The 5th Swimming Stroke

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We are what we repeatedly do.Excellence, therefore, is not an act but a habit."
– Aristotle.

These days, crowded pools and big swimming squads per coach are common place in South Africa and across the world at all levels of participation. As a result of this, more often than not, very little time is spent perfecting the techniques of starting, turning and finishing, and very little concentration is given when performing these skills. This is a serious oversight and negatively affects race times at all ages and levels.

When race times are divided up into technical skills (starts, turns and finishes) and free swimming, it becomes evident how important these technical skills are. Starts (starting gun to when then the swimmer's head breaks the 15m line) account for up to 30% of a race, while finishes can account for up to 10%. Turns (from 5m before the wall to 10m or 15m out from the wall – depending on race and level of participation) account for between 20% (100m) and 39% (1500m) during long course (LC) events, or between 40% (50m) and 70% (200m) during short course (SC) events.

On average, technical skills account for up to 40% of LC race times, and up to a whopping 80% in SC.

SwimTime = [Start+ Turn/s +Finish] + Free swimming

Long Course (50m)

50m = [15m (30%) + 0m + 5m (10%)] + 30m (60%)
100m= [15m (15%) + 20m (20%) + 5m (5%)] + 60m (60%)
200m = [15m (7.5%) + 60m (30%) + 5m (2.5%)] + 120m (60%)
400m*= [15m (3.75%) + 105m (26.25%) + 5m (1.25%)] + 275m (68.75%)
1500m*= [15m (1%) + 435m (29%) + 5m (0.3%)] + 1045m (70%)

Short Course (25m)

50m = [15m (30%) + 20m (40%) + 5m (10%)] + 10m (20%)
100m = [15m (15%) + 60m (60%) + 5m (5%)] + 20m (20%)
200m = [15m (7.5%) + 140m (70%) + 5m (2.5%)] + 40m (20%)
400m* = [15m (3.75%) + 225m (56.25%) + 5m (1.25%)] + 155m (38.75%)
1500m* = [15m (1%) + 885m (59%) + 5m (0.3%)] + 595m (39.7%)

***Turn taken to 10m from wall - all others on 15m from wall**

So how much concentration do you give your skills during training???

Starts are not only what happens on the blocks or above the water, but even more importantly, what happens during and after entry into the water. Streamlining the entry and transferring the explosive power off the blocks into speed underwater is crucial. Turns should have the motto of "fast in – fast out" with little to no loss of speed before the wall, tight tucks and explosive push offs. Streamlining and underwater kicking, as well as perfecting the amount of time to spend underwater and the timing of the breakout are also all key to good technical skills execution and should be focused on continuously in training. There are no excuses!

"Don't treat your turns lightly, as I did as a swimmer. Treat them with respect and as an opportunity, rather than an inconvenience. Work all parts of the turn diligently and constantly, strive to make your kicks faster and stronger. If you work your turns hard in practice, you will soon find that you are leaving your competition behind, rather than the other way around. That alone is worth the effort."

– Gary Hall Snr (3x Olympic medallist & 10x former World Record hlder)

So how do South African swimmers perform these skills? How do South Africa's best compare to the World's best?

A recent study compared performances in the 50m and 100m finals for both men and women in all four strokes at the South African National Aquatic Championships held in Durban in April 2014 and the 15th FINA World Championships held in Barcelona, Spain in July/August 2013. Finalists in each relevant event were compared on average in terms of actual race times, free swimming times, start times, turn times and finishing times.

Looking at the data depicted in the tables, it is easy to see that although South African race times are much slower than the World's best, there is often excessive time "lost" performing the technical skills.

AVERAGE RACE TIMES - FINALISTS

		♀			♂	
	50m	30.33	2.54	27.79	26.21	1.45	24.76
	100m	64.34	4.82	59.52	56.55	5.06	53.49
	50m	28.15	2.34	25.79	24.61	1.42	23.19
	100m	62.60	5.08	57.57	54.82	3.32	51.50
	50m	33.09	2.66	30.43	28.91	1.78	27.13
	100m	71.52	5.40	66.12	63.20	3.59	59.61
	50m	26.78	2.30	24.48	25.39	1.77	21.62
	100m	57.55	4.01	53.54	50.55	2.48	48.06

In terms of starts in the 50m races, the SA female finalists are seen to be 1s behind the World Champs finalist (on average) before the "free swimming" even starts, while the men are seen to approximately 0.6s behind. In the 100m races, the SA female finalists are 2.2s behind before reaching the 15m flags, while the males are 0.9s behind. That is a lot of time being lost and up to a body length in positional difference. Breakout distances also highlight the differences in underwater efficiency and speed.

