P-ISSN: 2394-1685
E-ISSN: 2394-1693
Impact Factor (RJIF): 5.38
IJPESH 2023; 10(5): 79-84

www.kheljournal.com
Received: 15-05-2023
Accepted: 20-05-2023

Dr. Kamal Vijayvargia
Assistant Professor, Department of Physical Education, Tantia University, Sri Ganganagar, Rajasthan, India

Rita Devi
Research Scholar, Department of Physical Education, Tantia University, Sri Ganganagar, Rajasthan, India

Corresponding Author:
Rita Devi
Research Scholar, Department of Physical Education, Tantia University, Sri Ganganagar, Rajasthan, India

Effect of aqua aerobic training and battalion training on physical physiological and psychological variables among volleyball players

Dr. Kamal Vijayvargia and Rita Devi

DOI: https://doi.org/10.22271/kheljournal.2023.v10.i5b.3075

Abstract
The purpose of the study was to find out the effect of aqua aerobic training and battalion training on physical physiological and psychological variables among volleyball players. To achieve the purpose of this study, 90 school students were randomly selected as subjects from various schools of Bikaner District, Rajasthan State, India. Their age ranged between 13-15 years. The total strength will be divided into 3 different training groups of 30 players each. i.e experimental Group -I acted as Aqua aerobic exercises group, experimental Group -II acted as Battalion Training and Group – III acted Control group did not participated any specific training programme. Group-I, the Aqua aerobic training programme has undergone 3 alternative days a week for 12 weeks of training the training days are Monday, Wednesday & Friday between 7.00 am to 8.45 am. Group 'II' the Battalion Training programme undergone 3 alternative days a week12 weeks of training the training days are Tuesday, Thursday & Saturday between 7.00 am to 8.45 am. To fix the training load for Battalion Training group the subjects were examined for their Exercise hear rate in response to different work outs. The data on selected physiological and psychological variables such as expiratory reserve volume, inspiratory reserve volume, tidal volume and vital capacity were collected and administering by wet spirometer test. The pre and posttests data were collected on selected criterion variables prior to and immediately after the training programme. The pre and post-test scores were statistically examined by the dependent-'t' test and Analysis of co-variance (ANCOVA) for each and every selected variable separately. It was concluded that the aqua aerobics training group had shown significantly improved in selected physiological and psychological variables. However, the battalion training group had not shown any significant improvement on any of the selected physiological and psychological variables such as expiratory reserve volume and inspiratory reserve volume, tidal volume and vital capacity. Keywords: Aqua Aerobics, Expiratory Reserve Volume, Inspiratory Reserve Volume, Tidal Volume, Vital Capacity.

Keywords: Chronic low back pain, Interferential current electrotherapy, physiotherapy, rehabilitation

Introduction
Water Aerobics or Aqua aerobics is an aerobic exercise performed in shallow water such as swimming pool. Basically, it is a type of resistance training in which a performer's fitness gets developed on the resistance of water. Aqua Aerobics can help improve the physical and mental health of an individual. The environment can help you relive stress and tension as the muscles are loosened once you let your body submerge in water. The Aqua Aerobics spans all age groups and walks of life. The water in aqua fitness programs supports the body and reduces the risk of joints injury of the muscles. Water aerobics can also be known as aqua fit or aquatic fitness and it simply involves doing aerobic activity in the water. Water Aerobic is generally done in fairly shallow water, usually no deeper than your hips, but sometimes the water can be up to your chest or even your neck, depending on how hard you plan on going. Things like knee lifts, running in the water, jumping jacks, and lunges are all great examples of water aerobics exercises**.** Water workout is becoming increasingly popular. Aquatic training programmes are proving to be beneficial to exercise lovers, athletes, the elderly, and the physically impaired. The ability to involve the upper and lower extremities through ideal ranges of motion while avoiding joint stress is one of the benefits of water training. Despite the numerous advantages of water exercise, only a few randomised, controlled studies have been done to support the benefits of this form of exercise.

