



# **Impact of Aquatic with Cricket Skill Training on Selected Physical Fitness and Skill Performance Variables of Inter Collegiate Level Cricketers**

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## **ABSTRACT**

The purpose of this study was to evaluate the impact of Aquatic with cricket skill training on selected physical fitness and skill performance variables of inter-collegiate cricket players. To achieve this, thirty male cricket players from Coimbatore district, aged between 18 and 25 years, were randomly selected as subjects. The participants were divided into two groups: an experimental group (n=15) and a control group (n=15). The study followed a true purposive random group design, incorporating both pre-test and post-test assessments. The selected physical fitness and skill performance variables for evaluation were Shoulder Muscular Strength, Shoulder Explosive Power, Leg Explosive Power, Agility Batting and Bowling. Before the intervention, all participants underwent a pre-test to establish baseline measurements. The experimental group then participated in an eight-week Aquatic with cricket skill training program, conducted five days (Aq 2- CS 3) a week for 45 minutes per session, while the control group did not receive any specific training. After the completion of the training period, a post-test was administered, and the results were recorded. To analyze the effectiveness of the training, a paired sample t-test was conducted to compare pre-test and post-test scores within and between groups. The significance level was set at 0.05 to determine whether the observed differences were statistically significant.

## **AQUATIC TRAINING**

Aquatic training is exercises are performed in the water. The Chartered Society of Physiotherapists defined aquatic exercises as a therapy program using the properties of water, designed by a suitably qualified physiotherapist, to improve function, ideally in a purpose-built and suitably heated pool. Aquatic exercise is growing in popularity within the fitness industry and has been a popular way of keeping fit for years, particularly for people with musculoskeletal disorders or those recovering from injury. Water offers natural resistance, which helps strengthen the muscles. The effects of water resistance, for instance drag forces, may increase energy expenditure and decrease mechanical loads on lower extremity joints. The buoyancy of water reduces pressure on the bones, joints and muscles facilitating movement, and may block perception by acting on thermal receptors and mechanoreceptors, thus influencing spinal segmental mechanisms. In addition to the standard benefits of any exercise such as increased muscle strength, improved aerobic and cardiovascular capacity.

## **SELECTION OF SUBJECTS**

The purpose of this study was to determine the impact of aquatic with cricket skill training on selected from physical fitness and skill performance variables of intercollegiate level cricketers. To achieve the purpose of the study, thirty male intercollegiate Cricket players are studying in Sri Ramakrishna Mission Vidyalaya Maruthi College of Physical Education (N=15) and Sri Ramakrishna Mission Vidyalaya College of Arts and Science (N=15) Coimbatore was randomly selected as subjects. Their age as range from 18 to 25 years respectively.

## **SELECTION OF VARIABLES**

The research scholar review the available literature pertaining to the aquatic with skill training practices from books, journals, periodicals, magazines and research papers. Taking into consideration feasibility criteria, availability of instrument and the relevance of the variables of the present study, the following variables will be selected. By considering the feasibility the following physical fitness and skill performance variables are selected for this study.

### **❖ PHYSICAL FITNESS VARIABLES :**

- Shoulder Muscular Strength

- Shoulder Explosive Power
- Leg Explosive Power
- Agility

❖ **SKILL PERFORMANCE VARIABLES**

- Batting
- Bowling

## CRITERION MEASURES

As per the available literature and consultation with experts the following standardized tests was used to collected data on selected Physical fitness and skill performance variables. The selected criterion variables were measured using standardized test and equipment's. The criterion variables selected, test item used and the units of measurement were presented in Table-I

**TABLE-I**

**LIST OF CRITERION VARIABLES AND TEST ITEMS**

S.NO	VARIABLES	TEST	MEASUREMENT
<b>PHYSICAL FITNESS VARIABLES</b>			
1	Shoulder Muscular Strength	Push ups	In Count
2	Shoulder Explosive Power	Medicine Ball Put	In Metres
3	Leg Explosive Power	Standing Broad Jump	In Metres
4	Agility	4X10 Shuttle Run	In Seconds
<b>SKILL PERFORMANCE VARIABLES</b>			
5	Batting	Match Performance	In Average
6	Bowling		In Average

## TRAINING PROGRAMME

The training group, namely the aquatic with cricket skill training group, underwent their training program for eight weeks. They trained five days a week (Aq-2, CS-3), with each session lasting 45 minutes, including warm-up and cool-down exercises. The control group did not participate in any specific aquatic training; however, they continued with their regular physical education curriculum. All the subjects who participated in the training program were monitored throughout the training period. None of them reported any injuries. However, muscle soreness was reported during the early weeks but subsided later. Attendance was recorded before the commencement of each training session, and all subjects attended more than 90% of the total training sessions.

