

Swimming YOUR Best
Bill Sweetenham .. Key Performance Factors

Some factors to consider



It's not just about being your best "on-the-day"
It's about **preparation** to be the-best-**you**-can-be



QUALITY TECHNIQUE

(Some) KEY PERFORMANCE FACTORS

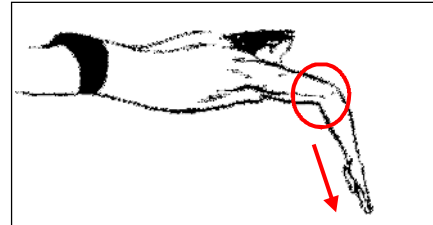
In all strokes, continuous swimming without breaking stroke, breathing and rhythm is essential, as is a high, stable body position.

Rhythm and **timing** are key indicators of efficient technique.

Factors based on guidelines provided
by Bill Sweetenham and
Kings Mornington Swimming Club
2000

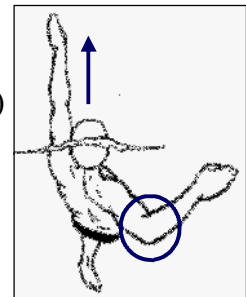
Freestyle:

- Strong, continuous kick with extended legs – pointed toes
- Bent Arm Recovery with a slight elbow lead, thumb first
(v. semi-circle recovery)
- Controlled breathing and head position
- Long stroke with slow arms
- Fingertips – wrist – elbow – shoulder; no splash entry



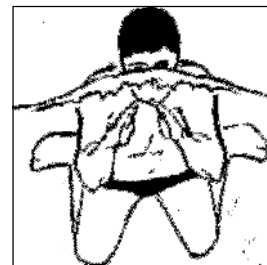
Backstroke:

- Hip high position
- Continuous arm movement: straight / high on recovery, brushing the ear(s) and entering the water at 11:00 and 1:00 o'clock.
- Continuous kick, knees under water and extended legs; pointed toes to surface
- Stable head position (water at ear level)



Breaststroke:

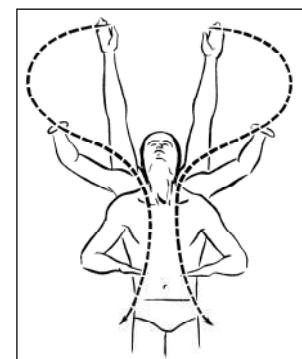
- Both feet turned out on kick
- Knees inside feet on backward kick
- Arms pulling outwards to 10:00 o'clock and 2:00 o'clock in a locked position **after** the kick is complete
- Legs up slowly and extend back quickly
- High hip position
- Long glide to the count of 3
- “Long” arms, head down at the commencement of the stroke



Heels Together Hands Apart
Do not “break out”, i.e.
Do not break out into arm pull out, until kick is complete.

Butterfly:

- Little finger first, straight arm recovery
- Feet together with kick in (hand entry) and kick out (hand exit);
timing of the arm stroke
- Continuous arms together
- Breath just prior to arm recovery
- Feet together and hands together on kick and arm stroke (balanced)
- “Long” arms, head down, at commencement of the stroke



Each stroke to contain a locked elbow straight position prior to the commencement of initial limb force application ... a high or slightly elevated wrist position is desirable at this point.

KEY PERFORMANCE FACTORS

by Bill Sweetenham (Master Coach .. April 2009)

Punctuality

Don't be on time – be early!

Kit (costume, goggles, team uniform, etc.) at meets

Sense of pride, no need to be made or told to wear it

Body language - relaxed enthusiasm

Show and sell unconditional confidence

Unconditional support – as a team and home programme

Always focus on winning skills

Empathy and understanding of other team members

When an athlete performs above themselves, all in the team should celebrate

Be a “Seller” – believe in what you sell

Positive athletes and staff always win! Negative athletes and staff never win! No negative comments on any other team members.

