

The checklist contained three important facets of coaching — communication, motivation and leadership.
Score your cheklist using this key:

Communication: 1 (a)3,(b)2,(c)1; 2 (a)3,(b)2,(c)1; 3 (a)3,(b)2,(c)1; 4 (a)1(b)2(c)3; 5 (a)3,(b)2,(c)1; 6 (a)3,(b)2,(c)1; 7 (a)3,(b)2,(c)1; 8, (a)1,(b)2,(c)3; 9 (a)3,(b)2,(c)1; 10 (a)3,(b)2,(c)1.
Motivation: 11 (a)3,(b)2,(c)1; 12 (a)3,(b)2,(c)1; 13 (a)1,(b)2,(c)3; 14 (a)3,(b)2,(c)1; 15 (a)1,(b)2,(c)3.
Leadership: 16 (a)3,(b)2; 17 (a)3,(b)2; 18 (a)3,(b)2; 19 (a)3,(b)2,(c)1; 20 (a)3,(b)2,(c)1; 21 (a)3,(b)2,(c)1; 22 (a)3,(b)2,(c)1; 23 (a)1,(b)2,(c)3; 24 (a)3,(b)2,(c)1; 25 (a)3,(b)2,(c)1.

Checklist adapted from one by Maureen Weiss, Institute for the Study of Youth Sports, state of Michigan, USA, published in *Sports Coach*.

Most people don't think they are middle aged until they aren't.

A Tiny Bearded Swimmer 'om Japan Was One Of Swimming's Great Visionaries

Sixty years ago, Katsuo Takaishi accurately predicted most of the fundamentals of the modern crawl stroke.

Cecil M. Cowan

When Katsuo Takaishi reported for the start of the 100 metres Freestyle final at the 1928 Amsterdam Olympics, he was dwarfed by America's Johnny Weissmuller (6' 3') and another six-footer, Istvan Barany, the Hungarian champion.

Weissmuller, the reigning Olympic champion, was the acknowledged *"Prince of Waves"*, the *"greatest swimmer who ever lived"*. Smiling, supremely confident, the engaging Weissmuller sauntered onto the deck, cracking jokes with friends and admirers. Behind him, incongruous, almost apologetic in this company of giants, came the tiny scholarly-looking fellow with a little beard.

People looked at each other and asked, *"Surely he isn't the legendary Takaishi, said to be a Weissmuller's biggest rival for the title"*. But, as Takaishi limbered up, the crowd watched, goggle-eyed. The tiny athlete was not just extremely flexible, he was almost completely double jointed. The spectators applauded the Far Easterner's short display of gymnastics. Takaishi grinned with amusement, waved and bowed slightly in the direction of the stands.

The swimmers came to the line. The scene was dramatic. Eight finely-tuned athletes crouched for one suspenseful moment. The pistol cracked, the swimmers hit the water, and the Olympic final was under way. Weissmuller and Takaishi took the lead, barrelling down the stretch, swimming head to head.

Weissmuller swam with back arched, head and shoulders high, while the fish-like Takaishi swam lower in the water with unbelievable initial speed, his powerful strokes making him look a much bigger man. One thing was certain - the great Weissmuller was in for the race of his life.

Deep shadows at the far end of the pool made it difficult to see clearly, but Takaishi appeared to head the field into the turn. Then, after a long push-off, Weissmuller's long brown arms appeared flashing in the sunshine. Using his height to advantage, Weissmuller had gained almost a body's length over the valiant Japanese, while Barany had edged into second place. Over the lest 20 metres, Barany pulled away from Takaishi, but was unable to sustain his sprint as he tried to catch Weissmuller, who touched first equalling his own Olympic record of fifty-eight and three fifths seconds, set in the semi-finals.

Remarkable Insight

The Amsterdam Olympics marked the highpoint of Katsuo Takaishi's brilliant competitive career but few people know that the modest Japanese champion was a keen and able student of swimming. Takaishi had a remarkable insight into the niceties of the sport, an intuitive feel probably far in advance of what any latter-day certification program could have developed in him. Sixty years ago, long before the advent of scientific analysis, with uncanny accuracy he predicted most of the fundamentals of the modern crawl stroke.

Here are some of Takaishi's far-sighted comments on various phases of crawl swimming, as published in *"Swimming in Japan"* (Tokyo International Young Women and Children's Society, 1935).

The Arm Entry

Takaishi believed that the arm entry was the key to producing an efficient stroke. Moreover, the way the swimmer entered the hand in the water was also an indication of whether or not a swimmer had talent.

Said Takaishi: *"There are a few who have the opinion that the pressing movement of the arm at the beginning of the stroke is of no use or can even be detrimental for increasing speed. but the writer believes that this very movement decides whether one is a good swimmer or not. A good swimmer must learn to press the water skilfully. It is better to let the arm into the water before it is completely extended. If one extends the arm fully before letting it into the water, the time for pressing will be too long"*.

Despite Takaishi's advice, most Western swimmers continued to enter the arms by reaching out over the water prior to entering the hand and it was not until the 1950's that the Australians re-introduced the method or entering the hands just ahead of the preceding bow wave.

Body Roll

At a time when swimmers were urged to retain a flat body position, *"in order to keep resistance to a minimum"*, Takaishi recommended that *"both shoulders (should) draw ellipses while swimming. One of them should be lifted when the other is dropped. Accordingly, the upper part of the body should roll to both sides but the position of the body does not change. This movement is called rolling the body and it has a very close relation with the crawl stroke. If one swims without rolling the body on the longitudinal axis, one must swim in a very unnatural position such as pushing the head above the surface of the water or floating the upper part of the body by sinking the legs deeply in order to breathe easily."*

Stroke Tempo

Takaishi realised that rolling the body brought into play the large trunk muscles. He said: *"If one tries to stroke without rolling the body, the power required is produced only by the muscles of the arms and shoulders. but, when the rolling of the body is added to that of the arms, the force will be greatly increased. But one must understand that there is a limit even for rolling, as too much will destroy the form or will slow down the stroke. Rolling the body is necessary and the power produced by it greatly strengthens the stroke when it is combined with the arm movements. This strength is increased according to the degree of rolling, consequently it is natural that the more one rolls the, the larger the arm movement becomes. The larger the movement the slower the tempo of the stroke"*.

Stroke Length and Stroke Tempo

With amazing prescience, Takaishi made what are probable the first references in the literature on the subject of stroke length and stroke tempo. *"The best method of speed swimming for a fixed distance is to swim with the largest and strongest stroke and with as high a tempo as possible. However, it is difficult for a swimmer of limited power and strength to enlarge his stroke without dropping his tempo. Thus, we must consider the limit of rolling. In considering this it is important to decide whether the rolling suits the swimmer or not, for on this decision rests whether he will succeed. This limit cannot be decided uniformly for every person. It is very difficult to find the limit of rolling which is most suitable for each individual. If one rolls the body too much one is compelled to let the arm stop while pressing on the water before it commences the catching movement"*.

In short, said Takaishi, *"the maximum of rolling is when the power gained by that rolling is all applied to that arm movement and each arm carries on its stroke without wasting time and energy"*.

Stroke Acceleration

Fifty years before scientific research on the subject, Takaishi appreciated the importance of hand acceleration as an important factor in stroke efficiency. Takaishi put it this way *"It is the power of the finishing movement of the arms which actually increases the speed. Consequently, the finishing movement should be done very quickly and strongly"*. Amazing!

In his day Takaishi's writings may well have been pooh-poohed, scoffed at and classified as merely anecdotal but science has since proved him right. The pity of it is that Takaishi's writings were virtually ignored by Westerners (to their detriment) only to be revived many years later. Takaishi was living proof of the old adage:

"Be right too soon, your word will be ignored.
Be right too late and everyone is bored".

From "Swim Canada"

Which way to the training zone coach ?

Are swimmers heart beats really slower ? Or are some people just not working hard enough ?

Dry-land athletes are heart-rate snobs. As a coach I can't fault them since the pulse is one of the most precise guides to strategic training that your body provides. What does bother me is the number of athletes who'd be willing to use the pool for training *"if only it would be a better work-out"*. They've been told time and again that swimmers can't get their heart rates up as high as, for example, runners or cyclists, so why bother ?

There's no lack of experts ready to feed that bias. Just two months ago in fact, the University of California at Berkley Wellness joined in and repeated the bromide, pronouncing the maximum heart rate an athlete can reach in the pool to be an average of 13 beats a minute lower than the same effort would bring in running. The pulse snobs had a field day all over again, for they've seen the same claim repeated frequently in print in respected journals and heard it cited by more than one training authority.

The reason seems sound enough. The swimmers heart doesn't have work as hard because a couple of things slow it down. 1. The water keeps you from overheating. 2. You're making little use of the body's biggest muscles, the ones in the legs. 3. When you're horizontal, it's easier for the heart to keep your blood circulating. --- Neat.

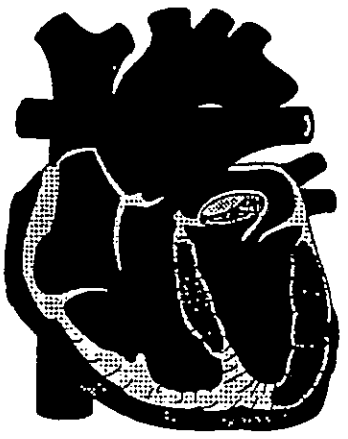
There's just one problem. Tests show something different. Just ask one of this country's leading swimming researchers Rick Sharp Ph.D., editor of the Journal of Swimming Research and Professor of Exercise Physiology at Iowa State University. In his own studies Sharp has produced very different results.

