"LEAVE NOTHING TO CHANCE"
A model for race preparation of advanced age group swimmers

By Bill Sweetenham

Tapering is an extremely individual component of training which a coach or swimmer must develop to work to so that there is at the very least a plan of attack. there are no miracles in a taper or in the final race preparation phase of training cycle or season. Tapering is about a physical and mental preparation to perform a the highest possible level for the particular individual.

It is therefore not possible to have a 'team' taper which will work equally well for all its members. tapering is about a refinement of skills along with a gradual reduction of physical stress so as to allow the individual to develop peak fitness for a particular event on a given date. Tapering is about swimming fast and performing at your best. Successful tapering is about being confident and having pressure-free athletes.

However, with the above in mind, it is important to have at least a model to work to so that a taper contains the least amount of variables possible and it is planned and recorded in details so that it may be applied to the individual then refined and repeated. Coaches and swimmers practice workouts each day, but only get the opportunity to taper once or twice a year and usually in different conditions, so it is important to record the process.

The swimmer and coach must accept that less training is required to hold previous physical training gains than was originally needed to obtain them, so tapering should not lead to a loss of conditioning.

It is in this regard that I offer some basic sample guidelines for a coach to develop a model that might suit a team situation or challenge what the coach may be currently using as a model. A coach or swimmer following sound principles will actually find it quite difficult to de-train or loose form in the last twenty-one days, provided that the training progression has been adequate.

- Race preparation commences five weeks out of competition. I would suggest no increase in either quality or the amount/percentage of quality training. Quality training may be evaluated as any training completed at 400 metre pace or faster.

- This would mean that during the fifth and fourth weeks out from competition, the training would only differ slightly from the fifth week to the fourth week in that the quality would be a little more intense or race specific. The fourth week out would be an improvement on the fifth week in racing skill refinement and intensity, but no tin the amount of either quality or quantity.

- Commencing from five weeks out of competition, I would look to have squat jumps or polymetrics on a daily basis. This would be approximately four sets of four jumps with long rest between sets (3-5 minutes) reducing by one set for the fourth week and from 21 days out of competition, three sets of four squat jumps with 3-5 minute rest and reducing by one set each week. I find this assists in starting and turning and replaces leg exercises in the gym. I believe there is an advantage in doing these close to competition.

- At 21 and 23 days out of competition, all swimmers take two days rest so that on the 21st day, the taper commences with a fresh athlete and coach.

- After the 21st day out from competition, no training is done which is faster than race pace other than short (25 metres or less) high velocityoverloads or a **small** amount of sprint assisted work for sprint swimmers – race pace being determined by second 50 of the swimmer's goal pace 100 or 200 metre goal pace. All quality work is now at race pace. Short sprints of six strokes, performed faster than race pace are also of great value to swimmers involved in 50/100 metre events. The ability to be at top speed in two or three strokes is of paramount importance for **all** swimmers, not just sprinters.

- Commencing from 21 days out of competition, the athlete should be fully recovered form one workout/practice to the next. that is, the athlete should not carry fatigue form one practice to the next.

- The amount of high velocity overload swimming should not increase form five weeks out, but these should alternate from practice to practice in either after warm-up (speed enhancement) or prior to swim-down (race enhancement). they should also be done in swim, kick, resistance pull (race stroke rate) and speed drills.

  High velocity overload work should wary from morning workouts and afternoon workouts in both post warm-ups and pre swim-downs.

- From five weeks out of competition, dry landing training and gym should reduce in terms of number of repetitions with the athlete displaying the ability to lift slightly heavier with the reduced number of repetitions. there should be a significant increase in both specific and non-specific muscle strength/power during the taper period.

- The first week of taper (21 days to 14 days) should mirror **exactly** the adaptation weeks that have occurred throughout the season. Every time the seasonal program has an adaptation week, then this should be a rehearsal of the first week of taper for a major meet (i.e. Nationals).

- For a minor heat, but a very important one (i.e. State Championships), then the same above principal would apply with an exact duplicate/rehearsal of the first two weeks in the seasonal program would be needed to rehearse the second week of a taper **(exactly)**. working the above principal using the last (rather than the first) week and second week of a taper has not been successful as the large drop in the quality has proved to be too dramatic.

- Practice starts, turns and finishes during the last five weeks with high demand and constant feedback, both positive and negative. With starts, practice both reflex starts and command starts. For the first start, concentrate ion reflex/movement reaction time and for second starts, be safe with concentration on command. Do not forget relay starts. Practice start-turn-finish drills and relays.

