

Effect of Traditional training Method vs USRPT in Elite Swimmers

Partha Pratim Majumdar ^(A)

Date of Submission: 13-03-2020

Date of Acceptance: 28-03-2020

I. Introduction

To develop the best possible pattern and program for the best swimmers of the country, it is very important to offer the modern training program which has new vision and approach. In recent time Ultra Short Race Pace Training (USRPT)⁽¹⁾ has come up as a strong thought process in this regard.

USRPT, short for Ultra-Short Race-Pace Training, is an evidence-based training program/stroke curriculum developed by Dr. Bent S. Rushall for the sport of swimming. It is very important to note that USRPT is evidence-based and not a theory. While theories are mere speculation, the results of USRPT have been proven to be consistently superior to that of traditional swimming training⁽²⁾.

Recent swimming research has indicated that in single races, stored oxygen and the alactacid and aerobic energy systems are dominant while a considerable amount of Type IIa fibers developed through specific training add to the oxidative energy pool for racing. The physiology of traditional swimming practices is discretely different to that of racing. Thus, traditional practices are largely irrelevant for racing and do not provide an avenue for race improvements⁽¹⁾.

We want to see the effect of “USRPT Induced Training⁽³⁾” Compare to the “Traditional Training⁽⁴⁾” Methodology for a group of 38 Top Indian Swimmers consist of 18 Girls and 20 Boys, all of them are National medallist and Few are International Medallist or participants or National Record holder in different swimming events, with a age bracket of 13 Years (2006 born) to 19 Years (2000 Born) and the Training Effect in Mid-Distance and Sprint Category.

II. Method

A group 36 of Top National Medallist Swimmers with 8 swimmers have International Medals has been Checked and Observed in Two different Training Methodology:-

Block 1 : Traditional Methodology^(4,5,6)

Block 2 : USRPT induced Training Methodology^(2,3)

Each Block Consist of 3 Meso Cycle⁽⁵⁾

1. Aerobic and Anaerobic Capacity Build Up (Loading and Adaptation Phase)⁽⁷⁾
2. Merge towards Power (Competitive Phase)
3. Taper Phase

The Macro Cycle in Each Block Contains 10 Training Sessions of about 2 Hours in Morning (5 Sessions) and 2.5 Hours in the afternoon (5 session). In each training block consist of two Major National Meet (One mainly for Age Group and one mainly for Senior Group), and the average Swimming Speed of the Swimmer in comparison to the Personal Best Timing (PB) Compared.

This Swimmers major Events Details Are:

Freestyle (50,100,200,400meters), Backstroke (50,100,200meters), Breaststroke (50,100,200meters), Butterfly Stroke (50,100,200meters) and Individual Medley (200,400meters) all in Long Course Meters (LCM)

In the Chart below we have considered swimmer who prefer in 50 and 100 meters their Main Events in “Sprint Category” and who prefer 200 and 400 Meters are considered in “Mid-Distance Category”.

BLOCK 1: Microcycle followed in General, however some changes taking place specially in Taper Phase:-

MICROCYCLE		MID DISTANCE	SPRINT
	WEEK		
MON	MORNING	AEROBIC DEVELOPMENT	POWER
	AFTERNOON	LAC PRODUCTION & REMOVAL	Heart Rate Set
TUE	MORNING	KICK-PULL- EFFICIENCY	KICK-PULL- EFFICIENCY
	AFTERNOON	Heart Rate Set	LAC PRODUCTION & REMOVAL
WED	MORNING	OFF	OFF
	AFTERNOON	AEROBIC CRUISE	AEROBIC DEVELOPMENT
THU	MORNING	SORT VARIABLES	ATP/CP
	AFTERNOON	RACE PACE SET/ VO2 Max	VO2 Max
FRI	MORNING	KICK-PULL- EFFICIENCY	KICK-PULL- EFFICIENCY
	AFTERNOON	Heart Rate Set	QUALITY
SAT	MORNING	VARIABLE SPEED	WEEK'S NEED BASE SET
	AFTERNOON	OFF	OFF
SUN	MORNING	OFF	OFF
	AFTERNOON		

BLOCK 2 : Micro cycle followed in General, however some changes taking place specially in Taper Phase:-

MICROCYCLE		MID DISTANCE	SPRINT
	WEEK		
MON	MORNING	AEROBIC DEVELOPMENT	AER DESCENDING
	AFTERNOON	USRPT	USRPT
TUE	MORNING	KICK-PULL- EFFICIENCY	KICK-PULL- EFFICIENCY
	AFTERNOON	Heart Rate Set	LAC PRODUCTION & REMOVAL
WED	MORNING	OFF	OFF
	AFTERNOON	AEROBIC CRUISE	AEROBIC DEVELOPMENT
THU	MORNING	SORT VARIABLES	USRPT
	AFTERNOON	VO2 MAX	Anaerobic Threshold