AVERAGE START TIMES - FINALISTS

		♀			♂	
	50m	10.72		13.76	11.11		14.09
		8.05	1.06	6.99	6.90	0.82	6.08
	100m	10.27		13.53	11.53		13.70
		8.14	0.91	7.23	6.99	0.62	6.37
	50m	9.82		13.46	10.82		13.67
		7.11	0.83	6.28	6.04	0.79	5.34
	100m	9.36		13.40	10.73		14.06
		7.41	0.98	6.43	6.20	0.67	5.53
	50m	10.21		12.69	11.87		12.69
		8.32	1.08	6.44	7.07	0.63	6.44
	100m	10.47		12.09	12.06		13.52
		8.40	0.84	7.56	7.03	0.72	6.31
	50m	7.83		11.12	9.09		11.14
		7.06	0.87	6.19	6.00	0.79	5.30
	100m	8.33		10.92	8.54		10.28
		7.06	0.60	6.46	6.01	0.48	5.53

In the turns it is fascinating to see how much time is often lost in the approach to the wall (5m IN time). On average, certain SA finalists "lose" time throughout the entire turn, while others "lose" most of their time during specific phases of the turn. Overall our SA female finalists get left behind by approximately 1.3s on average in the 100m turns, while the males have a 1.1s deficit. Turning faster should not just be thought of as kicking harder off the wall, but rather increasing efficiency in each and every phase of the turn from the approach to breakout.

AVERAGE TURN TIMES - FINALISTS

		♀			♂	
	100m	5m IN Time	3.80	0.50	3.30	3.35	0.45	2.90
		Breakout (m)	6.80		9.96	8.44		12.23
		15m OUT Time	8.95	0.91	8.04	7.85	0.79	7.06
	100m	5m IN Time	3.60	0.79	2.81	3.05	0.53	2.52
		Breakout (m)	6.54		9.75	8.02		11.89
		15m OUT Time	9.32	0.61	8.71	8.47	0.86	7.61
	100m	5m IN Time	3.80	0.58	3.22	3.60	0.80	2.80
		Breakout (m)	7.03		8.04	9.11		9.72
		15m OUT Time	10.74	0.78	9.99	9.26	0.35	8.91
	100m	5m IN Time	3.44	0.44	3.00	3.02	0.39	2.63
		Breakout (m)	4.76		6.17	6.15		6.69
		15m OUT Time	8.32	0.78	7.54	7.18	0.88	6.65

Free swimming, which is where most of the coaching and training focus is often placed, accounts for up to 70% of the race. Yet when we look closely at the data in this study, the importance of the technical skills becomes evident, and the excessive amount of time being "lost" while performing these skills is inexcusable. Swimmers training in short course pools have double the opportunity to perfect their turns and underwater work. And although coaches should assist in improving these skills, it is the swimmers' responsibility to focus on these skills during training and perfect their execution. Every turn counts!

Of the SA females' 2.5s deficit (on average) in 50m race times and 4.8s deficit in 100m races, less than half of this time is lost during free swimming sections of the race (1.1s and 2.2s respectively). The SA males show an even more disproportionate balance with their race time deficits of 0.6s (on average) in 50m races and 3.1s in 100m races, being comprised of only approximately a third during free swimming (0.6s and 1s respectively).

AVERAGE SWIMMING TIMES - FINALISTS

		♀			♂	
	50m	19.13	1.19	17.94	16.59	0.43	16.16
	100m	39.88	1.96	37.92	35.24	0.83	34.41
	50m	18.10	1.26	16.84	15.92	0.56	15.36
	100m	38.83	2.33	36.50	34.09	0.95	33.14
	50m	21.09	1.15	19.94	18.73	0.75	17.98
	100m	44.70	3.74	41.96	39.75	1.19	38.56
	50m	16.77	0.97	15.80	14.84	0.75	14.09
	100m	35.61	1.74	33.87	31.61	0.93	30.68

Good execution of technical skills separates the average swimmers from the elite. This study proved that. South Africa's Olympic medallists had superior skill execution in comparison to the rest of the field and this skill execution, and not their free swimming speed, was the key to improvements in race times between local and international competitions. It also revealed that certain South African swimmers have free swimming speeds which are faster than the relevant world champions in their events, but their skill execution was poor and accounted for excessive deficits in race times – taking them from potential World Championship contenders to not being able to qualify for such events. Swimmers should take responsibility for the execution of their skills.