- Desired race stroke rates should be perfected, combined with exact pace work form 10-6 days out of meet, in broken swims. Practice and perfect both heat and final pace work and strategies.

  With individual medley swimmer, I do not commence doing and significant mounts of straight individual medley work until the last five weeks. Prior to this, I believe that individual medley training should be made up of sets that are very much one stroke sets.

  However, in the last five weeks it is very important for pace work, feel of the stroke and neuro-muscular adaptation in respect of the changing stroke at speed element in individual medleys. I see no point in doing individual medleys or individual medley sets in anything other than straight medley order.

- Practice and experiment with pre-race warm-ups and specific swim-downs – understanding that for an extended meet, the swimmer will generally require on a daily basis slightly less in the quantity of warm-up and a slight increase in the quantity of swim-down. Heats usually require a more active and longer warm-up than finals. this should be practiced on a consistent base throughout the year and whilst experimenting with the warm up, it is recommended that one should not change or vary too much form one competition to another. As a general rule, the less rested the swimmer, then the longer the warm-up needed.

  The objectives of warm-up are to prevent injury, increase blood circulation, provide a slight increase to heart rate along with a slight rise in the core body temperature and to mentally prepare etc.. In conjunction with the warm-up, the athlete will have the choice of contrasting showers, massage etc. to assist in their preparation. It is important that the athlete has a plan which will adequately allow all this to happen starting with morning heats. The athlete must have a program that allows fast heat swims, recovery and faster finals, and then recovery again for the next morning heats. In this regard, competition throughout the year must be treated as dress rehearsal of this process. I believe, in the interest of the continued improvement and the future of the individual, that not all the preparations and fitness of that which you would give the senior elite athlete given to the advanced age group swimmer. Age group swimmers must be kept hungry for winning and the rewards and benefits that go with winning.

  However, you might need slightly different warm-ups for short course and long course or warm versus cold conditions. Note that your legs are very big muscle groups and should not be over-stressed with starting and turning practice in warm,-ups. these must be perfected well in advance of the final taper, and certainly warm-ups. A coach should record all pace times swum in warm-ups in order to compare from one meet to another.

  Swim-downs are usually 1,000 metres in length with a considerable amount of this at 50-60 beats below maximum (BBM). The swimmer should continue the swim-down until the heart rate falls below 120 at the end of the active rest.

  It is vitally important that the athlete has intake of carbohydrate fuel included in the swim-down. Testing has shown that lactates must be significantly reduced in the swim-down and that it will take about 1,000 metres, and if possible lactates should be checked at the end of the event and the swim-down in order to learn about the individual in this situation and to be certain that the lactates **are** reduced.

  Also with regard to carbohydrate, the athlete should understand that carbohydrates are needed to be substantial in the weekly nutrition intake throughout the season and carbohydrate loading in the last ten days to one week before a competition is not necessary. in fact, overdoing this part of nutrition can lead to fluid retention in muscle mass and thus have a detrimental effect. Carbohydrate loading is not necessary for swimming events unless it is an event lasting in excess of 20 minutes.

- The athlete should have a competition meal list and have developed the essential skills needed to prepare their own meals during competition, as well as make wise selections form a buffet type meal arrangement which could naturally include both good and bad foods. It should be remembered that nearly all pasta dished purchased at restaurants are made with cheap fat-saturated sauces so the ability to prepare your own or choose wisely is an essential skill for high performance athletes.

- Do some quality-specific workouts in the mornings during the last five weeks at lest. this prepares the athlete to perform fast in heats. Practice swimming fast heats in minor meets.

- Ten days out of the meet have a full blooded hit out at maximum effort in the morning, but perhaps over a slightly shorter race distance or different stroke along with a race specific broken swim in the afternoon practice (mock trial – race day simulator). rehearse race and pre-race plans along with pre-race meals, warm-ups, etc..

- Test sets or step tests can be used in this situation but as coach, you must have the ability to vary the test in order to continually offer challenge and stimulation of the athlete. Constant exposure to just one test set can cause plateauing in the test set, but not necessarily the athlete's fitness.

- When developing your model for tapering or race preparation or you are considering a variation to your model, consider the age, muscular development, background, event, psychological make-up and competition etc. of the individual.

- Understand that a taper is a gradual reduction in physical stress and an increase in mental stress. Mentally prepare and program the athlete and team. Develop and work through coping strategies so that the athlete will adequately handle all situations and net be challenged in handling the unexpected. Try to limit the mental stress, keeping it under control.

