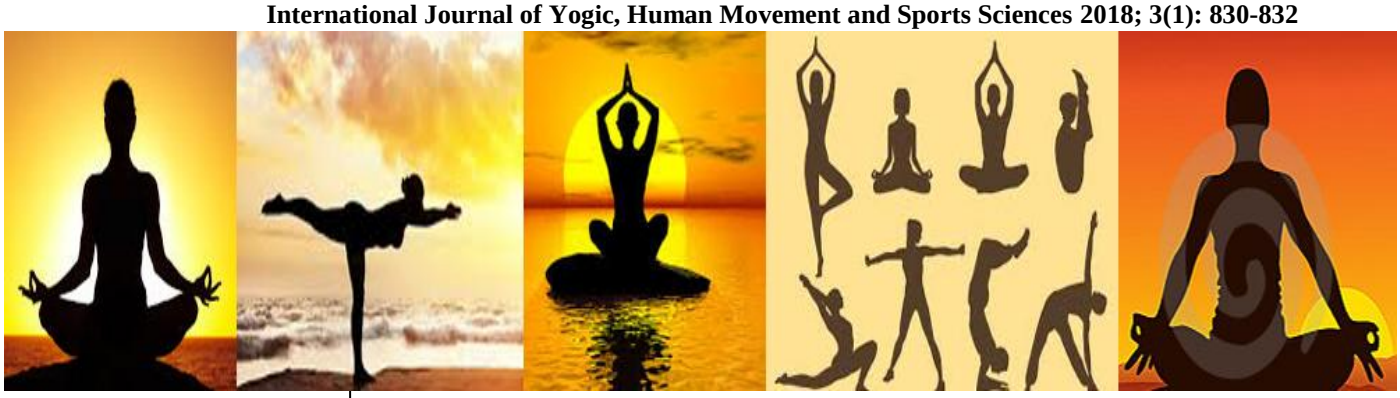
International Journal of Yogic, Human Movement and Sports Sciences 2018; 3(1): 830-832



ISSN: 2456-4419
Impact Factor: (RJIF): 5.18
Yoga 2018; 3(1): 830-832

www.theyogicjournal.com
Received: 07-11-2017
Accepted: 08-12-2017

Amit Kumar
Assistant Professor, Dept. of physical education AIJHM College, Rohtak, Haryana, India

Correspondence
Amit Kumar
Assistant Professor, Dept. of physical education AIJHM College, Rohtak, Haryana, India

Role of stamina in swimming

Amit Kumar

Abstract
Advancement of the human being in his life style is due to the changes happening in his mind, behavior attitude and desire. One's performance in sports and games is purely based on his Physical as well as his mental capacity. If the physical capacity is being equal; among the players then the mental power plays as a vital role for the determination of the excellent performance.
Stamina is supposed to be the key element for Swimming players. It is also said that higher the percentage of these variables better will be the performance of the Swimming player. The performance of a Swimming player also depends on how much does he/she do the physical exercises that is also beneficial for good rhythm.
For the current research work, 50 College-level Swimming players were asked about the factors which influenced their performance. The current article highlights various factors which are responsible for influencing the performance of a Swimming player.

Keywords: Swimming player, Performance, Stamina

Introduction
The quality of performance depends upon the ability of a sports person to direct all the psychological functions optimally before and during competition. The main function of psychological training is to overcome the thoughts and emotional process in a constructive way that it may improve the performance of a sports person.
Man's performance in sport or in any other fields depends on his movement oriented behavior and other psychomotor factors. All these actions which can be noted by others with or without the aid of instruments have their roots in the biological phenomena. In other words, the performance of individuals is the result of an integrated and harmonious functioning of several dynamic processes of the body which are physiological, psychological, and psycho-physiological or biochemical such as climate, temperature, humidity, etc., may also have their effect on the performance of an individual.
Swimming is very popular in India. India has produced a lot of Swimming players like Aaron D' Souza, Rehan Poncha and Ashwin Menon etc. There are many factors which affect the performance of Swimming players. The factors such as breathing, stamina and physical fitness etc. are the key points to succeed as a Swimming player. Swimming game demands a good physical fitness and stamina so as to perform better at any level. So a Swimming player needs to be highly fit so as to perform better.
It is observed that a Swimming player having good stamina and fitness can generate good performance and even can do much better using his/her abilities. To survive in the competitive field of sports, a Swimming player has to prevent his/her body from injuries. It is observed that Swimming players suffering from injuries can't have long career or has to struggle to perform better.
Gym activities can also enhance the stamina of a Swimming player. As gym activities improves the physical fitness of the Swimming players and a player can make extra effort to perform better in the field. The other factor which is supposed to be ideal for a Swimming player is hand-eye coordination. As more the hand-eye coordination of a Swimming player, better will be the performance and a player can also improve the performance by working on the limitations.
There are many parameters which were used in the current research work. Some of these variables are breathing system, stamina and body weight etc.