(Len Kravitz and J.J. Mayo). Water aerobics is one of the most invigorating fitness activities presently available. This form of exercise provides fitness, fun and safety for people of all ages and abilities. Water aerobics incorporates a combination of rhythmic arm and leg actions per formed in a vertical position while the body is partially submerged. Two distinct forms of water aerobics have evolved Shallow water aerobic exercises, conducted in standing –depth water and deep water aerobics, using flotation devices to support the body in a suspended position in water that is over the exerciser's head. Both forms involve limb movements against the water's resistance, which provides the training stimuli. A well-designed water aerobics program. Water aerobics provides tremendous advantages over traditional forms of activities. The exercise program can be individualized and adapted to fit all needs and abilities, the resistance of the water challenges beginners and highly conditioned athletes alike furthermore, the water provides a cushioned environment to decrease the risk of injuries. It is an excellent exercises alternative for people with a wide range of joint problems. These characterised make water aerobics suitable for a greater percentage of the population then traditional exercise. Water is a superb mechanism for work out as a result of the diminished gravitational powers experienced when to some degree lowered. This gives a lower sway option to land based exercises. Sway powers can be adjusted much further in water. Remember that a few people will adjust to expanding the power of water practices yet may not truly be ready to expand the effect.

Physical Training is Physical Proficiency Training & Battle Physical Endurance aggressive with an aim Training for a Student. Sports Medicine Specialist to achieve laid down standards assists in formulating training schedule & ensuring gradual before a players is commissioned as an Officer. Development, reducing chances of any stress related Standard Obstacle Course, Assault Course, endurance injuries.

The methodology of training initially aims at speed marches & runbacks, with different scientific screening of Gentlemen players, conditioning, strokes and jump from 10 meters are conducted as part of strengthening & then graduation to toughening of the body.

Vigorous training, the blood circulation quickness, blood and lymph stream through the muscle, supply the cells with oxygen and nutrition removing waste products. The heart activity is accelerated exercise and strengthening its own fibers. Exercise also stimulates growth, and strengthens the bones, muscles, ligaments and tendons (Hardayal Singh, 1984). The training process acts as a means of improvement of sports performance. In order to ensure fast development in every individual the physical education teachers, the coaches and the instructors must possess a thorough knowledge of the improvement aspect of sports training (Walter, 1969) [18]. Training demands correct understanding and realization of the sportsman's strength, capacity and weakness, so planned and formulated that the strong points are further encouraged and developed and his weakness are discriminated and eliminated. Training improves the functions of the circulatory, the respiratory and the muscle system while practice is largely aimed at improving the control of muscle activity by the nervous system. Different training methods have been commonly used to improve physical fitness and its related standards of performance of the players. Training increases the overall efficiency of the heart contraction and becomes more forceful. The diastolic phase increase and the reservoir capacities are enlarged.

Volleyball is characterized mainly by its dynamic work of broken intensity. There are periods of significant muscular activity in alteration with periods of relative relaxation intensity of work. During the time of play, the intensity of play oscillates from moderate to maximum. The time playing approaches three hours during which intensity increases to a points where, pulse rate reaches 200 beats / min and weight loss goes upto 2.5 to 3 Kgs.

In every tactical move in volleyball, one depends on team work and the individual skills, good passing, setting, spiking, jumping, controlling the ball, participation and speed to the ball and keeping the eyes on the ball. Tactics will succeed only through individual fundamental skills and with players thinking as a team.

Every player must know the requirements of his position and skills and he fits in with other members of the team, especially with those most closely connected with him. So player must possess the skills of the game and is physically fit to execute the same. If any of the above is lacking he is not a complete player (The Volleyball Association, 1969).