"A heart rate monitor is the best practical way of making sure you're getting the kind of work-out you want while you're swimming"

To compare maximum heart rates in swimming and land training, Sharp used competitive swimmers as study subjects. The results were unambiguous. *"I found that competitive swimmers could raise their heart rate just as high during a swimming test as when I tested them on a bicycle ergometer or a treadmill"*. So what's going on here ? Sharp surmises that the failing of previous research was in using study subjects who had only recreational swimming skills and little swim training. Simply put, *"They studied people who weren't good swimmers and I suggest that they never reached a cardio-respiratory maximum in swimming because their skill level was so low that they were slowed down by localised muscle fatigue before they could get there"*. Put another way, poor technique lets a few overworked muscles tire before the rest of the body could reach peak performance.

So does this in fact mean that you can't get a good work-out if you're not a good swimmer ? No and yes. *"If I was coaching cross-training athletes or Masters swimmers, I'd have them working on technique before I tried to condition them"* says Sharp. I can't argue with that. In fact I tell everyone in my swim camps and clinics that there doesn't have to be any conflict between building skill and building fitness. All you have to do is swim with the idea that conditioning is something that happens to you while you're practising good technique. When you do them right, skill drills are challenging enough that they will drive anyone's heart rate right into the aerobic training zone.

Still nobody has to be perfect. Even if your form leaves something to be desired, you can still speed your heart rate up and get some decent training. No matter that the best you can do in the pool is something like 80-90 percent of your maximum heart rate. Virtually all aerobic fitness gains and weight management goals are achieved at that level or lower anyway. There's very little practical fitness benefit to be achieved above 90 percent of Maximum Heart Rate unless you're training for a national ranking.



But even Sharp's mind isn't closed on the subject. He's currently looking into a phenomenon called the "diver's reflex" which lowers a subject's heart rate a few beats when the face is plunged into cold water. He agrees that a swimmer's horizontal position can in fact depress the pulse a few beats "because blood can return more easily from the heart to the extremities, so there's more available with each beat. That increase in stroke volume means that the heart doesn't have to pump so often." Still he adds, the effect on your fitness is just the same as if your heart was pumping a lower volume of blood more frequently anyway.

But whether you're a smooth-stroking pro who can easily equal that dry-land heart rate, or a beginner with a punier pulse, Sharp advises that the best way to turn your laps into maximum fitness is to use your heart as a guide, rather than your speed or perceived effort. *"A heart rate monitor is the best practical way of making sure you're getting the kind of work-out you want while you're swimming"* he says. Just remember: If the numbers don't suit you, it's not the sport's fault.

Terry Laughlin
Total Immersion Adult Swim Camps

More about training zones

Monitoring your heart rate is the easiest way to determine if you are exercising at an effective level. Each person has a training zone at which there is enough activity to produce cardio-vascular fitness but not too much to exceed a safe level.

The training zone for each individual is between 70% and 85% of one's maximum heart rate. Exercise below 70% of your maximum heart rate will have little effect in improving your fitness level..

Figures in this table are based on official recommendations and are approximate only. A more accurate figure can be calculated for each individual based on both the maximum heart rate and the resting heart rate.

HEART RATE TRAINING ZONES

Age	Beats per minute
25 years	117-156
30 years	114-152
35 years	111-148
40 years	108-144
45 years	105-140
50 years	102-136
55 years	99-132
60 years	96-128
65 years	93-124
70 years	90-120
75 years	87-116
80 years	84-112
85 years	81-108
90 years	78-104

ASTHMA FACT SHEET

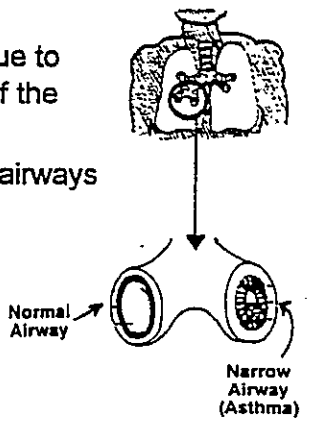
Exercise Induced Asthma

What is Exercise Induced Asthma? (EIA)

- ◊ Occurs during or shortly after exercise
- ◊ A condition varying from mild cough, chest tightness and/or wheezing, to severe breathing difficulties
- ◊ Can vary from day to day and may be particularly troublesome for some people when they have a cold or the flu, are recovering from a recent flare-up of asthma or are exposed to cold weather.

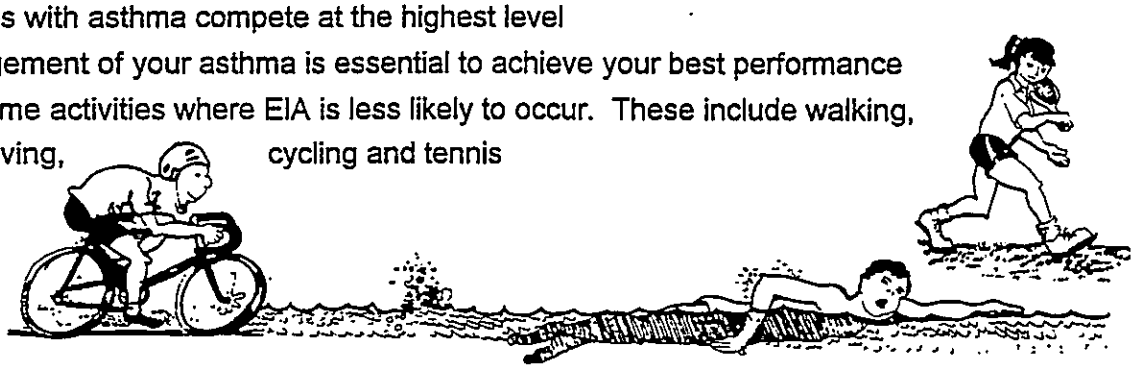
How?

- ◊ The small airways in the lungs (the bronchioles) become narrow due to spasm of the muscle around the airway, inflammation (swelling) of the airway walls and production of excess mucus.
- ◊ During exercise heat and water are lost from the airways and the airways tend to dry out. It is this change that is thought to trigger Exercise Induced Asthma (EIA)



Remember

- ◊ Exercise is the one trigger that should not be avoided. Regular exercise is important to improve overall fitness and general well-being
- ◊ Many athletes with asthma compete at the highest level
- ◊ Good management of your asthma is essential to achieve your best performance
- ◊ There are some activities where EIA is less likely to occur. These include walking, swimming, diving, cycling and tennis



Drugs & Sport

If you are eligible for drug testing and are taking medication for your asthma you should

- ◊ Check the drug policy of your National Sporting Organisation, Commonwealth Games Association and the Australian Olympic Federation
- ◊ Consult the Drugs in Sport Handbook
- ◊ Consult a Sports Doctor for advice on which medication(s) you are permitted to use
- ◊ Or contact the Drugs in Sport Hotline 1800 020 506

ASTHMA FACT SHEET

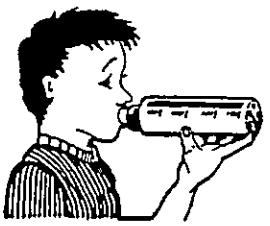
Exercise Induced Asthma

Managing Exercise Induced Asthma (EIA)

Exercise Induced Asthma can be reduced or prevented by following these guidelines:

Asthma Management Plan

Obtaining better overall control of asthma reduces the likelihood of EIA. The key to successful asthma management is based upon the Six Step Asthma Management Plan which you can develop in consultation with your doctor

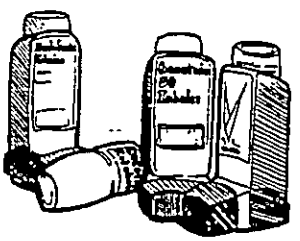


1. Know the severity of your asthma
2. Achieve your best lung function (Peak Flow Test)

   Know your 'trigger' factors and avoid where possible
4. Stay at your best by using the right medication the right way

   Learn about;

   ◊ **Relievers**
   - used to relieve an asthma attack
   - may be used 5-10 mins prior to exercise to help reduce or prevent EIA
   - commonly blue/grey puffers eg Bricanyl, Respolin, Ventolin, Asmol, Respax



   ◊ **Preventers**
   - help prevent an asthma attack
   - use regularly as directed by your doctor
   - commonly white/yellow/beige/brown eg Intal, Intal Forte, Tilade, Becotide, Becloforte, Pulmicort, Flixotide

     (NOTE, Intal, Intal Forte or Tilade,although preventers, may also be used 5-10 mins prior to exercise to help reduce or prevent EIA)
5. Know your action plan
   Develop a written action plan, in consultation with your doctor, to recognise worsening symptoms and know what to do in an acute attack (make sure your team mates are aware of your condition and your action plan and that your coach has a copy of your action plan)
6. Check your asthma regularly with your doctor

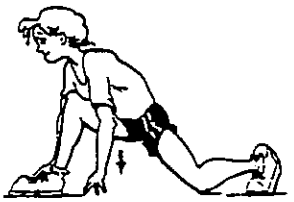
Pre Exercise Warm up Plan

1. Premedicate - use your blue/grey puffer (reliever medication) **and/or** white/yellow puffer (Intal, Intal Forte or Tilade) 5 -10 minute before exercise
2. Do a 2-3 minute brisk walk/light jog to raise heart rate

ASTHMA FACT SHEET

Exercise Induced Asthma

3. Stretch
   - hold stretch for 10-20 secs, do not bounce
   - stretch gently and slowly, keep breathing
   - stretch to the point of tension, never pain
   - entire stretching session should take 5-15 mins


Hip Flexor Stretch

4. Warm up routine - eg a brisk walk increasing to a slow jog


Supra Spinatus Stretch

Try to avoid

◊ allergy triggers (eg dust, pollens, grasses, cigarette smoke)
◊ exercising in cold air (early morning or evening)
◊ vigorous exercise when you have a viral infection
◊ exercise if you are wheezy or have chest tightness

During exercise

If you develop EIA

◊ STOP, use your blue/grey puffer (reliever medication)
NOTE, white/yellow puffers (Intal, Intal Forte or Tilade) ***should not*** *be used to relieve an asthma attack*
◊ **Resume** exercise only when you are free of symptoms

If symptoms recur

◊ use your blue/grey puffer (reliever medication)
◊ **do not** return to sport
◊ see your doctor

In cases of severe asthma follow the emergency plan on the last page

Cool Down

Why?