The correlation of these variables was performed with the performance and was observed that these variables certainly influence the performance of the Swimming players.

Breathing system is a very crucial factor for the Swimming players as the strong breathing system can do wonders in the performance of a Swimming player. It is observed that the Swimming players with deep breathing system can perform better as compared to that with weak breathing system.

Kick also contribute in the performance of the Swimming players. It is observed that the player with powerful kick can perform better as compared to one with weaker kick. Breathing process of a Swimming player should also be long so that a player can enhance his/her stamina in the game.

Hypotheses of the study

The hypotheses for the current research work are as follows:

1. Stamina can influence the performance of a Swimming player.
2. Stamina can predict the performance of a Swimming player.

Method

Following institutional ethics approval, informed consent and parental informed consent, 50 competitive youth swimmers aged 11–16 years (21 males, mean age ± SD = 13.6 ± 1.7 years and 29 females, ages 11–16 years, mean age ± SD = 13.4 ± 1.3 years) participated in this study. The swimmers were currently competing at national level and were part of an Amateur Swimming Association beacon squad. Individual participants were currently engaged in 4 to 9 formal training sessions per week (mean ± SD of training sessions per week = 6.9 ±1.2 sessions/week).

The participant's coaching staff provided information regarding each participant's 100 m freestyle personal best swim time. Participants also undertook a timed 100 m freestyle swim. In the timed 100 m swim, participants were requested to perform an "all-out" 100 m freestyle (front crawl) swim at maximal speed in a 50 m pool. Participants started the timed swim, diving in from the side of the pool and performing normal turning action at the end of each length. Prior to the trial, swimmers performed a 400-m warm-up swim, followed by a 10 min passive resting period before the 100-m all-out trial.

Results

Pearson's product moment correlations indicated significant relationships between timed freestyle swim performance and all the dependent variables except for lower leg length (all $p < 0.05$, $r = -0.264$ to 0.654, see Table 1). Backwards linear regression indicated a significant model (F 5.49 = 18.3, $p = 0.0001$, Adjusted $R^2 = 0.638$) explaining 63.8% of the variance in swim performance with total sum of skinfolds ($\beta = 0.041$, $p = 0.05$), upper leg length ($\beta = 0.428$, $p = 0.005$), lower leg length ($\beta = 0.858$, $p = 0.001$), hand length ($\beta = -1.709$, $p = 0.0001$), and total height ($\beta = -0.67$, $p = 0.0001$), significantly contributing to the model.

Results from ANCOVA analysis, controlling for maturation indicated significant gender main effects for foot length ($F = 20.6$, $p = 0.0001$), lower leg length ($F = 5.6$, $p = 0.018$) and hand length ($F = 6.5$, $p = 0.019$) with boys having higher mean values than girls (See Table 2). Boys however, had significantly ($F = 8.2$, $p = 0.005$, see Table 2) poorer total FMS score compared to girls. Significant main effects for swim speed (fast vs. slow) were also evident for total sum of skinfold ($F = 11.1$, $p = 0.005$, See Table 2) and Total FMS score ($F = 9.4$, $p = 0.005$, See Table 2). Swimmers who were classed as fast swim speed had lower total sum of skinfolds and higher total FMS score compared to their slower swim speed peers. There were also significant gender X fast vs. slow interactions for height ($p = 0.013$, See Table 3) and body mass ($p = 0.0001$, See Table 3). Boys who were classed as fast swim speed were significantly taller and had significantly greater body mass than girls who were classed as fast swim speed. There were no significant differences in height or body mass between boys and girls who were classed as slow swim speed swimmers. There were no significant main effects or interactions for upper leg length ($p > 0.05$). Maturation (APHV) was not significant in any of the analysis, ($p > 0.05$). There were also no significant differences in APHV between boys and girls or those classed as fast or slow for swim speed (all $p > 0.05$).

Table 1. Pearson's product moment correlations (r) between 100 m timed swim performance, anthropometric variables and Functional Movement Screen (FMS) score in competitive youth swimmers.

Performance variable	Height (m)	Mass (kg)	Upper arm length (cm)	Lower arm length (cm)	Hand length (cm)	Upper leg length (cm)	Lower leg length (cm)	Foot length (cm)	Sum of skinfolds (mm)	Total FMS (0–21)
100 m freestyle timed swim	−0.654 **	−0.543 **	−0.561 **	−0.483 **	−0.626 **	−0.350 *	−0.264	−0.494 **	0.410 **	−0.333 *

* and ** $p < 0.05$ and 0.01 respectively.