FRI	MORNING	KICK-PULL- EFFICIENCY	KICK-PULL- EFFICIENCY
	AFTERNOON	USRPT	USRPT
SAT	MORNING	VARIABLE SPEED	WEEK'S NEED BASE SET
	AFTERNOON	OFF	OFF
SUN	MORNING	OFF	OFF
	AFTERNOON	OFF	OFF

III. Outcome

Training Duration in Each Block Stated Bellow

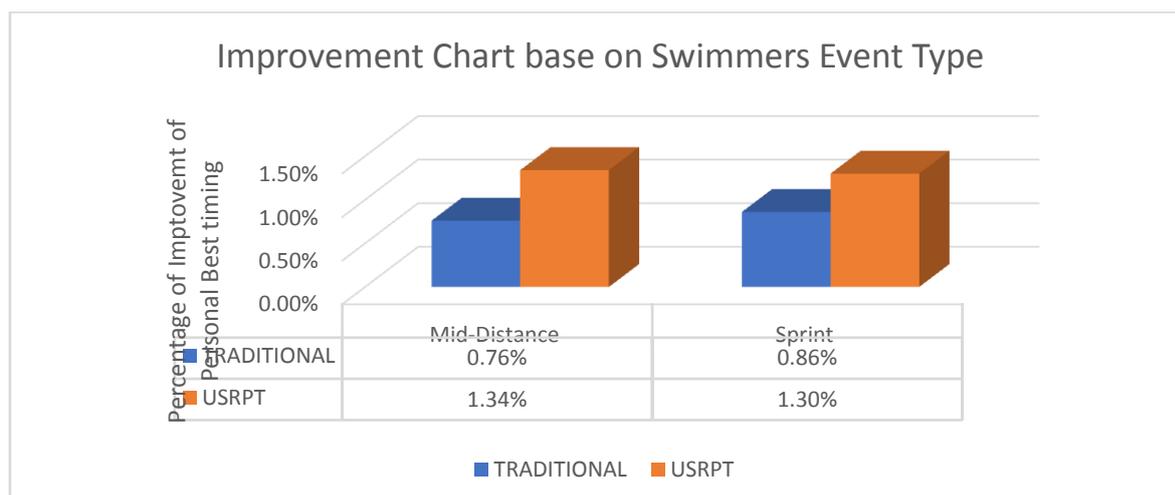
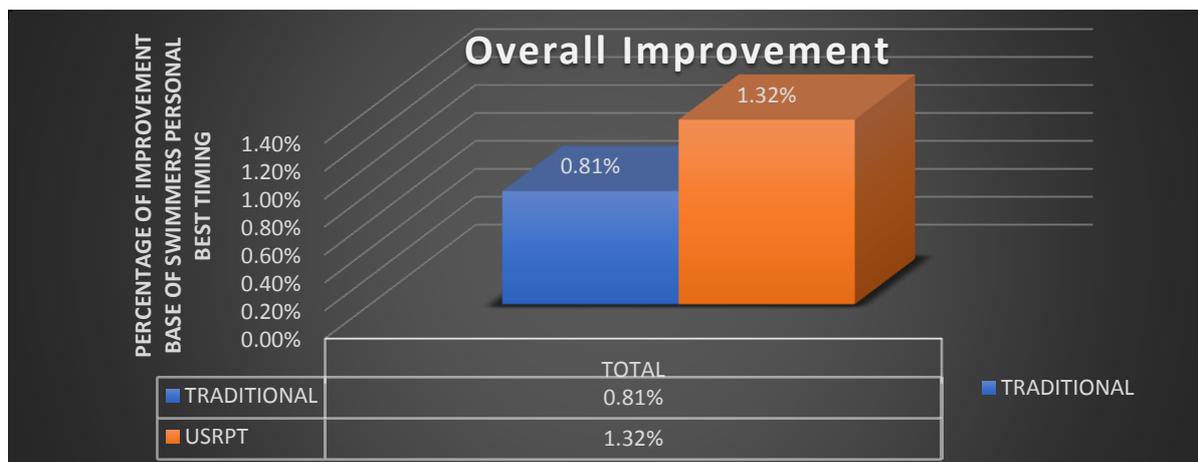
Block 1: for During the Period from Mid-February'2019 to Mid August'2019.