- Do not increase amount of training or percentage of quality after five weeks out of competition and reduce training components according to the chart after 21 days out of the meet.

- Tapering is about performing race specific with adequate and increasing recovery and adaptation.

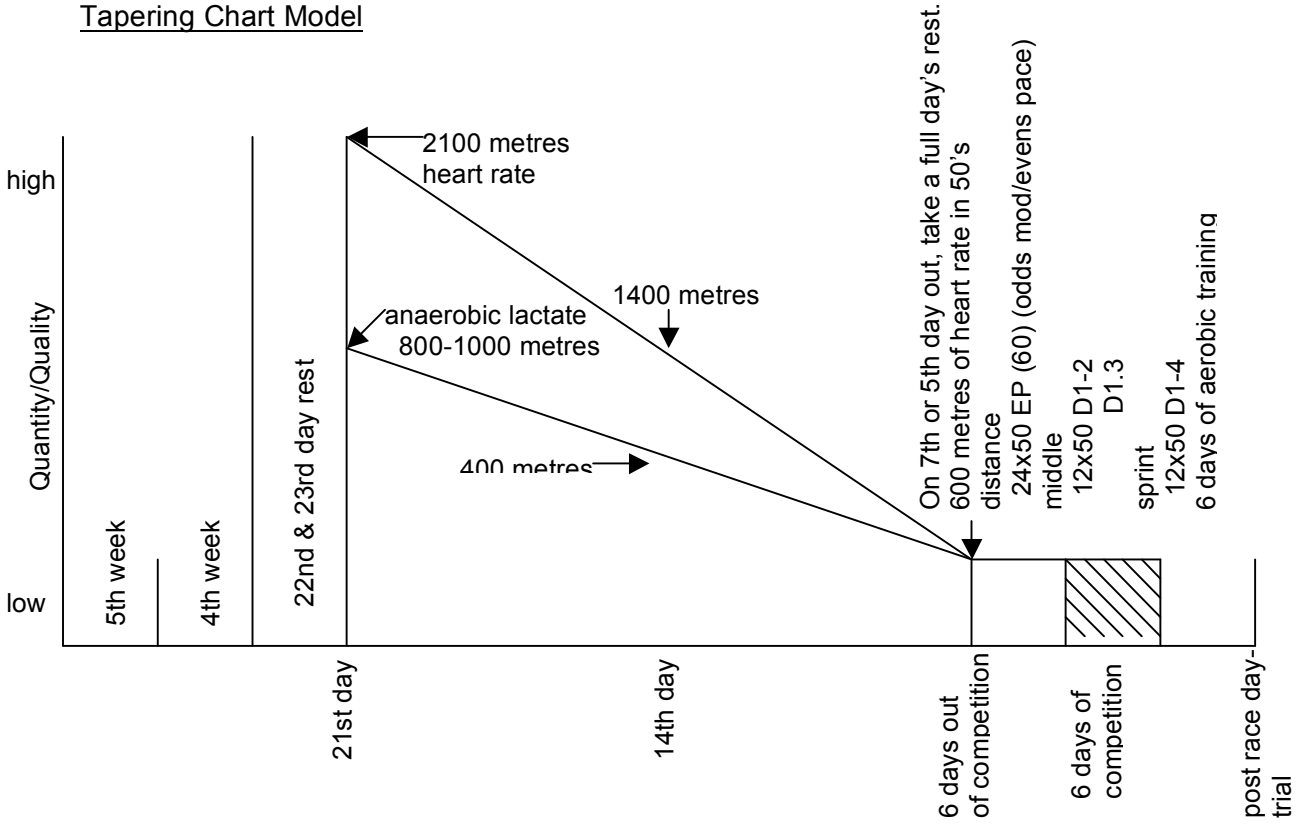
- Conduct a team meeting 2-3 days out of the meet to familiarise athletes with **all** information about the meet and your expectations. Talk individually every day to each athlete. Explain and define relay responsibilities and arrangements.

- Be extremely cautious with any lactate/anaerobic training within ten days of the meet. In order to keep the athlete on edge and to hold glycogen levels balanced, then I personally would recommend against using this type of training during the final ten days. If in doubt, leave it out.

- Reduce heart rate, lactate, all quality and quantity work according to your model (note chart page 5) Kick sets must be maintained for lower-body fitness but be reduced according to the chart as well.

- For dual peaking situation, have 2-3 days of low intensity aerobic work followed by a repetition of training utilising the same number of days out of competition (i.e. another meet in nine days time), then do three days aerobic training and repeat the last six days of training prior to a major meet. As a guide, I would consider about 25 to 30% of the total time to be spent on just aerobic work for a dual tapering situation with a meet within 15 to 18 days of the first meet.