◊ To slowly decrease heart rate and body temperature
◊ To help remove muscle waste products
◊ To enable you to compete again at the same level within a short period of time

How?

◊ Immediately after exercise do a 2-3 minute light jog decreasing to a brisk walk and then a slow walk
◊ Follow-up with 5-10 minutes of stretching

ASTHMA FACT SHEET

Exercise Induced Asthma

If you still get EIA

Consult your doctor who may recommend

- ◊ a change in your pre exercise medication
- ◊ regular preventer medication in your overall asthma management plan

Emergency Plan

Assess	**Mild**	short of breath, wheeze
	Moderate	loud wheeze, breathing difficulty, able to speak in short sentences of five words or less
	Severe	distressed, gasping for breath, difficulty in speaking two words
	If severe	call an ambulance immediately
Sit	the person down and give reassurance	
Treat	with 2-4 puffs of a **blue/grey puffer** (with spacer if available) Wait 4 minutes If no improvement, give another 2-4 puffs of **blue/grey puffer**	
Help	If not improving after a further 4 minutes or if severe, or if the person's condition suddenly worsens or if at any time you are concerned call for an ambulance (phone 000) State that "a person is having an asthma attack" Continue to use **blue/grey puffer** 2-4 puffs every four minutes until help arrives	
Monitor	If improving after 4 minutes continue to monitor If necessary repeat **blue/grey puffer** (2 puffs)	
All OK?	When free of - wheeze, cough, chest tightness and any breathlessness - RETURN TO SPORT If symptoms RECUR REPEAT emergency procedures above but **do not** return to sport - see your doctor	

The Asthma Foundation of Victoria gratefully acknowledges Australian Sports Medicine Federation (SA Branch) and the Asthma Foundation of South Australia for their contribution.

Want to get fast ? Get strong !

by Dr. Peter Reaburn

All of us want to get faster - whether it's to win a medal at a major meet or to just crack that 60 second Personal Best barrier for the 50m Freestyle. If you have tried all kinds of in-pool training to achieve these goals and never quite made it, there is a secret way - resistance training. In fact, gone are the days when strength training can be ignored for the masters athlete who wants to sprint faster.

What the research says

■ Research in our own and numerous other laboratories have conclusively shown that ageing means decreases in both strength and muscle mass. Both these factors are critical for speed - whether it be in the pool or on the track. So the answer to improving these factors is strength training. In young swimmers, a 1988 study reported improvements of 0.04 to 0.08 m/sec (0.5 to 1.00 seconds) over 50 meter Freestyle after a resistance training program. The same swimmers reduced the number of strokes per minute by two strokes and improved their stroke length by 12.5 cms, both these changes strongly suggesting increased force on the water. In veteran sprint runners, we recently undertook an eight-week strength training study on 12 males and 10 females. We measured strength, thigh muscle size, and both 100m and 300 meter speed on the running track before and after a strength training program. In the men we observed a 100% increase in strength and increased thigh muscle size. In the women sprinters, we observed up to 150% increases in strength but no increase in thigh muscle size. Importantly for both the male and female veterans, both 100m and 300m speed improved significantly, despite no change in track training over the eight week period. While this study was on track runners, the results are important for masters swimmers. Getting stronger gets us faster.

What does strength training do ?

■ Historically, we believed that strength increases occurred simply because muscles got bigger with strength training. While this is a major adaptation, we now know that the nervous system is a major player in strength training adaptations. The nervous system adapts by contracting the muscles more forcefully and in a more co-ordinated fashion. Research has shown that strength training in older people leads to significant changes in the nervous system and smaller changes in muscle size. These changes in muscle size can vary enormously between individuals. A 1979 study showed that the range of increases in muscle size in younger people after a resistance training program was 3 to 49%. Most men and women do not need to worry about increased muscle size because they will not possess the genetic predisposition to bulk up. In fact, given that older athletes appear to lose muscle size as they age, any increase in muscle size as a result of strength training may help delay this age-related decrease in muscle size and strength.

Strength Training Procedures

■ All strength training should be based on the principle of progressive overload. That is, to get stronger the muscles must be overloaded with more resistance (weight) so that strength will increase even more. Most studies have shown that 4 to 8 repetitions for 3 or more sets is optimal for strength development. However, programs with up to 12 to 15 repetitions have also been effective. Recovery between sets should be between 2 and 3 minutes. However, more than any other factor, the resistance or weight creates the overload on the muscles. For strength development, the resistance should be between 70 and 90% of the resistance or weight that can be moved once. For power (force / time), the most important component in sprinting, the resistance should be between 30 and 60% of maximum strength. Most experts agree that two to three days per week is optimal for strength development with one day per week for strength maintenance.

Joint or body parts	Exercises
Shoulder	Latissimus pulldown in front and behind the neck, upright rows, bent-over rowing, seated rows, straight-arm pullovers, bent-arm pullovers, bench press, chins, incline bench press, decline bench press, pulleys, shrugs, lying lateral raises, side pulleys.
Upper arm	Biceps curls, Triceps extensions.
Forearms	Wrist curls.
Lower back	Back extension, dead lifts.
Abdomen	Sit-ups and side twists.
Hips & knees	Leg presses, half squats, leg curls,leg extensions.
Ankles	Calf raises.
Adductors (inner thigh)	Adductor pulleys., adductor machine.

Strength Training Exercises

■ The exercises that should be performed are those that work the major muscle groups that swimmers use to propel themselves through the water. The exercises should also mimic the swim action or strengthen muscles involved in preventing injuries in swimmers. The table above outlines those major muscle groups and the exercises suggested for those muscle groups.

The exercises in a strength program should be changed every 3 to 4 weeks to discourage plateaux in strength. A good strength program should move from general and non-specific strength through specific strength to specific stroke power. For younger (<45 years), the following plan might be used:

General strength and preparation	2 to 4 weeks
Strength development	3 to 12 weeks
Power development	3 to 6 weeks

Recent research on older (>45 years) people has suggested that these time periods might be extended slightly as older people appear to take longer to adapt to strength training. While the above exercises can be used in the first two phases above, the third period can include in-water resistance (tethered swimming bands), swim benches, or pulleys. The exercises during phase 3 should be at, near, or above actual pool stroke rates. The gym exercises should also be adjusted. Resistance should be lowered, repetitions increased to 10 to 20 per set, sets maintained at 3 to 6, but work periods be reduced to 5 to 15 seconds with speed per repetition increased.

Conclusion

■ There is no doubt in my mind that the older we become, the more important strength training becomes to maintain or develop speed in the masters swimmer. While the above discussion is aimed at giving the reader the ability to develop a strength training program of their own, I STRONGLY recommend that you contact a resistance training specialist to fine tune your program and show you safe resistance training technique. Speak to a swim coach at your pool - they may be able to put you on to such a person. If not, an organisation such as the Australian Strength and Conditioning Association or equivalent have accredited strength and conditioning personnel - try the capital city phone books may be able to help you. Train strong, develop power, race fast.

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Reprinted from the FINA Masters News December 1995

Working Out

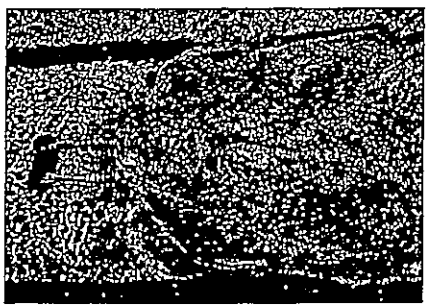
The Modern Breaststroke

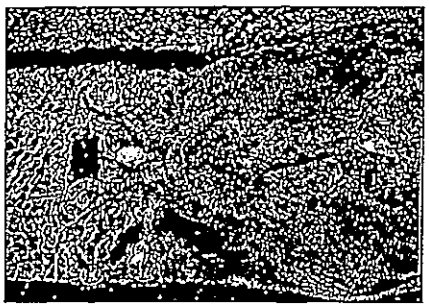
Tips to Improve Your Stroke

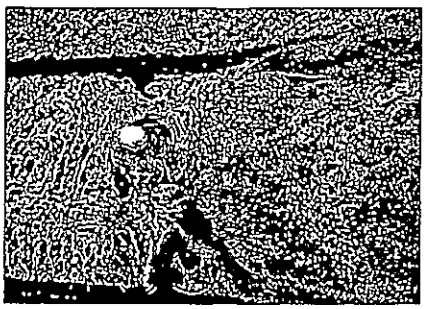
By Wayne McCauley
Photos by Scott Troyanos

Reprinted with permission from SWIM Sept/Oct 1995

Breaststroke is in a state of change, with many Masters swimmers are in the process of converting from the conventional or flat style to the wave style of breaststroke. Having a knowledgeable coach who is willing to share the principles of the wave breaststroke is one way to learn the "wave." But not all Masters swimmers are so fortunate. This article offers tips that will aid in your conversion to the more modern stroke.