Volleyball is highly competitive requiring a high degree of fitness, coordination and agility. It is highly competitive requiring a high degree of fitness, coordination and agility. It provides a wide opportunity for the development of strength, speed, endurance, agility, neuromuscular skills and coordination of all parts of the body by various actions involved in it, such as running, jumping, bending, stretching and other movements which call for balance and poise. It requires a conditioning regimen which develops flexibility, muscular strength, power and agility, all of which must be integrated to achieve the optimum skill performance from each player (Smith, Timothy, 1982) [19]

Methodology

The purpose of the study was to find out the Effect of Aqua Aerobic Training and Battalion Training on Physical Physiological and Psychological Variables among High School Level Volleyball Players. For the present investigation, Ninety School boys were selected randomly from Different schools in Bikaner, Rajasthan their age ranged between 13 - 15 years. The total strength will be divided into 3 different training groups of 30 players each. The Researcher resuscitated the relevant Scientific Literature, Magazines, Books, Research papers and after gathering the views of the experts in Physical Education. After considering all of this, the following Physical Physiological and Psychological Variables have been selected as variables. The total strength will be divided into 3 different training groups of 30 players each. i.e experimental Group -I acted as Aqua aerobic exercises group, experimental Group -II acted as Battalion Training and Group – III acted Control group did not participated any specific training programme. Group-I, the Aqua aerobic training programme has undergone 3 alternative days a week for 12 weeks of training the training days are Monday, Wednesday & Friday between 7.00 am to 8.45 am. Group 'II' the Battalion Training programme undergone 3 alternative days a week12 weeks of training the training days are Tuesday, Thursday & Saturday between 7.00 am to 8.45 am. To fix the training load for Battalion Training group the subjects were examined for their Exercise hear rate in response to different work outs. The data on physiological and psychological variables such as expiratory reserve volume, inspiratory reserve volume, tidal volume and vital capacity were collected and administering by wet spirometer test. The pre and posttests data were collected on selected criterion variables prior to and immediately after the training programme. The pre and post-test scores were statistically

examined by the dependent test and Analysis of co-variance (ANCOVA) for each and every selected variables separately. In all the cases 0.05 level of confidence was fixed as a level of confidence.

Result and Findings

The present investigation was undertaken primarily to assess the Effect of Aqua Aerobic Training and Battalion Training on Physical Physiological and Psychological Variables among Volleyball Players. The selected parameters were tested by using the standardized tools.

Table 1: Selection of tests

S. No	Name of the Variables	Tool used	Measuring unit
Physical Variables			
1	Leg Strength	Standing Broad Jump	Cm
2	Strength Endurance	Bent Knee Sit-up	Number
3	Speed	50 mtrs. Run	Seconds
Physiological Variables			
4	Cardiac Respiratory Endurance	Cooper 12 min Run/Walk Test	Meters
5	Vital Capacity	Wet Spiro Meter	Millilitre
6	Resting Heart rate	Digital Heart Rate Machine	Counts
Psychological Variables			
7	Stress	Everlyn & Girdano's Questionnaire	In points
8	Anxiety	SCAT Questionnaire	In points
9	Motivation	SAMT Questionnaire	In points

Reliability of Data

The test and retest method were followed to establish data reliability by using ten volleyball players at random. The same volleyball players under similar conditions were screened all the experiments selected in the research investigation twice for the volleyball players. Reliability of physical and Physiological parameters data were ensured by standard tools and by establishing tester competency, test reliability, professional from the organization took the test in presence of the Research Investigator. The reliability of psychological parameters data was ensured by Stress Questionnaire SCAT Questionnaire and SAMT Questionnaire approved by professionals and experts were used to test by the Research Scholar. The raw scores thus obtained by using test and retest method, were correlated using person's correlation and the results were shown in table –3.2.