Tapering Chart Model



DESCEND 1 - 4 1st 50 is 4 seconds off pace rate
2nd 50 is 3 seconds off pace rate
3rd 50 is 2 seconds off pace rate
4th 50 is pace rate

DESCEND 1 - 3 Same as above but deduct one 50

Increase component of heart rate sets in swim to be 50s but increase these from the end of the heart rate set and keep race pace or slightly slower.

Repeat 50s done in heart rate set at 15 BBM at the start of a heart rate set can tend to be anaerobic and as such can defeat the purpose of the set (maintaining race endurance) and complicate the more intense quality sets in the rest of the weekly cycle. It is wise to avoid this by putting the 50 repeats at the end of a heart rate set.

Heart rates are basically recommended at 40 minutes total set time with a 30 minute work component. However, there are many more varieties of this and coaches must look 'laterally' when deciding their training dosage of high intensity endurance work.

In tapering or preparing for competition for those programs and coaches using the T30 (Coach John Urbanchek) or the Bonifazzi (T2000) principles, the same or similar principle will apply as outlined in this article.

This must be applied in the workout with caution and great consideration given to the age of athlete and event specifics.

Some Coaches have a very 'hard' endurance-quality type week about four weeks out from the meet based on the notion that this last hard week is either the last chance to make gains or to 'carry' the swimmer through the last three weeks. I find this counter-productive as it can cause confusion in the body's adjustment prior to resting. I prefer to add a little more 'body' of aerobic work in the taper if the athlete is young or less muscular or has less background and there is doubt that they can hold a three week race preparation. I have enjoyed much more success in holding the volume of week race preparation. I have enjoyed much more success in holding the volume of quality and quantity in the fifth and fourth weeks out with the only increase being that quality and quantity in the fifth and fourth weeks out with the **only** increase being that the intensity in the fourth week out is greater (more race specific) than the fifth week out.

Intensity is the major training item in maintaining/improving fitness during the race preparation/tapering period. This will depend on the individual and the event. the amount of heart rate work will depend on the days of the meet (i.e. 18 days out of meet would mean 1800 metres of heat rate). Obviously, this would mean quite a contrast in the level of effort required (i.e. a sprinter might be descending 1 to 4 (1-40BBM; 2-30 BBM; 3-20 BBM; 4-10 BBM and broken race pace) whereas the distance swimmer would be doing 18 x 100 at 20 BBM (example only in terms of the specific set).

- No heart rate training done six days prior to the meet. Some distance swimmers might repeat their sixth day out set a little closer to the meet.

- Prepare motivation strategies for the first day of meet (big start) and for the difficult third day of the meet.

- Day two out from main event have swimmers relax - have the athlete do something that they appreciate (a little pampering i.e. have their hair done, facial, nails, buy a new pair of shoes/dress, males have a massage, buy a new CD or go to a movie). forget about competition - no pressure.

- On the 22nd/23rd day out from the meet, have the swimmers review or prepare:

    - Self-monitoring chart (note Ms Angie Caulder articles)
    - Competition check lists
    - Vivid visulisation skills
    - Pre-race warm-up (heats and finals)
    - Relaxation skills
    - Pre-race plan (written)
    - Race plan (written)
    - Competition meal plan (menu)
    - Familiarisation with competition pool and environment.

  These should be worked through with the swimmer and coach.

- a simple training micro-circle and macro-circle which will work and provide a good start for developing cycle training that is quite easy to taper from is:

MONTHLY MACRO-CYCLE

Training	Heart Rate Sets	Anaerobic/Lactate Quality Sets	HVOs Weekly Totals
Week 1	3	1	80
Week 2	2	2	60
Week 3	1	3	40
Week 4	Adaptation/first week taper rehearsal		
(or week 1 of Taper)	2	2	40

FINAL 3 WEEK RACE PREPARATION

This is Week 3 out of the event and these sets are now down to 50-60% of normal volume whilst maintaining intensity.

Week 2 of Taper	1 (plus 1 pace set - mainly 50s)	1 (plus one pace set - mainly 50s/25s)	30

This is Week 2 out of the event and these sets have continued to reduce in volume become more race specific as in pace.

Week 3 of Taper	1 (600 m, as per Tapering Chart)	1 (Single effort pace swims)	20

This is the final week of taper, and rest and recovery is all important.