Understanding breaststroke requires an intimate knowledge of the breaststroke rules, which have been continually revised in recent years. The rules must be known to avoid disqualification and to be used to one's advantage. The rules stated in this article are excerpted from he 1995 *USMS Rule Book.*

Head Position & Breathing

"Some part of the swimmer's head shall break the surface of the water at least once during each complete cycle of one arm stroke and one leg kick..."

Article 101.2.2

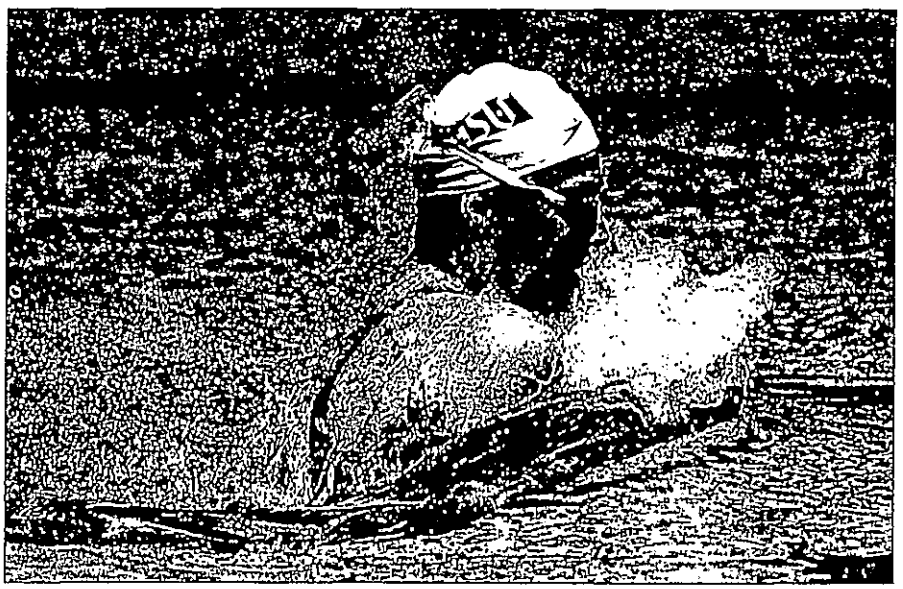
The base position for the breaststroke should be with body flat in the water and streamlined. The head should rest between the arms. Because less resistance is encountered with the body underwater than at the surface, each kick should begin with the body and head slightly submerged. The breath should be taken at the end of the insweep of each stroke, with the head looking downward or slightly forward.

Pulling

"The arms shall move simultaneously and in the same horizontal plane without any alternating movement."

Article 101.2.2

Contrary to popular belief, there is no backward pull in the modern breaststroke. The pulling action is simply an outward scull and an inward scull to just under the face. Begin the pull by shrugging the shoulders up, with elbows turned out and the palms of the hands facing outward. The shoulder shrug places the shoulders and arms in a similar position as the butterflyer whose arms are extended forward. Shrugging the shoulders at the beginning of the out-scull narrows the shoulders and reduces resistance. The shrug also keeps the elbows from dropping, a major stroke problem for many swimmers. Additionally, the shoulder shrug brings into play the strong pectoral and latissimus muscles.



To gain propulsion from the out-scull, pitch the hands at an angle of 30 to 45 degrees to the forearms. The hands should be positioned about six inches under the water's surface when beginning the out-scull. Move the hands out and slightly upward so that the hands are just under the surface at the catch point and slightly past shoulder width. At the catch, the position of the palms is changed from out and back to down and

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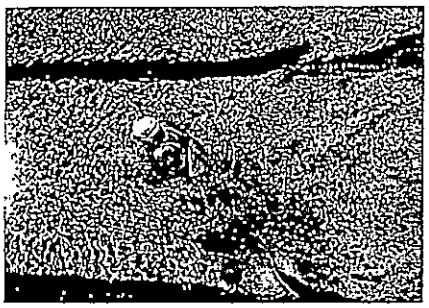
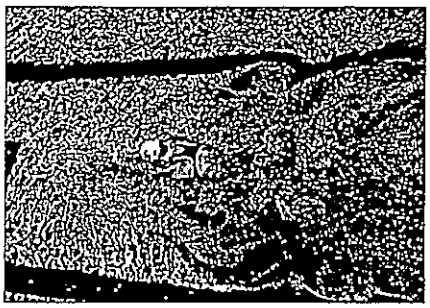
"We are what we pretend to be, so we must be careful with what we pretend to be." Kurt Vonnegut

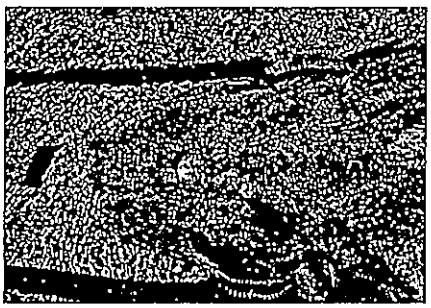
back. This downsweep begins the powerful insweep.

The insweep is the propulsive portion of the arm movement. With the shoulders shrugged, the hands are accelerated down and then inward until the palms come together under the chin. The insweep ends with the hands moving up and forward together.

The easiest way to learn the outward scull and the insweep is to start by swimming a length of breaststroke, arms fully extended in front. Scull out about ten inches and then scull in with the hands







This sequence of photos shows Beata Kaszuba's great breaststroke form. In 1995, Kaszuba became the first woman to break the 1-minute barrier for the 100 yd breaststroke.

until they clap together. Swim a second length sculling out to about 12 inches, emphasizing the insweep. On the next length scull out to a comfortable point beyond shoulder width, emphasizing the power of the insweep.

The hands shall be pushed forward together from the breast on, under, or over the surface of the water."

Article 101.2.2

Pushing the hands forward and together is called the arm recovery. Squeeze the elbows together in the front of the chest, with the palms together. Bringing the elbows together forces the hands to move quickly from the insweep to the recovery. Many breaststrokers erroneously pause at this point. When the arms are almost fully extended, shrug the shoulders to begin the next out-scull.

Kicking

"All vertical and lateral movements of the legs shall be simultaneous. The feet must be turned outward during the propulsive part of the kick movement. A scissors, flutter, or downward butterfly kick is not permitted."

Article 101.2.3

The secret of breaststroke is the kick. The most important aspect of the kick is in finishing with the toes pointing to the bottom of the pool and the soles of the feet coming together. The feet are also kicked downward from the water surface, not straight back. Gradually accelerate the feet until the soles and ankles come together. Kicking as described and pressing downward with the chest will cause the hips to rise. Recover the legs with minimal resistance by bringing the feet to the buttocks rather than pulling the knees forward underwater.

Timing

Timing is the key to a powerful and efficient breaststroke. There are three patterns currently in use: glide, continuous and overlap timing. Beginners may prefer the glide pattern, which is characterized by a brief pause after the kick when the arms are fully extended. The continuous pattern involves beginning the outsweep at the completion of the kick. This style is not recommended due to the lack of propulsion in the out-scull just after the kick. Overlap timing involves beginning the outsweep while the legs are coming together at the finish of the kick. Most fast breaststrokers will use overlap timing to reduce the period of deceleration following the kick and the insweep of the arms.

The breaststroke race is not only about the stroke itself, the start and turn must also be executed properly. For more information on the breaststroke turn, refer to the John Moffet article in the March/April 1994 issue of *SWIM*.

Wayne McCauley is the librarian for Southern Pacific Masters Association, which boasts the largest collection of videos and books in Masters swimming. He is a Masters All-American in the 50- and 200-meter breaststroke events.

SOME OF THE TYPES WE MEET AT THE POOL

(Can you recognise someone you know?)

THE HELICOPTER:

Pounds up and down the pool swinging its arms wide out on either side and thumping them with a great splash into the water. Usually occupies the centre of the lane (on your side) and if you're unlucky enough to get belted, the pain doesn't go for months and when it does come right, he hits you again in the same place!

THE WALRUS:

Lumbers along at a slow pace, doesn't have a smile or a friendly word for anybody. Turns up once a month and acts as if it owns the pool.

THE LIBERATED FEMALE THUG:

Usually gets in the lane with the fast guys and won't budge for anything. No way she's going to move over for any male.

THE RACING EEL:

Usually a young high school kid who whistles up and down the place, passing on the left then the right, then goes underneath, all over the show. Drives you crazy.

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"Procrastination is the art of keeping up with yesterday." Don Marquis

This article was reprinted from the Masters Aquatic Coaches Association newsletter (MACA).

PROMOTING THE MASTERS SWIMMING TEAM

Lucky Meisenheimer, M.D.
Head Coach Orlando Masters Swimming

Promotion is important if profitability is to be increased. Obviously the more participants you have the more potential income for the coach. The only case scenario where you might limit promotion is if there is limited pool space and you are filled to capacity. Most programs are not in this enviable position and will need some degree of promotion. Even if you are comfortable with your current team size you will want to do some limited promotion in order to continue to fill slots as turnover occurs.

THE COACH'S RESPONSIBILITY

The key individual in promoting the swimming team will be the coach. This is not a responsibility that can be delegated to an officer of the club or to some other worker at the facility. Promotion is the lifeblood of your swimming team. The promotion plan needs to be developed and directed by yourself. No one else will have the same interest in the success of the plan and you will be profiting the most from a successful promotion campaign. Promotion is an ongoing activity and the goal is to develop new interest in your program as well as maintaining the continued interest of current participants.