Table 2: Co-Efficient of Correlation for Tester Reliability in Physical, Physiological and Psychological Measurements

S. No	Test Variables	Co-efficient of correlation (r)
1	Leg Strength	0.98*
2	Abdominal Strength	0.99*
3	Speed	0.96*
4	Cardiac Respiratory Endurance	0.97*
5	Vital Capacity	0.95*
6	Resting Heart rate	0.99*
7	Stress	0.97*
8	Anxiety	0.98*
9	Motivation	0.93*

Aqua Aerobic Exercises

The Aqua aerobic training programme has undergone 3 alternative days a week for 12 weeks of training the training days are Monday, Wednesday & Friday between 7.00 am to 8.45 am. To fix the training load for aqua aerobic group the subjects were examined for their Exercise hear rate in response to different work outs. The Swinging Pool in Bikaner was used to conduct the Aqua Aerobic exercises programme for this investigation. The depth of the water level is hip deep (4 feet) all the samples involved in this investigation were carefully monitored throughout the training to be away from injuries and Accidents.

Table 3: Aqua Aerobic Exercises

Period of Training	No of Exercises	Intensity	Work period			Recovery	
			Duration of exercise	No. Days	Repetition	Between Eexercises	Between Repetition
1-4 weeks	10	55%	1 min	3	3	90 sec	30 sec
5-8 weeks	10	60%	1 min	3	3	90 sec	30 sec
9-12 weeks	10	65%	1 min	3	3	90 sec	30 sec

Duration is 12 Weeks for 3 alternative days, (Monday, Wednesday & Friday), Between 7.00 am to 8.45 am, Training Schedule

Total Duration: 60 Min

Battalion Training

The Battalion Training programme undergone 3 alternative days a week 12 weeks of training the training days are Tuesday, Thursday & Saturday between 7.00 am to 8.45 am. To fix the training load for Battalion Training group the subjects were examined for their Exercise hear rate in response to different work outs. Each exercise was asked to be done 10 repetitions of varied sets first four weeks 2 sets, next four weeks 3 sets and final four weeks 4 sets. The training would be done on alternate days of the week Warm up and warm down were the same for both the groups for 15 minutes.

Table 4: Battalion training schedule for 12 weeks

S. No	Description of Exercises	Sets in Weeks			No. of Repetitions	Duration of Exercises	Rest / Duration
		I - IV	V - VIII	IX – XII			
1	The Side Bridge	3	3	4	5	30 sec	60sec
2	The Back Bridge	3	3	4	5	30 sec	60sec
3	The Quadraplex	3	3	4	5	30 sec	60sec
4	The Lateral Leg Raise	3	3	4	5	30 sec	60sec
5	The Medial Leg Raise	3	3	4	5	30 sec	60sec
6	The Lateral Bent–leg Raise	3	3	4	5	30 sec	60sec
7	The Single–leg Tuck	3	3	4	5	30 sec	60sec
8	The Single–leg Over	3	3	4	5	30 sec	60sec
9	Verticals	3	3	4	5	30 sec	60sec
10	Laterals	3	3	4	5	30 sec	60sec

*Significant at 0.05 level of confidence Table-I means, standard deviation and

Discussion on Findings

The purpose of the study was to find out whether there would be any significant improvement on selected Physical Physiological and Psychological responses due to Aqua Aerobic Training and Battalion Training among High School Level Volleyball Players. Ninety school boys in the age group of 13 to 15 years were selected as subjects for this study at random schools in Bikaner, Rajasthan. The selected subjects were randomly divided into three and each group contained thirty subjects. Group one acted as experimental group-one and group-two acted as experimental group-two and group-three acted as control group. Experimental group I was given 12 weeks Aqua Aerobic Training, experimental group two was given 12 weeks Battalion Training and the control group was not given any treatment except of their routine. Taking into consideration of the feasibility Physical variables Leg Strength, Strength Endurance, Speed physiological variables Cardiac Respiratory Endurance Vital Capacity Resting Heart rate and psychological variables, Stress, anxiety and achievement motivation were selected for this study.