This is an example of a race preparation phase descending from a monthly macro-cycle and is an example only of the type of planning required. In order to bring this into line with my previously mentioned tapering philosophy, the fourth and fifth weeks out of competition would need to be balanced as equal weeks. All this would mean is that an additional heart rate set would be added and a quantity set deducted form Week 3 of the above/normal macro-cycle or vice versa, depending on athlete and/or event involved.

- For age group swimmers under 15 (approximately), apply the tapering principles and chart working down from 15 days out of competition, rather than 21 days out.

  However, for some age groupers, it will be necessary to have only a 10 day taper initially in their career, then progress to a 15 day taper and finally a 21 day taper as the athlete progresses through the age groups and maturation. The event, muscular development and background of training will still dictate the type and amount of training completed during these above progressions but I believe it is wise to have an end product (model) and work backwards from this. One way is, for example:

  21 days as per this article (15 years and older)
  15 days as per the last 15 days as outlined (15 years and under - maturation)
  10 days as per the last 10 days as outlined (ages below maturation)

It is then possible using this as a guide to individualise the content of the model to suit the individual. Of course, for advanced senior athletes, this will require further refinements in the area of a more individual approach to the intensity and amount of quality during this race preparation phase, but it will still be based on what is documented in this article.

Remember this is a model that has worked for me in a team environment for advanced age group swimmers. As a coach, you must develop your own model and plan, but do not vary each taper.

- The micro-cycles used within this taper/race preparation period will be a matter of choice of the individual coach, and they must be considered in the total plan of race preparation and the cycle of training. these could be from 2 day to 7 day micro-cycles.

  In a heart rate set, do you as coach rely on the heart rate and to which variable will you change if there is a change in either repeat time or heart rate? Would you change the recovery cycle? Heart rate or time? this is a **crucial** and **vital** decision to be made for workouts, but especially so in a taper. The intensity of other weekly training sets along with the goal/event will have a significant bearing on your decision.

- An increase in the amount/percentage of quality in the last 21 days can result in over-stress as can a disregard of heart rates and the individual in your taper lead to a de-training effect.

- Always work on beats below maximum for aerobic and endurance work as a controller of effort. every swimmer must know their own maximum heart rate.

- This training policy will assist the coach and athlete in handling successfully ‘flat spots’ or taper ‘blues’, should they occur. If they occur, then look to aerobic work only and understand that this is a temporary adaptation and be guided by the heart rate for intensity control and not repeat time.

  In many instances flat spots can occur due to not providing the mental stimulation and challenge in the workout environment. these flat spots rarely last longer than four to six days, but can occur very suddenly. In a taper, always be observant in identifying when the athlete experiences ‘real’ speed. in a ‘resting’ rather than ‘tapering’ situation, understand that the swimmer should always perform faster at competition than they are repeating at training. If not, then look for over-stress (physical or mental) or adaptation plateau.

  With regard to resting for mid-season meets, it is sometimes quite difficult as often the hardest working athlete can experience less than desired results whilst the moderate working athlete is more likely to experience better results due to the differential between work and rest. a hard working body can experience great physical changes when exposed to rest which initially is an adjustment backwards in fitness in the progress of adaptation.

  Physical adaptations take place to a greater extent with rest (no matter how small – 2-3 days) or less yards for the harder working athlete. Learn to perform fast in solid training or take a full week of adaptation in preference to 2-3 days rest prior to a meet. if there is no option, then the choice is either keep the yards constant and decrease the intensity (preferred option) or keep the intensity and decrease the yards. Do not allow this to be a negative influence on your better or harder working athletes.

- The swimmer and coach having set clearly identified, realistic goals at the commencement of the last cycle of training must rehearse and practice those **exact** goals by utilising broken swims at the latest during the last five weeks. The exact timing of each 50 taking into account turning, start, etc. along with stroke rates, stroke count by 25 metres must be rehearserd frequently as part of a quality training set, especially under race type conditions. hopwever, itr is certainly my experience that one's ability to simulate race pace etc. in broken sweims not be used as any type of indicator of form. these simulators should also be practiced along with one-off race pace type work without the swimmer having the benefit of a race clock.

  These broken events would commence approximately five weeks out with a short rest and build to long rest swims closer to the meet.