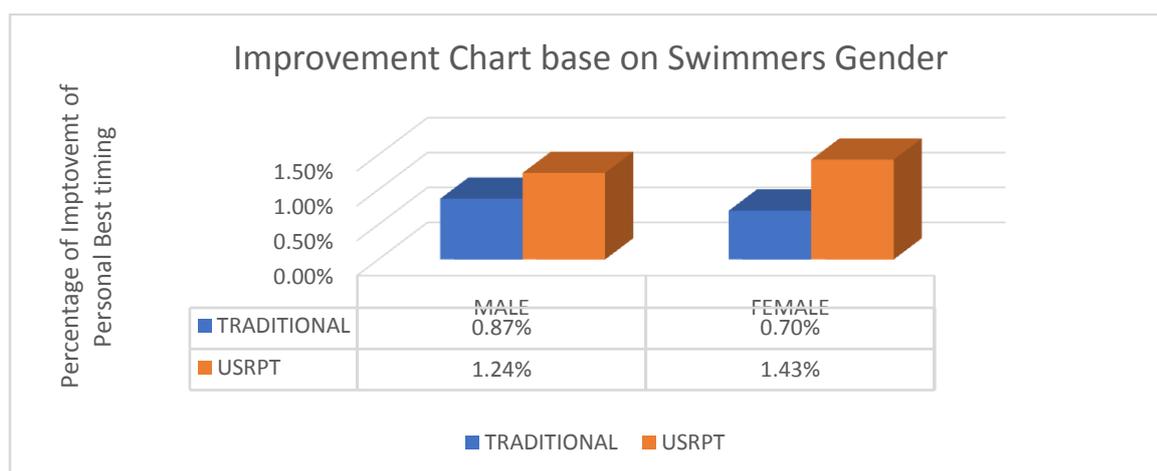
Block 2: During the Period from Late August'2019 to January'2020

We have run some of the test sets and observed the followings things: -

During the Traditional Method of Race Paces Set's swimmers are producing Peak Lactate with few repetition (e.g. Sprinter about 18 mmol Lactate), where the same Sprinters at the end of USRPT (Ultra Short Race Pace Training) set has been producing much less lactate but maintain higher repetition and volume (e.g. Sprinter about 8 mmol Lactate).

We analyse the Improvement of Personal Best Timing in the Sprint Event and Mid Distance Event at the Beginning of the Block and at the End of the Block in the Major Events where swimmers have taken part in LCM Major Meets, (for Block 1: Junior Nationals'2019⁽⁹⁾, Senior National'2019⁽⁹⁾, Thailand Age Group Meet'2019⁽¹²⁾ has been considered and for Block 2: Asian Age Group'2019⁽¹¹⁾, School National'2019⁽⁵⁾ and Khelo India'2020⁽¹³⁾ has been considered). The Average Improvement of Swimmers in Traditional Block (Block1) and USRPT Block (Block 2) Outcome are as follows: -





IV. Conclusion

It has been clear from the above Chart that introduction of USRPT has a positive effect both in Sprint and Mid Distance Event compare to Traditional Training Method in Elite level Coaching. The Training effect looking better in Female compare to Male Candidate, may give us idea to re-thing about setting female swimmers training sets⁽⁸⁾, however the difference is Marginal. It should be mentioned that Training sets like VO2 Max Training, Aerobic Training, Variable Speed Training are not ignored but may have been reduced to include USRPT in the USRPT induced Training Block.

It has been clear from the above Chart that USRPT has a positive effect both in Sprint and Mid Distance Event compare to Traditional Training Method in Elite level Coaching. The effect looking better in Female compare to Male Candidate, however the difference is Marginal. However, traditional sets like VO2 Max Training, Aerobic Training, Variable Speed Training not ignored but may have been reduced to include USRPT in the USRPT Training Block.

Keywords: USRPT; Periodization; Swimming Training Method; Training Meso Cycle; Macro Cycle; Micro Cycle; Swimming Science

References:

- [1]. SWIMMING SCIENCE BULLETIN, Number 39, Produced, edited, and copyrighted by, Professor Emeritus Brent S. Rushall, San Diego State University [Revised June 12, 2018]
- [2]. <http://usrpt.com/mini-guide-to-usrpt/>
- [3]. Secrets of Race Pace Swimming : Ernest Chung
- [4]. Championship Swim Training, Bill Sweetnham, John Atkinson
- [5]. Swimming Fastest: Dr. Earnest Maglisco
- [6]. Science of Swimming Faster, by Riewald, Scott, Rodeo, Scot
- [7]. The Science of Winning: Planning, Periodizing and Optimizing Swim Training :by Jan Olbrecht
- [8]. <https://www.swimmingscience.net/should-females-train-differently-than-males-in-swimming/>
- [9]. <https://swimming.org.in/events-and-results/>
- [10]. https://www.sgfbharat.com/index.php?option=com_content&view=article&id=1633:65th-national-school-games-2019-20-part-1-published&catid=78:latest-news&Itemid=244
- [11]. <https://aagindia2019.in/>
- [12]. <https://glenmarkaquatic.org/swim-event/thailand-age-group-swimming-championships-2019/>
- [13]. <https://kheloindia.gov.in/>



A: **Partha Pratim Majumder** is presently working as the Head Coach of SAI Glenmark National Centre of Excellence, Delhi, India, and Part of Khelo India TSC Committee. He is a Certified Level-5 Coach of ASCA (USA), Masters in Sports Science from Institute of Sport Science and Technology, Fina Certified Coach, Y Greater NYC (Certified Instructor), Community Coach, AIS Australia etc. He got experience to Coach in different country and conducted several coach's clinic too and have produced multiple swimmers who achieved many International Medal and National records for the country.