The end result of promotion is to bring a potential swimmer to the coach so he can "sell" the benefits of the program. When the coach is unavailable any interest raised by promotion is easily lost. The keys to a successful promotion effort are the visibility and availability of the coach.

TWO TYPES OF PROMOTION

INTERNAL PROMOTION: Promotion directed towards potential members who already utilize or familiar with the facility.

EXTERNAL PROMOTION: Promotion outside the facility directed towards the general community.

INTERNAL PROMOTION:

It is not uncommon to find a swimming facility where a masters swim team is training with other teams and yet there is no visible sign that would let a visitor know there is a masters team in existence. Your most easily accessible source of swimmers are already at the facility. These maybe individuals who currently use the pool or are there for some other reason. If these individuals are not aware of your program you have lost an excellent source of potential new swimmers. Most internal promotion at an aquatics facility can be done at minimal cost and although the pool management may have some resistance in the beginning persistence pays off.

AQUATIC FACILITY DIRECTORY:

If the Aquatic facility has a directory in the front lobby ect.. make sure there is a listing for the masters program and your name. If you do not have an office a the pool be sure there is a number which potential swimmers can call to receive information about the program.

TEAM HANDBOOK:

Larger teams may want to develop a team handbook for new members. One left at the main entrance can generate much interest from those that may "thumb through." Contents of team hand books may include : mission statement, presidents message, coaches statement, directory of officers, members phone list, team records, calendar of events, workout times and fees, pool etiquette, equipment needs, explanation of swimming terminology, history of the team, ect...

ANSWERING MACHINE:

Few masters coaches, have the luxury of a secretary to field questions and take messages. An answering machine can be a great asset for the coach. A well thought out recorded message is much better than a live misinformed pool employee. Three minute outgoing message tapes can be used to give a great deal of information to potential new swimmers i.e. workout times, directions to the facility, requirements ect.. This is especially important for coaches that are not in an office or around the pool during the day.

AQUATIC CENTER NEWSLETTER:

Many larger aquatic facilities, recreation departments, YMCA's ect... will have a newsletter which is mass mailed on a regular basis to the general public in the vicinity of the facility. These newsletters rarely ask for articles, but most do not refuse articles regarding a program within their facility. This allows for a great deal of free advertising for your program in the local community. You should make great efforts to include at least a small article each newsletter regarding current masters swimming activities.

TEAM SOCIAL FUNCTIONS:

Team social functions serve not only to unify the team but are a great source of promotion within the community. Outings such as field trips, open water swims, ect... allow for the community in general to see the
team. Some teams have a weekly team night out or after practice they will eat at a selected restaurant. It is important to let the restaurants you frequent know you are a local swim team. Repeated patronage is often rewarded with discounts and meet sponsorships.

SIGNS:

Various signs can be placed around the pool which identify the masters program. Important signs would include:

a) Signs listing current workout times.
b) Signs which are placed out during practice identifying there is a masters group in session.
c) Work out signs. Some programs have workouts which are posted for swimmers during off times. A permanent sign can be made for the attachment of these workouts and information about the team can be placed on this sign.

POOL EMPLOYEES:

Pool employees, life guards, janitors, receptionist ect.. can be an excellent source for referrals to your program. They can also be a serious source of misinformation. Take time to introduce yourself to all workers at the pool and let them know how best to direct interested swimmers in contacting you. Do not expect or rely on these individuals to provide correct information about the program, instead concentrate on having them steer interested swimmers to you.

BULLETIN BOARDS:

Bulletin boards are vital to all masters programs. Not only does a bulletin board disseminate information to current members but it allows development of team pride and unity. Most visitors to a aquatic complex will stop and read information on a bulletin board. Put up your own board and have its use restricted just for the masters program. The bulletin board should be updated regularly. Items which should be kept current on your bulletin board include:

1) Newsletter - The most current issue of the newsletter should be posted.
2) News clippings- Recent clippings about the swimming team.
3) Photo's- Recent competitions, parties, functions ect... (Photo's are eye catching and interest generating)
4) Calendar- Current upcoming meets, social events and competitions.
5) Philosophy and goals of the masters program should be listed as well as detailed information on how easy it is to join the masters program
6) Phone numbers of who to contact regarding team information.
7) Team records.

TEAM DIRECTORY:

If the swimming facility will allow, a team directory needs to be placed in a prominent place at the pool. This directory should list the coaches name and phone number and various officers in the club along with their phone numbers. This directory also may include information such as current practice times and information regarding the swim team.

NEWSLETTER

A masters swimming team of any sort of size needs a newsletter. The newsletter is the key to communication between members. Masters swimming is unique in that dealing with adult swimmers there may be periods of time where certain athletes may not be able to train. This newsletter keeps them in touch with the team and promotes a more rapid return to an organized swimming program. The newsletters are also read by family and friends who may also develop an interest in the program . The basic structure should contain the following information:

a. Updated calendar of meets and events.
b. Team social functions.
c. Coaches column.
d. Presidents column.
e. Competition column with results of recent meets, triathlons, ect..
f. Gossip column with discussions on non swimming events such as births, anniversaries, marriages ect.. and other "juicy tidbits" .
g. Invited articles, sports medicine, nutrition, stroke technique, ect..

News letters for smaller programs should be published every 6 - 8 weeks. Larger programs may be able to support monthly newsletters.

It is important the newsletter goes out on a regular basis. Set publication dates a year in advance and stick to these deadlines. Remember to set your article submission deadline several weeks prior to publication date.

Delegate responsibility to various team members for producing news articles. Shift the responsibility frequently so no one individual gets burned out.

RECOGNITION AWARDS:

Some clubs have a " Top Ten" plaque or "National Champion " plaque where swimmers are listed who make top ten time standards or who have won national titles. These should be hung in the lobby or near the entrance of the pool. This serves not only to develop loyalty for the swimmers to your particular club, but it is also good promotion for individuals not familiar with the masters program.

LOGO STICKERS:

It is important for the team to have a recognizable logo identifying the masters swimming program. If you have equipment which belongs to the team such as pace clocks, file cabinets, video equipment ect... stickers made with the logo should be placed on each piece of equipment at the facility. Not only does this identify your equipment, but if the equipment is being used by others it identifies your team as a valuable resource for the aquatics facility.

BANNER:

Many team banners are often stored away and only brought out occasionally for road trips. Keep your banner on permanent display in a prominent location at your training facility.

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"Don't tell me this is a difficult problem. If it weren't difficult it wouldn't be a problem." Ed Koch

EXTERNAL PROMOTION:

External promotion is directed at the general community outside of the confines of the pool. External promotion emphasizes creating community awareness of the existence of your program. The number of outside inquires about the program will be directly related to the degree of community awareness you create.

SPORTS APPAREL:

Team logo's are very good for external promotion within the community. Team apparel should be created, including T shirts, shorts, jackets,bumper stickers, licenses plate, swim caps ect.. which identify the masters swimming program. Not only does this promote the team but it can serve as an additional source of income for the coach.

TEAM BROCHURE:

One of the best methods for generating interest in a program is to develop a team brochure. This can be easily distributed to any interested party that may walk into the aquatic center or calls about the program. The best brochure has general information about the team including photo's of swimmers having a good time and some emphasis on some non swimming social aspects of the program. If your team centers on a particular aspect of swimming such as triathlete training or fitness swimming, this should be spelled out in the brochure so potential new members are aware of whether or not the program would fit their needs. Information that may frequently change such as workout times or cost of the programs should not be placed in the brochure, but attached as a separate sheet. This allows a brochure to be used several years without expensive type resetting on a regular basis. Brochures should be mailed to any individual who contacts the center for information about the masters program. Also mail your brochure to every sports editor in town.

ADVERTISING:

Advertising is expensive and beyond the means of most programs, but there are many sources of free advertising. Many news papers have community calendars which list adult athletic programs throughout the city. There is usually no charge for this and care should be taken that current updated listings are available in these calendars. Swim magazine has " places to swim " which identifies programs across the country which have active masters swimming programs. Some states have a sports magazine i.e. Florida " Florida Sports" which have free listings for masters programs. The smaller community papers also will publish special interest articles on individual swimmers and the masters program if they are supplied information. It is always worthwhile to send out news and press releases to your local community papers, senior citizen papers ect... regarding masters activities, swim meets and competitions.