  During the last three weeks, a swimmer will generally do less wotkouts in order to be fully rested going into the meet. The danger in this is that you should not condition your athlete to sleep in or change the body clock drastically in the last three weeks. it is wise to have 8 hours sleep each night with 2 hours rest furing the day (i.e. reading, studying, playing bopard games etc.). As the coach, it is wise to encourage the athlete to take an afternoon rather than a morning off so that the athlete actually has more sleep. A morning off sometimes will mean that the athlete will stay up late, knowing that theey can sleep in late the next morning. this must not be part of a high performance athlete's preparation and the correct policy on the rest must be accepted and practiced at a young age. It is pointless if you rest the athlete in the pool and gym and the athlete subsequently increases other activities or has less quality rest during quality training periods, including the race preparation phase. Quality rest and recovery is necessary for quality perfoirmance.

  With recovery, I must point out that for most femaledistance swimers and for nearly all age group swimmers, I believe it is better to have a recovery-on-need policy rather than a set adaption week built into the program every fopurth week, for example. This recovery-on-need policy forces the coach to 'read' the athlete more consistently and is better for identifying and over-stress. This means only a one-two workout adaption process instead of a week, but may be taken more frequently.

  Obviously, there is still a place for the one week adaption policy even within the recovery-on-need policy. As an example, the school exam week is one where a full week of adaption is required. The recovery abilities of age group sweimmers and nearly all female distance swimmers (and some male) is such that planned or extensive recovery is not needed due to the ability of these people to adapt to training stresses very quickly.

- As a coach, it is advisable that all meets of any importance (i.e. State, National Championships etc.) you have a notebook and record your observations etc. so that you can prepare a checklist for each meet.

  From one State Championship to another can be twelcve months and it is easy to forget meet conditions which can influence your athlete. This also applies to pools which you may use once only every four or five years.

- As a general rule, males taper over a longer period than females. However, this is mainly due to to the amount of muscle mass of each individual and the greater the muscle mass, the longer the taper. Breaststrokers, due to the leg and arm stresds of the stroke, may also require a little more time to be adequately rested, or less volume of both quality and quantity during the same period (length if time) of taper.

- As a guideline during the taper for the last six days, the total amount of daily yardage should not be more or less thatn the tortal daily yardage during the competition. Add up warm-ups and heats and swim-downs plus finals and use this as a guideline.

- The athlete should be certain to be skilled in communication with press and officials and conduct on the victory dias along with coping strategies if the race result is short of expectations.

- Relay changeovers should be practiced utilising the electronic timing and starts rehearsed using the meet starter.

- The coach and athlete must develop the bility to focus on the next event and get ready regardless of the outcome of this previous event.

- The athlete must be practiced in the drug testing protocol and procedures. As well as knowing all the banned substances and what is expected of them in this testing procedure, the athlete must know and be aware of their rights.

- I always suggest a follow up time trial, but preferably a swim meet after a full taper so as to check the effects and accuracy of the taper with regard to the individual

  I find this best at about six days after the major meet. This also prepares the athlete to hold up for an extended meet similar to what happens at future major games and it also assists in recovery from the taper. During these six days, I suggest only training once per day with soft aerobic work but with some fast 'skipping' work. I find this establishes great attitude with your swimmers in getting back up aftyer meets.

- Confidence and a relaxed athlete are common denominators of all great athletic performances and these must be at peak levels in taper.

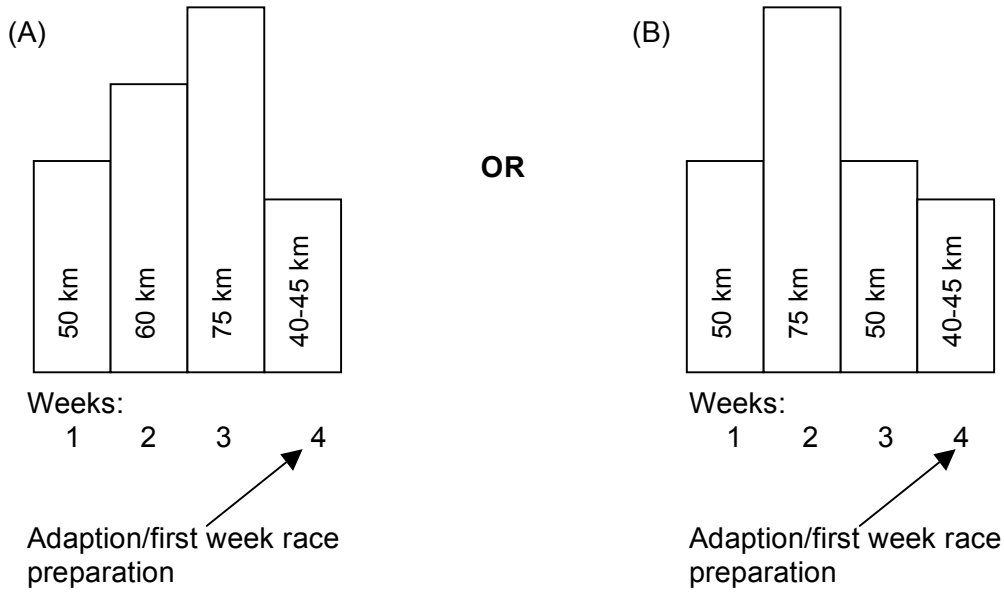
- A set of 8 x 50 best stroke on 2 min. 30 sec. commenced eight weeks out of a meet descending 1 to 8 and reducing the descend emphasis by one each week is a set that I have found useful as a confidence builder for the swimmer. This means that you will eventually work form 400 pace down to secong 50 pace of a 100 by the seventh week out. In this set, I record the time + stroke count + heart rate (accurately) for each 50 and compare this from one taper to the next. Each week, drop the time of the first 50 and repeat the time of the next 50.