The post hoc analysis through Scheffe's confidence test proved that due to twelve weeks, training of Aqua Aerobic Training group and Battalion Training group significantly improved better than the control group. The result clearly indicates that the Battalion Training Group was better than the Aqua-Aerobic Training Group in terms of improving the Leg Strength of high school-level volleyball players.

As Clarke and Clarke (1971) stated, "these data must be analyzed in ways appropriate to the research design. Such analysis can only be appropriate to the research design and can only accomplished through the application of pertinent statistics".

The subjects were compared on effect of yogic practices and physical exercises on selected Aqua Aerobic Training and Battalion Training among High School Level Volleyball Players. The Analysis of Covariance was computed from the same population and are devoid of sampling bias. The obtained 'F' ratio compared with critical F value for significance, will provide confidence that the critical samples came from the same population and are devoid of sampling bias. The analysis of covariance (ANCOVA) was used to find out the significant difference if any, between the groups on selected criterion variables separately. In all the cases, 0.05 level of confidence was fixed to test the significance, which was considered as appropriate.

Table 5: Analysis of covariance of experimental Groups and control group

Test	Aqua Aerobic Training Group	Battalion Training Group	Control group	SOV	SS	df	MS	F - Ratio
Leg Strength								
Pre test Mean	1.55	1.57	1.59	Between	0.02	2	0.01	0.50
				Within	2.09	87	0.02	
Post test Mean	1.73	1.80	1.56	Between	0.90	2	0.45	17.74
				Within	2.21	87	0.03	
Adjusted Post Test Mean	1.75	1.79	1.55	Between	1.02	2	0.51	
				Within	1.25	86	0.01	34.88
Endurance Strength								
Pre test Mean	15.30	15.00	15.03	Between	1.62	2	0.81	0.24
				Within	299.27	87	3.44	
Post test Mean	20.33	20.53	14.83	Between	627.80	2	313.9	68.91
				Within	396.30	87	4.56	
Adjusted Post Test Mean	20.21	20.61	14.89	Between	611.77	2	305.88	100.76
				Within	261.08	86	3.04	
Speed								
Pre test Mean	9.00	8.96	8.93	Between	0.07	2	0.03	0.19
				Within	15.60	87	0.18	
Post test Mean	8.45	8.34	9.07	Between	9.36	2	4.681	22.25
				Within	18.31	87	0.21	
**Adjusted Post Test Mean	8.42	8.35	9.10	Between	**10.40	2	5.20	63.23
				Within	7.07	86	0.08	
Cardio Respiratory Endurance								
Pre test Mean	1504	1501	1502	Between	500740.83	87	0.03	5755.64
				Within	626550.56	2	313275.2778	
Post test Mean	1692	1675	1507	Between	556074.17	87	6391.66	49.01

				Within	626241.35	2	313120.68	
Adjusted Post Test Mean	1691	1676	1507	Between	352131.70	86	4094.55	76.47
				Within	500740.83	87	5755.64	
Vital Capacity								
Pre test Mean	2575	2637	2585	Between	67726.67	2	33863.33	0.69
				Within	4239233.33	87	48726.82	
Post test Mean	2981	3087	2587	Between	4154726.67	2	2077363.33	43.08
				Within	4195713.33	87	48226.59	
Adjusted Post Test Mean	3002	3053	2600	Between	3688697.46	2	1844348.73	179.06
				Within	885800.67	86	10300.01	
Resting Heart Rate								
Pre test Mean	74.63	74.13	73.70	Between	13.09	2	6.54	1.71
				Within	332.73	87	3.82	
Post test Mean	72.00	71.03	74.17	Between	154.47	2	77.2333	13.63
				Within	493.13	87	5.67	
Adjusted Post Test Mean	71.63	71.05	74.52	Between	203.37	2	101.68	30.22
				Within	289.39	86	3.37	
Stress								
Pre test Mean	42.13	41.17	40.37	Between	46.96	2	23.48	1.61
				Within	1268.60	87	14.58	
Post test Mean	34.27	32.20	40.70	Between	1179.09	2	589.54444	42.92
				Within	1194.97	87	13.74	
Adjusted Post Test Mean	33.61	32.24	41.32	Between	1408.94	2	704.47	114.55
				Within	528.89	86	6.15	
Anxiety								
Pre test Mean	22.93	22.03	21.50	Between	31.49	2	15.74	2.63
				Within	520.33	87	5.98	
Post test Mean	17.37	17.93	21.67	Between	327.49	2	163.7444444	29.46
				Within	483.50	87	5.56	
Adjusted Post Test Mean	16.94	18.00	22.03	Between	412.59	2	206.30	54.33
				Within	325.52	86	3.80	
Achievement Motivation								
Pre test Mean	25.67	25.07	25.83	Between	9.76	2	4.88	0.50
				Within	484.70	87	9.76	
Post test Mean	28.77	30.73	25.53	Between	413.62	2	206.81111	20.48
				Within	878.70	87	10.10	
Adjusted Post Test Mean	28.65	31.11	2.27	Between	510.63	2	255.32	76.16
				Within	288.30	86	3.35	