Clear understanding of your role in the team

Role clarity for all staff and total commitment to the team effort from everyone

Be the best prepared

Learnt skills in advance of raw talent

Have complete knowledge of the product

Individual athlete, team concept, event (both stroke and distance), gender, history of the event

Some Key Issues for Efficient Coaching:

- Measuring power output – and how it would be used.
- 3D models and analysis of technique – consequences of technique changes (incorporate with power measurement).
- Measure stroke length in training – real time feedback on stroke length.
- Monitor physiology at all times.
- Instant feedback.
- Video – immediate video feedback.
- Better understanding of how to use sports science information.
- Sports science tools – applied in training environment (i.e. not in laboratory)
- Determining optimum SR/DPS and all aspects of race model for a swimmer (all athletes to have a race model).
- Underwater work – maximising benefits of underwater phase without negatively affecting back-end of race.
- What is the relationship between technique and physique – different techniques for different physiques?
- Availability of complete profiles of champions over the years – training, racing, anthropometry, lifestyle, achievements through the age groups, etc.
- “Holy Grail” – know state and function of athlete at any one time – fatigue state – readiness to train.
- When to train, when not to train for how long, how fast and what intensity – glycogen depletion.
- Speed and pace charts specific to the individual.
- Does improvement in kick-only/band-only contribute to improvement in swimming performance?
- Force plates in starting block and touch pads.
- Effective tools to prioritise areas that a swimmer should work on for maximum returns – i.e. in what areas are they already good enough, therefore no benefit in further development, and where they should spend more time (strengths versus weaknesses).
- Early identification of potential athletes – factors to identify potential competition swimming ability – transfer from other sports, recruit into swimming, talent development, identification of winnable events.
- Efficiency (ability to add speed and fitness to efficiency, knowing it is not possible to achieve the opposite).



Factors Affecting DPS and Training to Improve DPS

What factors affect distance per stroke (DPS)?

- Flotation
- Rotation and core strength – connection through the core – FS/BK (200 up events)
- Posture – line and balance – body position to optimise forward propulsion of kick
- Awareness of:
 - Importance of stroke length
 - Where swimmers are relative to world best
 - DPS in training – meaningful stroke counting
- Early application of propulsive force:
 - “Feel” for water at catch - Strength - Flexibility
- Feeling – stroke rate does not equate with work rate
- Stroke pressure point
- Flexibility – shoulders and pecs – preventing appropriate arm position at catch
- Flexibility – glutes and hip flexors – affects efficiency of kick, timing of arms, body rotation, contributes to restriction of arms
- Dominance of one side of the body – balance the swimmer on land and in the water
- Limb length
- Height
- Kick ability
- Kick rate/distance per kick
- Foot size – low distance per kick – high kick rate – high stroke rate
- Stable/flat position in sprinting (50m, 100m)



What can be done to improve DPS?

- Make athletes aware of importance of stroke length.
- Identify athletes where DPS needs attention.
- Address speed from both stroke rate and stroke length – identify where the priority lies for an athlete.
- Regularly monitor stroke rate in training (not too high, not too low) – for athletes with short stroke -
make sure not over-rating (minimum/maximum values).
- Drills to encourage appropriate technique – **early application of propulsive force in all strokes.**
- Work “around” optimal rates in training – above and below desired stroke rates to develop both rate and length.
- Make most of opportunities to develop DPS – warm-ups etc.
- Athletes stroke counting in training – with understanding of why, and what they are trying to achieve.
- Address any identified strength or flexibility issues – particularly flexibility and strength at extremes of
shoulder extension.
- Develop kick ability and body position when kicking to maximise propulsion of kick.
- Avoid things in training that might negatively impact on DPS:
 - Too much sprinting and focus on turnover without regard for stroke length.
 - Mix maximum efforts (focus on rate) with more controlled efforts (focus on length).
 - Do not equate stroke rate with work rate.
- Address swimming teaching methods so that athletes enter clubs with good feel, good technique, appreciation of distance per stroke and efficiency.

Male/Female Differences

There is surprising little research into the differences in responses to and requirements for anaerobic training in males and females. However, the following can be said in general:

- Males are naturally stronger than females.
- Males are naturally more anaerobic than females.
- Both of these statements apply particularly to the upper body.
- Females are naturally (relatively) more aerobic than males.
- Females have a greater regenerative (recovery) capacity from high intensity exercise;
(possibly due to a lower anaerobic contribution).



Based on these points, the following should be considered when taking an anaerobic approach with males and females:

- Work on an individual’s relative weaknesses.
- That is, males will need relatively more aerobic work.
- Females will need relatively more strength and anaerobic training to develop their relative weakness.
- Males generally require more recovery than females for the same type of training –
longer cycles, longer between sessions.

For this reason, a male sprint programme (50-100m) might be similar in content to a women’s middle distance programme (100-200-400m) – phase shift.

- Consider where your athletes sit on the spectrum from more masculine to less masculine males;
less feminine to more feminine females.