<u>Example of Tapering Volumes for swimmers Participating in Events 100 to 1500 Metres</u>

- For specialist 50 metre swimmers, then obviously this is not recommended

1. Adaption weeks during the season should be approximately 60% of the training volume of the highest weekly load during **that** particulat cycle. This should also be the first week of a three week race preparation phase. It can go as low as 50% without loosing and physical conditioning, provided the swimmer has a reasonable background and is not on a high intensity, short mileage program.

Examples are (for 4 weekly cycle):



For 400 to 1500 metre competitors/specialists, I would recommend about 60-65% rather than 60% which would mean the adaption week would be approximately 50km in total. This of course depends on the individual volume of each swimmer. There should also be the appropriate reduction in quality/stress within the week as well, although it need not be as dramatic as the volume drop as indicated.

It is wise to increase, decrease or introduce or withdraw only one thing at a time or from your training program. Certainly, do not decrease the amount/volume of training and increase the amount/volume of quality. This usually is a recipe for disaster.

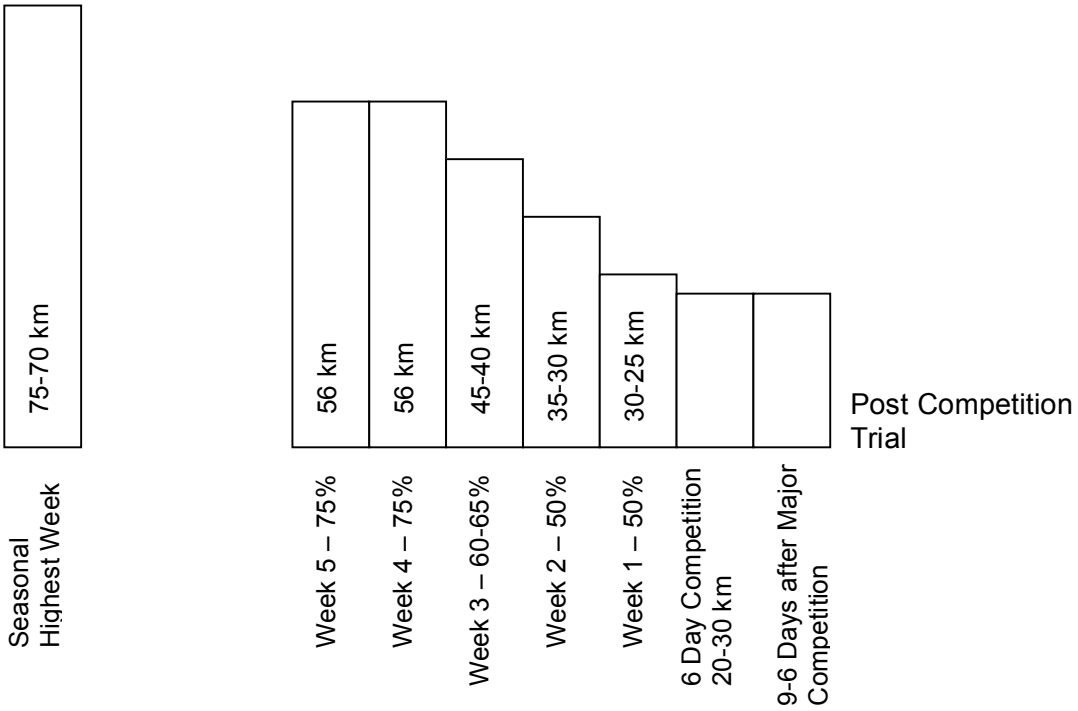
2. For multi-week adaptions such as taper, then reduce to appriximately 40%-50% of the seasomal highest weekly volume for the second week out from taper.