Table 6: The scheffe's test for the difference between aqua aerobic training group, battalion training group and control group adjusted post-test

Aqua Aerobic Training Group	Battalion Training Group	Control Group	Mean Diff	Confidence Interval
Leg Strength				
1.75	1.79	-	0.04	0.08
1.75	-	1.55	0.20	0.08
-	1.79	1.55	0.24	0.08
Endurance Strength				
20.21	20.61	-	0.40	1.12
20.21	-	14.89	5.32	1.12
-	20.61	14.89	5.72	1.12
Speed				
8.42	8.35	-	0.07	0.18
8.42	-	9.10	0.68	.18
-	8.35	9.10	0.76	0.18
Cardio Respiratory Endurance				
1691	1676	-	15.54	41.14
1691	-	1507	184.21	41.14
-	1676	1507	168.67	41.14
Vital Capacity				
3002	3053	-	50.29	65.25
3002	-	2600	402.80	65.25
-	3053	2600	453.09	65.25
Resting Heart Rate				
71.63	71.05	-	0.58	1.18
****71.63	-	74.52	2.90	1.18
-	71.05	74.52	3.47	1.18
Stress				
33.61	32.24	-	1.37	1.59
33.61	-	41.32	7.71	1.59

-	32.24	41.32	9.08	1.59
Anxiety				
16.94	18.00	-	1.06	1.25
16.94	-	22.03	5.09	1.25
-	18.00	22.03	4.03	1.25
Achievement Motivation				
28.65	31.11	-	2.47	1.18
28.65	-	25.27	3.37	1.18
-	31.11	25.27	5.84	1.18

Conclusions

1. There was a significant improvement takes place on selected physical physiological and psychological variables such as expiratory reserve volume due to effect of aqua aerobics training and battalion training programme among volleyball players.
2. There was a significant improvement takes place on selected physical physiological and psychological variables such as inspiratory reserve volume due to effect of aqua aerobics training and battalion training programme among volleyball players.
3. There was a significant improvement takes place on selected physical physiological and psychological variables such as tidal volume due to effect of aqua aerobics training battalion training programme among volleyball players.
4. There was a significant improvement takes place on selected physical physiological and psychological variables such as vital capacity due to effect of aqua aerobics training and battalion training among volleyball players.
5. There was a significant difference exists between experimental and control groups on expiratory reserve volume, inspiratory reserve volume, tidal volume, and vital capacity due to 12 weeks of aqua aerobics training and battalion training programme among school volleyball players.
6. However the control group had not shown any significant changes on any of the selected physiological variables.