Table 2. Mean (±SE) of anthropometric variables and total FMS score between boys and girls and swimmers classified as faster or slower ([a] $p = 0.019$ compared to girls, [b] $p = 0.018$ compared to girls, [c] $p = 0.0001$ compared to girls, [d] $p = 0.005$ compared to girls, [e] $p = 0.005$ compared to slow).

Sample	Timed freestyle swim performance (s)	Height (cm)	Body mass (kg)	Upper arm length (cm)	Lower arm length (cm)	Hand length (cm)	Upper leg length (cm)	Lower leg length (cm)	Foot length (cm)	Sum of skinfolds (mm)	Total FMS (0–21)
Pooled data ($n = 50$)	68.8 (1.0)	164 (1.5)	54.4 (1.4)	32.2 (0.43)	25.5 (0.59)	18.4 (0.19)	52.2 (0.62)	49.2 (0.62)	24.9 (0.32)	94.2 (4.8)	15.9 (1.4)
Boys ($n = 21$)	68.7 (1.1)	169 (2.9)	58.9 (2.7)	32.9 (0.47)	25.3 (0.68)	18.8 (0.24) [a]	52.9 (0.81)	50.6 (0.86) [b]	26.1 (0.31) [c]	84.6 (6.3)	15.2 (0.26) [d]
Girls ($n = 29$)	69.9 (0.93)	161 (0.9)	51.2 (1.2)	31.6 (0.39)	25.6 (0.61)	18.1 (0.20)	51.7 (0.70)	47.8 (0.71)	23.8 (0.38)	98.3 (5.1)	16.3 (0.22)
Fast ($n = 24$)	63.9 (0.9)	169 (2.1)	58.5 (2.2)	32.8 (0.41)	26.3 (0.53)	18.9 (0.27)	52.3 (0.77)	49.2 (0.78)	25.3 (0.33)	77.7 (6.4) [e]	16.4 (0.24) [e]
Slow ($n = 26$)	74.7 (1.1)	161 (1.2)	54.4 (1.0)	31.4 (0.48)	24.1 (0.61)	18.0 (0.25)	52.3 (0.82)	49.7 (0.84)	24.7 (0.36)	106.4 (6.9)	15.2 (0.27)

Conclusions

The present study indicates that anthropometric variables (63.8%) significantly explained the variance in 100 m freestyle swimming performance in early adolescent swimmers. Moreover, after adjusting for physical maturation, swimmers classed as faster had lower sum of skin folds and better functional movement patterns than swimmers classed as slower. While gender differences were logically observed for anthropometrical variables, boys displayed lower functional movement ability than girls.

References

1. Mevaloo SF, Shahpar FM. Talent identification programmes. In Proceedings of the 17th FINA World Sport Medicine Congress. Enhancing Performance: The Healthy Aquatic Athlete, Manchester, UK, 2008, 7-8.
2. FINA. Federation Internationale De Natation. Talent Identification programmes, 2014. Available online: http://www.fina.org/ (accessed on 7 January 2015).
3. Morais JE, Jesus S, Lopes V, Garrido N, Silva A, Marinho D *et al*. Linking selected kinematic, anthropometric and hydrodynamic variables to young swimmer performance. Pediatr. Exerc. Sci. 2012; 24:649-664.
4. Jürimäe J, Haljaste K, Cicchella A, Lätt E, Purge P, Leppik A, Jürimäe T. Analysis of swimming performance from physical, physiological and biomechanical parameters in young swimmers. Pediatr. Exerc. Sci. 2007; 19:70-81.
5. Lätt E, Jürimäe J, Haljaste K, Cicchella A, Purge P, Jürimäe T. Longitudinal development of physical and performance parameters during biological maturation of young male swimmers. Percep. Mot. Skills. 2009; 108:297-307.
6. Zuniga J, Housh TJ, Mielke M, Hendrix CR, Camic CL, Johnson GO *et al*. Gender comparisons of anthropometric characteristics of young sprint swimmers. J Strength Cond. Res. 2011; 25:103-108.
7. Geladas ND, Nassis GP, Pavlicevic S. Somatic and physical traits affecting sprint swimming performance in young swimmers. Int. J Sports Med. 2005; 26:139-144.
8. Kiesel K, Plisky PJ, Voight ML. Can serious injury in professional football be predicted by a preseason functional movement screen? N. Am. J Sports Phys. Ther. 2007; 2:147-158.