Example: *5 weeks out of a major meet
*highest seasonal week is 75km

The percentage of quality (400m pace or faster) in any given week should be around 10-15% of the total workload as a maximum and should maintain that or less during the taper period. I have found it beneficial to drop amount (but not intensity) of intensity-quality by 5% per week in the last 3 weeks.

Week 1 of taper	Approximately 15% quality/volume
Week 2 of taper	Approximately 10% quality/volume
Week 3 of taper	Approximately 5% quality/volume

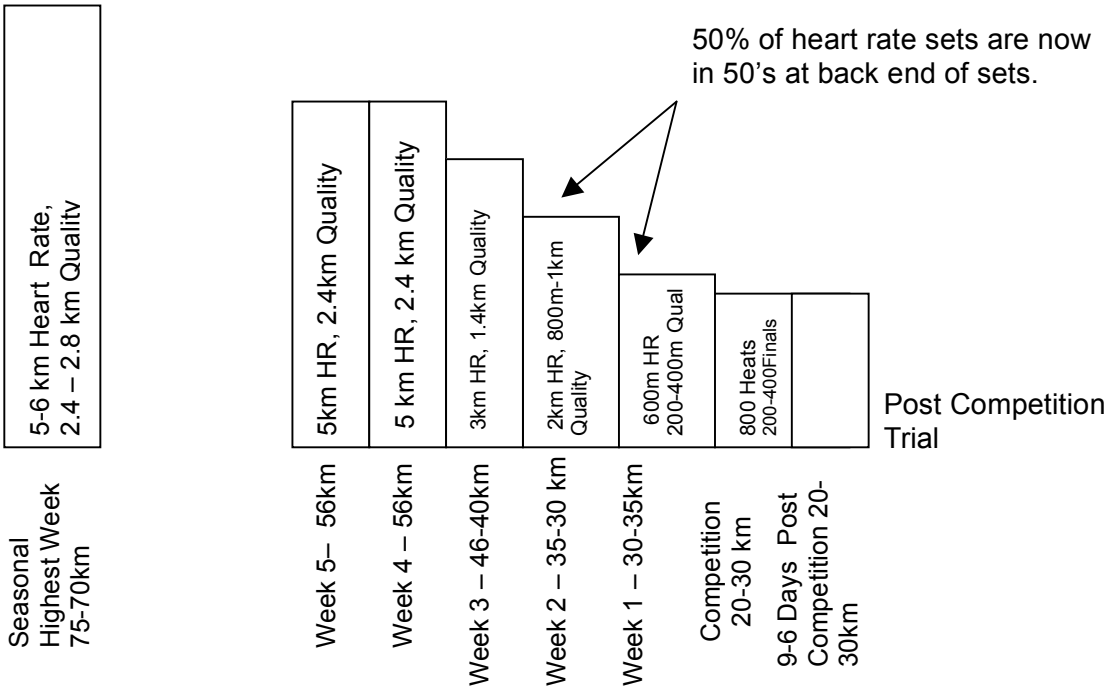
(see chart page 13)



For 400-1500 metre competitors, the percentage should be a little higher (about 5-7%) than those prescribed and outlined above. These are examples only. The same principle applies but with slightly to significantly less volumes for male/muscular, large background based or sprint swimmers.

The concern with intensity/stress during adaptation/race preparation periods is than an over-exposure or too much will result in a breakdown in muscle tissue (ie white fibres).

The total volume of training during the last 3 weeks is reduced by 60% to 50% with the volume of quality training reducing by approximately 5% per week, but there is no reduction in the intensity of training in this same period, but avoiding lactate tolerance/peak training in the last 10 days is important.



Adjust up slightly for 400-1500 swimmers.

Quality rest is paramount. Eight hours sleep plus two hours rest and reading etc, during the last 10 to 14 days.

It is the coaches responsibility to provide the best opportunities and conditions for the best athletes whilst retaining the confidence of the athlete to perform at their best in the worst conditions. Do not be afraid as a coach to judge your program on the competition performance of the most talented and least talented athletes in your program. Be the best prepared and have the will to prepare to win, as well as the will to win. Leave nothing to chance!

- Record all variations during this race preparation phase, in order that exact evaluations can be made for the next competition

- The question at the end of a meet/taper is "What is the minimum amount of training (Quality, Quantity, Intensity) that is required for each athlete in order to maintain peak physical fitness?"

- If preparing from a short altitude program, some of these principles do not apply and a different preparation is required.