References

1. Arumugam S. Sports Training and System of Coaching, First Edition. Shanlax publications; c2018. ISBN 978-93-87871-68-7.
2. Madhankumar M, Sundar M. Aqua Aerobic Exercise and Aerobic Exercise Responses on Vo2 Max Response among College Men Students: Effect Study. Indian Journal of Applied Research. 2017;7(4):381-382.
3. Barbosa TM, Marinho DA, Reis VM, Silva AJ, Bragada JA. Physiological assessment of head-out aquatic exercises in healthy subjects: A qualitative review. J Sports Sci Med. 2009;8(2):179–189.
4. Nuttamonwarakul A, Amatyakul S, Suksom D. Twelve Weeks of Aqua-Aerobic Exercise Improve Health-Related Physical Fitness and Glycemic Control in Elderly Patients with Type 2 Diabetes. Journal of Exercise Physiology. 2012;15(2):64-70.
5. Martini Frederic H. Fundamentals of Anatomy and physiology. New Jersey: Published by prentice-hall; c2001. p. 821-822.
6. Selvaraja C, Arumugam S. Effect of soccer training with yogic practices on selected physiological and performance variables among soccer players. Published Thesis, Sodhganga Inflibnet.com; c2019.
7. Nelson Durai A, Jimreeves Silent Night D, Arumugam S. Effect of Interval Training on Forced Vital Capacity and Tidal Volume among Volleyball Players, Infokara Research (1021-9056). 2020;9(2):517-519.
8. Anbu N. Effect of aqua aerobic and floor aerobic on selected fitness variables among college men students, International Journal of Physiology, Nutrition and Physical Education. 2019;4(1):837-840.
9. Arazi H, Asadi A. The Effect of Aquatic and Land Plyometric Training on Strength, Sprint, and Balance in Young Basketball Players, Journal of Human Sport and Exercise. 2011;6(1):101-111.
10. Colado JC, Brasil RM. Concurrent and Construct Validation of a Scale for Rating Perceived Exertion in Aquatic Cycling for Young Men. Journal of Sports Science & Medicine. 2019;18(4):695.
11. Colado JC, Saucedo P, Tella V, Naclerio F, Abellan J. Effects of an Aquatic Strength Training on Certain Cardiovascular Risk Factors in Early-Postmenopausal Women: 2307Board# 220 June 1 9: 00 AM− 10: 30 AM. Medicine & Science in Sports & Exercise. 2007;39(5):S422.
12. Colado JC, Tella V, Triplett NT, González LM. Effects of a short-term aquatic resistance program on strength and body composition in fit young men. The Journal of Strength & Conditioning Research. 2009;23(2):549-559.
13. Colado JC, Triplett NT, Tella V, Saucedo P, Abellán J. Effects of aquatic resistance training on health and fitness in postmenopausal women. European journal of applied physiology. 2009;106(1):113-122.
14. Selvaraja C, Arumugam S. Influence of yogic practices on resting pulse rate and vital capacity among intercollegiate soccer players, International journal of yoga, physiotherapy and physical education. 2018;3(1):147-150.
15. Cuesta-Vargas A, Garcia-Romero JC, Kuisma R. Maximum and resting heart rate in treadmill and deep-water running in male international volleyball players. International Journal of Aquatic Research and Education. 2009;3(4):7.
16. Madhankumar M, Sundar M. Effect of Aqua Aerobic Exercises and Aerobic Exercises on Body Mass Index Parameter among College Men Students, International Journal of Innovative Knowledge Concepts. 2016;2(9):29-32.
17. Vigneshwaran G, Kalidasan R. Influence of Varied Breathing Exercises on Lung Capacity and Breath Holding Time among Soccer Players, OUTREACH - A Multi - Disciplinary Refereed Journal, 2017;10(1):288-293. Infokara Research. 2020;9(8):161 IS.
18. Walter EV. Terror and resistance: A study of political violence, with case studies of some primitive African communities. New York: Oxford University Press; c1969.
19. Smith TW, Snyder CR, Handelsman MM. On the self-serving function of an academic wooden leg: Test anxiety as a self-handicapping strategy. Journal of personality and social psychology. 1982 Feb;42(2):314.