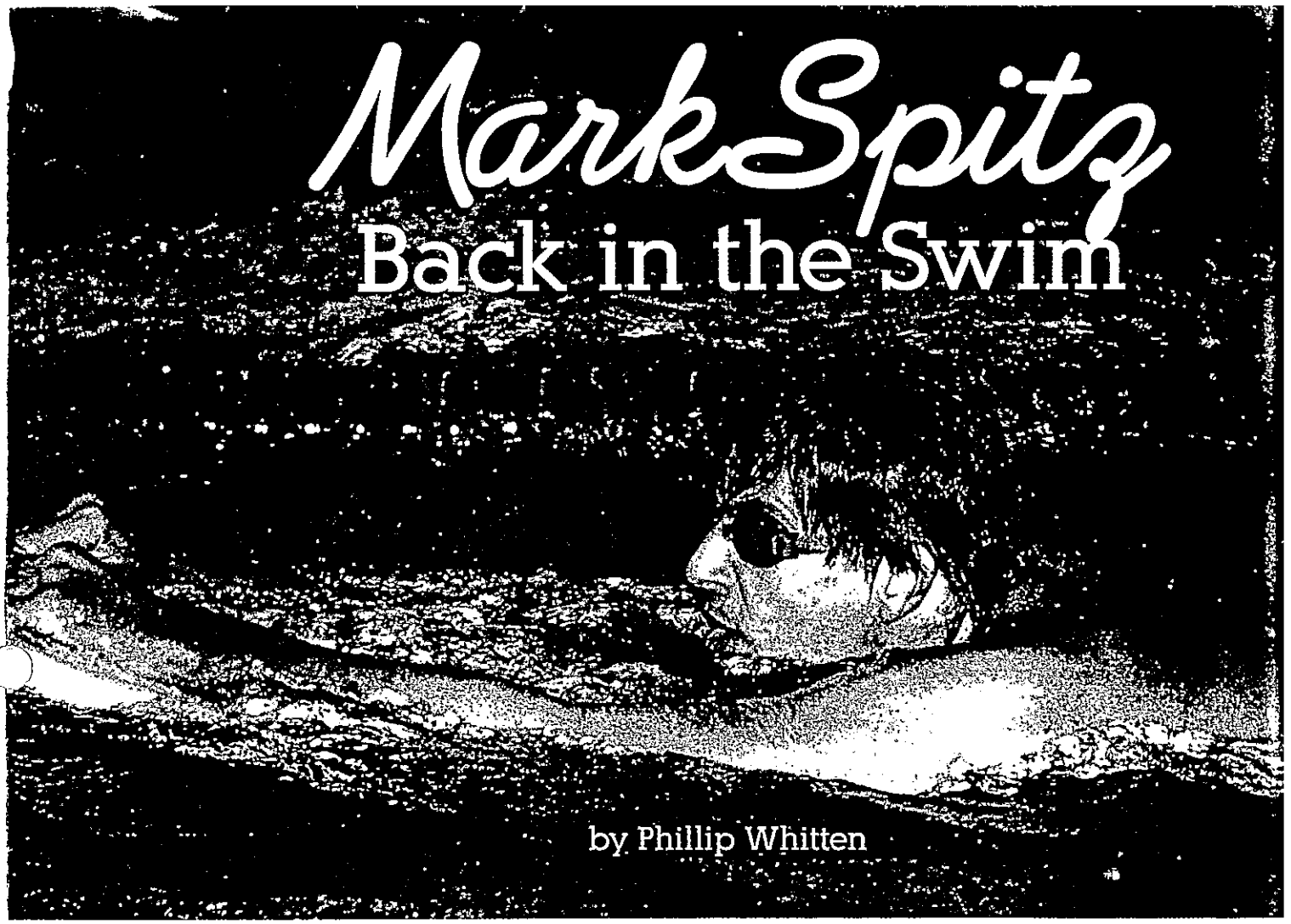
LECTURES:

Many senior citizen centers, community centers ect... will allow for guest lectures to come in and speak on adult programs such as masters swimming. This is a very good resource of referrals for older masters swimmers.

TRIATHLONS:

Most triathlons will allow masters swims teams set up tables at events to disseminate information about the training programs. Usually this is at no cost and is an easy way to discuss your program with athletes who are currently training and highly motivated to improve their swimming skills.

This is certainly not a complete list of all the ways to promote a masters swimming program and each program will have individual needs. One would not expect to try to do all of these projects at once but to start by selecting a few and building. Persistence in promotion will pay off by increased participation and profits for the masters coach who is willing to organize and work hard.



Mark Spitz
Back in the Swim

by Phillip Whitten

He's lean (well, not quite). He's mean (not really). He's a little grayer than the last time we saw him. But this time he's back in the swim for good—and for all the right reasons.

By any reckoning, Mark Spitz is the most famous swimmer of all time. Yes, there was Matthew Webb, the first man to swim the English Channel, the great Duke Kahanamoku, Donnie Schollander, Johnny Weissmuller, Dawn Fraser, even Esther Williams. And, of course, today we have the incomparable Janet Evans. But to the proverbial man-in-the-street, when you're talking swimming, you're talking Spitz. He's the Babe Ruth, the Joe Montana, the Michael Jordan, the Muhammad Ali of the wet set. The greatest swimmer *of all times! Of all times!*

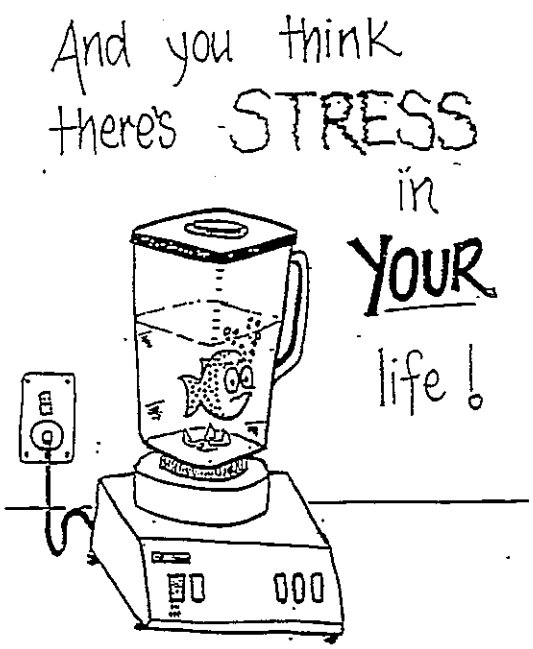
Mark's unparalleled feat at the 1972 Munich Olympics—seven gold medals in seven events, all in world record time—is regarded by many as the greatest Olympic performance in any sport, ever. One that may never be surpassed.

So when he announced his "comeback" for the 1992 Olympics, at the age of 42, there were many who believed he just might do it. If any swimmer could launch a successful Olympic comeback in middle-age, Spitz was the one. Even some of the experts believed it was possible. After all, Spitz' 1972 time in the 100 butterfly (54.28) was still an impressive world-class performance (unlike any of the other winning times in '72). If he could duplicate his time of two decades earlier, he just might earn a trip to Barcelona.

Alas, it was not to be, though he notched some very impressive times. His 58.56 for the 100 fly was several seconds better than the Masters world record in the 40-44 age group. But it didn't even meet Olympic Trials qualifying standards. (Wonder what he might have done had he swum Masters after Munich.) So Mark quietly gathered up his swim suit, collected a modest fortune in sponsorship money and retired for good.

Until this year...when the swimming bug bit him again. Only this time it was different. This time there was nothing to prove, no talk of Olympic comebacks or megamillion dollar contracts, no appeal to the middle-aged Walter Mittys in all of us. This time he was back for the love of swimming...and for the health of it.

This time Mark was reincarnated as a Masters swimmer, joining Jim Montgomery, Sandy Neilson-Bell, Bill Mulliken, Gary Hall, Clara Walker and a



Left and below: Spitz recently returned to training with a vigor and love for the sport that are unmatched. Bottom: Spitz's seven world records in seven events at the 1972 Olympics is a feat that may never be surpassed!

Photos by MISport

host of other Olympic greats of yesteryear. This time it was for *life*.

SWIM Magazine caught up with Mark Spitz after an early morning workout at UCLA, where he swims with the UCLA Masters swim team, a fast-growing squad of approximately 70 Masters swimmers. At UCLA, Mark is just one of the guys in lane four...or five, or six—wherever the coach wants him. Sometimes he helps out by coaching. (Imagine having Spitz as your *assistant* coach!)

Lowell Offer, 65, an executive at Walt Disney Pictures and Television, is one of the UCLA Masters who trains with Mark. A self-described "very slow swimmer" who works out every day and "loves the program," he says he is thrilled to be in the same pool with the former Olympic great. "Truthfully, my major concern usually is just keeping up with my group. But I've talked with Mark on several occasions and he's helped me out with my stroke. He's always available to talk about swimming."

Before workout, after workout, in between repeats or sets, Mark seems to talk nonstop—about swimming, kids, family, the economy, foreign affairs...just about everything, though mostly about swimming. But when the pace clock comes around for the next repeat, he glides into that beautiful, efficient, fluid stroke we watched in fascination in 1972. Some things you keep forever.

It wasn't quite that way at his first Masters workout...or second...or third. "The first day I worked out we did a set of 200s and I couldn't even make the interval. I was exhausted," he says with a laugh. "I looked around to see if people were watching me,

Photo by AllSport

Spitz' 1991 comeback bid in the 100 butterfly for the Barcelona Games fell short of his expectations.

..MarkSpitz

but they weren't. No one really cared how I was doing. That was a relief—no one had any expectations for me. I was just another anonymous body in lane five and that made me feel more relaxed."

Like every other ex-swimmer and new fitness or lap swimmer, Mark struggled those first few times. But gradually his aerobic conditioning began to improve. He grew stronger, his endurance increased. Now, several months after his inauspicious beginning, Mark says he feels great. "I have so much more energy these days, more enthusiasm."

After the "comeback" of '92, Mark used to get in the water at UCLA during recreation swim, but, he admits, he "did more talking than swimming. I was in the plunge-and-glide mode. I'd walk around the pool and talk to people for about 20 to 25 minutes," he recalls. "Then I'd hop in, adjust my goggles and swim an easy 200 for a warm-up. Then I'd talk again. I used to average all of 500 meters in an hour.

"My wife, Suzy, suggested that I join the Masters," he says. "I'd spoken with Coach (Gerry) Rodrigues and really liked his philosophy of training. So I decided to give it a try." After that first workout, tiring as it was, he realized that with the Masters program he "could get a great workout and still enjoy the social aspect of swimming."

So why did it take so many years for Mark to get back in the swim?

"You know how when you're a kid, you try to trick the coach—go to the bathroom during a hard set, leave a few seconds early on a repeat, flip at the flags instead of the wall, even skip out on a workout or two?" he asked. "Well, I never got over it. For 17 years, I felt I was skipping workout and it gave me a vicarious thrill. Every day, for 17 years."

Now, at 46, he's over it. The vicarious thrill is gone and he looks forward to workouts three or four times a week. "Now," he says, "I'm in it for my health, for the social aspect and simply because it's fun. The whole feeling in Masters is different... relaxed, non-competitive. No one is pressured to do anything. I'm hooked."

Says Spitz, "Swimming has done so much for me. What I'd like to do is give back as much as I can."

Might that include being a spokesman for Masters swimming?

"Absolutely," he says. "If my name and my endorsement can help promote and popularize this great activity, I'd be more than happy to help out."

Inevitably, the question arises about competition and Mark meets it head-on. "Sure, I'd like to compete," he relates. "I'm a competitive guy." But he doesn't know where or when he'll swim in a meet. "That's up to the coach. If Gerry says the team is going to a certain meet, I'll be there. If he wants me to swim a 100 fly or only in relays, that's what I'll do. He's the man. But, competition is not what it is about for me now," continued Spitz. "I'm swimming because I love it and because it's the best thing I can do to keep myself healthy. It's something I hope to do for the rest of my life."

→ This article was reprinted from SWIM Sept/Oct 1995.

↓ This Publication review was reprinted Masterscrawl December 1995 .

Publication Revues

"THE MASTERS ATHLETE"

The Masters Athlete is published bi-monthly by Sports Performance Consultants, PO Box 779 Kenmore, QLD 4069, Australia. Overseas subscription is Aust. $40-00 per year.

This is a new magazine containing a number of articles written by various people involved in Masters sports. The first issue contained articles on interval training, using prescription drugs, veteran distance running training and strength training for triathletes. One particular article was very good. *"Exercise Addiction: When Exercise Controls the Person."* This article examines the problems and pitfalls associated with exercise obsession.

As can be seen it is not a swimming magazine but an all-round masters magazine. The articles in this first issue are well written by professional people such as exercise physiologists and top class veteran athletes. This would be a good publication for those interested in the overall general scene in veteran athletics.

Reviewed by Pic Parkhouse

Summary FINA Masters World Records - Dated 1st November 1995

Long Course

		25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-89	90-94	95-99	100-104
50m	Free	00:26:68	00:26:37	00:26:82	00:28:05	00:29:08	00:29:33	00:32:59	00:33:11	00:34:35	00:37:16	00:39:06	00:41:31	00:50:93	02:02:38		05:10:84
100m	Free	00:57:76	00:58:09	00:58:87	01:01:41	01:05:44	01:07:42	01:11:01	01:14:25	01:16:84	01:25:89	01:33:86	01:39:30	02:00:68	03:48:55		
200m	Free	02:02:89	02:07:84	02:08:93	02:14:97	02:24:24	02:29:22	02:36:58	02:43:83	02:48:51	03:13:31	03:37:64	03:44:00	04:45:10	07:28:92		
400m	Free	04:18:31	04:30:19	04:31:35	04:48:82	04:59:86	05:16:62	05:26:57	05:47:52	05:05:22	06:46:55	07:38:77	08:23:50	10:44:25			
800m	Free	09:18:43	09:16:82	09:20:62	09:57:69	10:20:34	10:58:47	11:30:97	12:01:79	12:27:60	13:51:53	15:41:40	17:21:19	21:54:01	30:55:09		
1500m	Free	17:27:96	17:40:50	17:59:12	19:00:40	19:28:34	21:02:46	22:18:91	22:50:81	24:07:05	27:05:80	29:45:90	33:00:94	43:35:59			
50m	Back	00:30:80	00:31:47	00:32:39	00:32:25	00:34:51	00:34:87	00:37:30	00:40:35	00:39:85	00:43:24	00:46:64	00:53:73	00:58:42	01:42:49		
100m	Back	01:06:46	01:06:68	01:08:49	01:11:03	01:14:83	01:18:86	01:21:42	01:30:22	01:31:58	01:35:11	01:48:86	02:01:87	02:13:13	03:59:89		
200m	Back	02:19:97	02:21:40	02:26:66	02:36:89	02:42:60	02:51:11	02:59:18	03:12:84	03:17:12	03:28:69	04:00:88	04:22:89	04:47:82	10:47:76		
50m	Breast	00:32:01	00:34:56	00:34:41	00:37:02	00:36:97	00:39:52	00:39:91	00:42:49	00:43:42	00:49:47	00:52:90	00:59:60	01:15:55	02:13:81		
100m	Breast	01:16:05	01:14:52	01:17:44	01:21:73	01:22:27	01:28:70	01:29:88	01:35:25	01:42:25	01:51:36	02:09:71	02:17:08	03:02:34			
200m	Breast	02:42:02	02:46:81	02:50:92	02:56:21	03:06:52	03:11:56	03:18:11	03:24:83	03:45:71	04:03:16	04:29:52	05:01:36	07:15:13			
50m	Fly	00:28:79	00:29:22	00:29:27	00:29:89	00:30:74	00:31:69	00:35:29	00:38:10	00:39:52	00:45:75	00:55:38	01:01:41	01:27:77	04:57:25		
100m	Fly	01:03:67	01:05:23	01:05:39	01:06:27	01:12:67	01:13:86	01:27:49	01:31:52	01:37:07	01:57:17	02:19:44	02:27:91	03:01:14			
200m	Fly	02:18:69	02:21:43	02:26:38	02:32:59	02:38:78	02:49:53	03:17:68	03:26:76	03:36:25	04:16:68	04:54:79	05:24:52	07:18:41			
200m	Med	02:22:00	02:25:89	02:28:93	02:38:20	02:46:22	02:53:40	02:59:67	03:15:30	03:20:58	03:49:31	04:20:42	04:41:09	06:44:53	12:10:93		
400m	Med	05:05:29	05:08:67	05:34:47	05:39:70	05:54:98	06:12:08	06:18:94	06:57:33	07:09:69	08:23:92	09:11:23	10:05:13	14:02:65			

Long Course

50m	Free	00:22:59	00:23:21	00:23:20	00:24:93	00:25:18	00:26:16	00:27:05	00:27:80	00:28:94	00:29:35	00:32:50	00:33:88	00:41:53	00:48:70	01:41:72	02:05:49
100m	Free	00:51:25	00:51:50	00:51:49	00:55:26	00:55:66	00:58:62	01:00:87	01:02:80	01:08:15	01:10:16	01:13:84	01:19:28	01:41:27	01:57:91		04:25:98
200m	Free	01:52:17	01:54:04	01:55:36	02:03:28	02:04:97	02:09:74	02:17:63	02:23:11	02:32:90	02:41:41	02:51:62	03:03:45	03:48:91	04:28:34		
400m	Free	04:05:99	04:07:04	04:07:64	04:24:26	04:27:70	04:43:72	04:57:21	05:05:54	05:34:72	05:48:08	06:19:18	06:40:63	08:14:50	09:44:11		
800m	Free	08:29:22	08:40:19	08:44:46	09:17:93	09:24:19	09:49:89	10:27:08	10:36:08	11:33:14	12:03:73	12:58:14	13:50:05	17:11:21	20:13:74		
1500m	Free	16:28:69	16:36:06	16:37:34	17:30:13	18:27:49	18:49:43	19:54:72	20:06:80	22:29:32	23:03:23	24:53:76	28:54:95	33:08:42	36:47:02		
50m	Back	00:26:68	00:27:26	00:28:04	00:29:38	00:30:42	00:30:93	00:32:94	00:33:13	00:35:47	00:37:10	00:39:49	00:43:15	00:56:12	01:10:27		02:05:54
100m	Back	00:57:93	00:58:66	01:00:95	01:03:39	01:05:64	01:09:61	01:12:33	01:14:72	01:20:74	01:24:14	01:29:52	01:40:26	02:07:06	02:34:82		04:57:01
200m	Back	02:05:86	02:05:82	02:13:83	02:18:17	02:23:84	02:32:81	02:37:16	02:45:93	02:55:46	03:10:47	03:15:00	03:42:95	04:43:49	05:36:88		
50m	Breast	00:29:60	00:29:42	00:30:13	00:30:82	00:32:48	00:33:38	00:33:03	00:34:68	00:38:28	00:39:15	00:42:58	00:45:45	00:51:52	01:16:01		
100m	Breast	01:04:60	01:05:65	01:05:67	01:09:95	01:12:96	01:15:60	01:17:97	01:21:58	01:28:91	01:32:51	01:37:55	01:46:92	02:12:18	03:09:64		
200m	Breast	02:26:73	02:24:06	02:24:37	02:32:17	02:41:02	02:50:57	02:56:20	03:04:46	03:16:90	03:26:42	03:34:86	04:11:58	05:09:86	06:24:54		
50m	Fly	00:25:16	00:25:31	00:25:93	00:26:62	00:27:12	00:28:05	00:29:74	00:30:35	00:33:34	00:34:40	00:37:57	00:47:24	00:57:93			
100m	Fly	00:56:34	00:56:64	00:57:39	00:59:96	01:02:84	01:05:83	01:09:27	01:14:98	01:20:59	01:29:22	01:39:80	01:58:99	02:33:63			
200m	Fly	02:05:25	02:03:85	02:08:51	02:20:81	02:25:23	02:32:65	02:48:05	03:00:99	03:06:79	03:28:08	03:43:56	04:31:96	05:24:28			
200m	Med	02:07:00	02:09:69	02:15:21	02:18:92	02:24:39	02:28:70	02:40:01	02:50:08	02:57:61	03:11:42	03:24:38	04:01:29	04:40:15	06:59:87		
400m	Med	04:31:47	04:40:22	04:50:18	04:57:46	05:12:03	05:25:32	05:45:62	06:04:99	06:25:02	06:52:07	07:21:75	08:45:17	10:28:43			

Short Course

50m	Free	00:26:65	00:26:46	00:26:18	00:27:76	00:29:52	00:30:30	00:31:83	00:33:19	00:34:38	00:37:53	00:42:50	00:45:40	01:03:78	01:36:77		
100m	Free	00:58:93	00:57:35	00:57:71	01:00:68	01:05:20	01:06:41	01:11:18	01:13:68	01:20:80	01:28:93	01:38:34	01:48:30	02:40:27	03:24:13		
200m	Free	02:05:80	02:06:83	02:07:58	02:14:32	02:22:24	02:27:95	02:34:77	02:39:93	03:00:72	03:14:78	03:33:40	04:07:41	05:33:83	07:01:11		
400m	Free	04:25:94	04:26:55	04:33:17	04:50:68	04:56:49	05:12:43	05:34:32	05:38:06	06:13:42	06:47:59	07:23:29	08:39:15	12:28:71	14:16:35		
800m	Free	09:18:99	09:09:90	09:24:81	10:04:16	10:15:66	11:12:04	11:29:99	11:30:55	12:35:26	14:29:66	15:28:60	17:51:63	24:05:34	28:45:45		
1500m	Free	17:30:18	17:23:60	17:43:10	19:00:81	19:54:67	21:44:35	21:35:84	22:54:51	23:38:44	26:18:70	29:30:20	34:13:00				
50m	Back	00:30:63	00:30:94	00:32:50	00:31:55	00:34:70	00:35:55	00:37:10	00:39:60	00:40:48	00:45:08	00:48:06	00:58:78	01:13:57	01:55:07		
100m	Back	01:04:66	01:05:07	01:10:47	01:10:94	01:16:29	01:19:17	01:21:90	01:29:13	01:30:41	01:43:97	01:48:13	02:06:95	02:52:17	04:19:46		
200m	Back	02:17:86	02:18:29	02:31:78	02:38:22	02:45:58	02:48:88	03:00:66	03:10:79	03:15:72	03:39:24	04:00:43	04:38:53	06:00:16			
50m	Breast	00:33:60	00:33:74	00:34:63	00:37:20	00:37:54	00:38:82	00:40:69	00:42:02	00:44:61	00:49:15	00:53:94	01:05:64	01:25:54	01:49:01		
100m	Breast	01:13:60	01:15:39	01:16:70	01:22:19	01:23:49	01:25:73	01:28:13	01:32:12	01:41:68	01:50:57	01:59:41	02:19:17	03:09:62	04:05:59		
200m	Breast	02:40:90	02:44:68	02:50:93	02:54:12	03:03:73	03:06:63	03:12:85	03:19:67	03:46:02	03:55:30	04:22:96	04:54:39				
50m	Fly	00:28:95	00:29:40	00:30:05	00:30:18	00:32:25	00:33:85	00:36:10	00:38:30	00:40:24	00:46:86	00:56:53	01:02:58	01:24:53			
100m	Fly	01:04:95	01:04:69	01:07:28	01:06:86	01:12:53	01:12:66	01:22:22	01:29:99	01:37:53	01:54:16	02:12:17	02:28:34	03:29:58			
200m	Fly	02:17:13	02:24:97	02:28:96	02:29:19	02:37:88	03:10:55	03:09:43	03:17:00	33:35:80	04:05:45	04:48:50	05:22:65	07:15:07			
100m	Med	01:06:84	01:07:26	01:08:15	01:11:65	01:14:41	01:18:05	01:21:25	01:27:50	01:31:89	01:43:67	01:58:06	02:06:91	03:00:23			
200m	Med	02:24:07	02:21:56	02:30:87	02:33:89	02:42:88	02:56:07	02:57:53	03:11:59	03:18:77	03:51:68	04:17:89	04:40:77	09:49:36			
400m	Med	05:06:88	05:06:19	05:23:30	05:32:53	05:50:45	05:56:24	06:36:03	06:50:55	07:18:55	08:06:71	09:07:66	09:50:43	15:34:06			

Short Course

50m	Free	00:22:48	00:22:92	00:23:80	00:24:42	00:24:70	00:26:35	00:26:60	00:27:32	00:29:63	00:31:01	00:32:78	00:35:16	00:41:92	00:50:09		02:06:66
100m	Free	00:50:86	00:50:51	00:52:64	00:55:02	00:56:45	00:58:39	01:00:08	01:01:96	01:07:13	01:12:57	01:15:94	01:18:80	01:41:46	01:58:42		04:32:29
200m	Free	01:53:82	01:50:91	01:57:06	01:57:83	02:05:81	02:12:18	02:17:95	02:21:31	02:34:27	02:46:86	02:48:67	03:01:42	03:48:20	04:27:70		
400m	Free	03:59:78	03:59:83	04:17:21	04:09:31	04:29:82	04:38:22	04:59:35	04:56:69	05:26:81	05:55:12	06:20:11	07:05:20	07:54:24	08:50:65		
800m	Free	08:29:19	08:19:44	08:56:81	08:49:83	09:26:18	09:38:02	10:28:98	10:27:62	11:33:11	12:15:49	12:45:40	14:48:88	16:53:90			
1500m	Free	16:23:21	16:21:25	17:06:28	16:51:71	18:10:24	18:32:56	19:45:72	19:48:44	21:57:69	23:59:12	24:46:19	28:43:31	32:20:20	51:43:20		
50m	Back	00:25:43	00:26:58	00:27:54	00:28:77	00:29:33	00:30:14	00:32:40	00:34:05	00:35:61	00:35:71	00:39:83	00:43:71	00:55:03	01:15:84		02:02:52
100m	Back	00:54:82	00:56:83	00:59:57	01:03:70	01:05:31	01:07:45	01:10:88	01:13:55	01:19:07	01:21:74	01:27:41	01:37:17	02:09:91	03:21:36		
200m	Back	02:01:78	02:04:63	02:10:01	02:16:72	02:24:39	02:30:02	02:33:21	02:40:75	02:52:77	02:59:92	03:10:22	03:33:91	05:15:31	06:35:42		
50m	Breast	00:28:81	00:29:34	00:30:10	00:30:80	00:31:95	00:33:09	00:33:17	00:34:49	00:37:55	00:38:99	00:42:33	00:45:52	00:57:50	01:08:99		
100m	Breast	01:04:49	01:04:23	01:08:30	01:07:98	01:10:41	01:14:72	01:16:32	01:19:82	01:25:25	01:29:48	01:36:61	01:46:48	02:09:33	03:01:95		
200m	Breast	02:24:02	02:24:52	02:28:35	02:31:37	02:35:71	02:45:11	02:49:98	02:58:98	03:15:28	03:16:44	03:34:29	04:09:36	04:58:98	06:41:56		
50m	Fly	00:25:41	00:25:06	00:25:89	00:26:66	00:27:08	00:28:65	00:30:12	00:31:00	00:33:63	00:35:25	00:39:71	00:49:08	01:01:38			
100m	Fly	00:57:07	00:56:43	00:57:02	00:58:87	01:02:66	01:05:10	01:09:63	01:16:56	01:18:52	01:27:21	01:36:80	01:52:51	02:38:62			
200m	Fly	02:05:97	02:06:30	02:06:48	02:09:09	02:23:40	02:29:99	02:42:05	03:00:10	03:07:91	03:18:59	03:49:00	04:25:99	05:56:91			
100m	Med	00:56:90	00:59:88	01:00:79	01:02:30	01:04:80	01:07:60	01:12:58	01:15:51	01:19:45	01:21:87	01:27:43	01:44:08	02:06:37	03:00:53		
200m	Med	02:10:85	02:09:01	02:14:75	02:15:28	02:23:69	02:31:52	02:34:42	02:46:69	02:56:23	03:06:13	03:20:35	03:50:55	05:02:31			
400m	Med	04:40:82	04:33:17	04:53:16	04:43:28	05:12:41	05:19:87	05:47:57	06:02:73	06:28:87	06:50:27	07:08:53	08:34:45	10:47:13			

RELAYS	LONG COURSE 100- 119	120-159	160-199	200-239	240-279	280-319	320-359	360-399	SHORT COURSE 100- 119	120-159	160-199	200-239	240-279	280-319	320-359	360-399
Women's Freestyle	01:53:20	01:53:05	02:03:48	02:08:96	02:25:83	02:47:72	05:03:34		01:54:54	01:55:08	02:01:10	02:11:64	02:25:52	03:04:95	04:09:37	
Women's Medley	02:06:67	02:08:21	02:12:91	02:27:16	02:49:96	03:32:23	07:11:22		02:09:61	02:05:27	02:18:65	02:29:96	02:52:00	03:28:26	04:55:62	
Men's Freestyle	01:37:40	01:37:43	01:39:27	01:46:69	01:58:54	02:10:18	02:53:29		01:35:91	01:37:89	01:41:93	01:47:41	01:58:22	02:11:55	02:51:43	
Men's Medley	01:48:84	01:48:75	01:53:79	01:58:50	02:17:59	02:34:57	03:06:15		01:48:16	01:45:01	01:54:75	02:02:44	02:16:44	02:33:74	03:44:22	
Mixed Freestyle	01:43:89	01:44:83	01:47:46	01:55:50	02:09:67	02:31:29	03:03:15		01:46:19	01:46:27	01:50:55	01:57:25	02:12:98	02:38:90	03:37:67	
Mixed Medley	01:56:58	01:58:03	02:02:10	02:14:32	02:29:30	02:37:98	03:57:45		01:58:28	01:58:28	02:01:59	02:12:50	02:32:46	02:58:72	03:56:40	