## EXPERIMENTAL DESIGN

This study was conducted to determine the possible causes and impact of aquatic training with skill training on selected physical fitness and skill performance variables of intercollegiate-level cricketers. The study was formulated as a true random group design, consisting of a pre-test and post-test. The subjects (N=30) were randomly assigned to two groups, namely Group-I experimental group (N=15) and Group-II control group (N=15), with fifteen subjects in each group. All the participants were tested before and after the experimentation on physical fitness variables, namely Shoulder Muscular Strength, Shoulder Explosive Power, Leg Explosive Power, Agility using standardized tests. Skill performance variables namely: batting and bowling. After the pre-test, the experimental group underwent eight weeks of aquatic training with cricket skill training for five days per week (aquatics – 2 days, cricket skill – 3 days) for 45 minutes per day, while the control group was not given any specific training. After eight weeks of training, the post-test was conducted, and the readings were carefully recorded as post-test scores.

**TABLE - II**

**SIGNIFICANCE OF MEAN GAINS /LOSSES BETWEEN PRE AND POST TEST OF EXPERIMENTAL AND CONTROLGROUP ON SHOULDER STRENGTH**

Group	Pre mean $\pm$ S.D	Post mean $\pm$ S.D	Mean. Diff	Std. Error	DF	't' ratio
Experimental	7.39 $\pm$ 8.88	7.99 $\pm$ 7.77	0.60	0.08	14	7.70*
Control	7.54 $\pm$ 0.80	7.60 $\pm$ 0.79	0.07	0.04	14	1.54

\*Significant at 0.05 level

The above table – II reveals that pre and post test mean value on shoulder strength of experimental group of intercollegiate level cricketers are 7.39 and 7.99 respectively. The obtained 't' ratio value is 7.70 which is greater than 2.14 table value. This shows that there is significant difference between the pre test and post test mean value of experimental group on shoulder strength. The pre and post test mean values on shoulder strength of control group of intercollegiate level cricketers are 7.54 and 7.60 respectively. The obtained 't' ratio value is 1.54 which is less than 2.14 table value. This shows that there is no significant difference between the pre test and post test mean value of control group on shoulder strength. Pre- test and post- test results of Experimental and control group on shoulder strength are presented in figure 1.

FIGURE-1

FIGURE SHOWING MEAN VALUES OF EXPERIMENTAL AND CONTROL GROUP SHOULDER STRENGTH

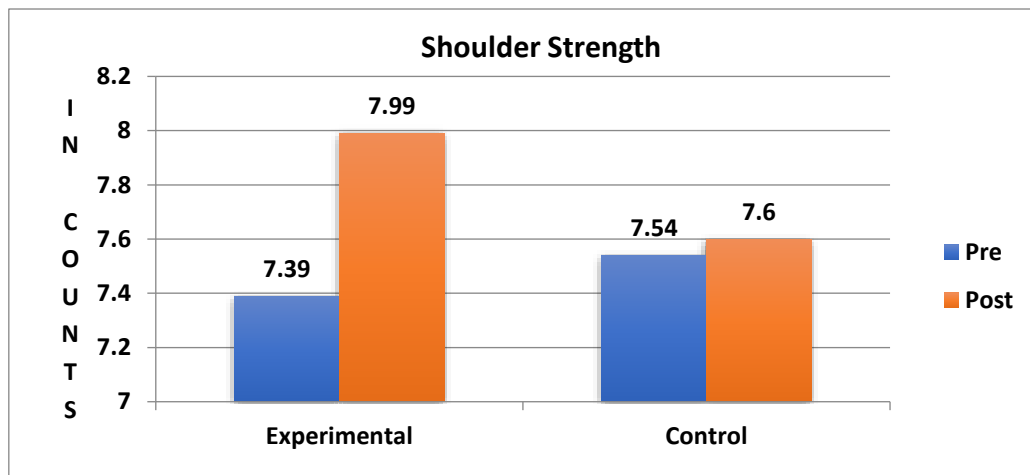


TABLE - III

SIGNIFICANCE OF MEAN GAINS /LOSSES BETWEEN PRE AND POST TEST OF EXPERIMENTAL AND CONTROL GROUP ON SHOULDER EXPLOSIVE POWER

Group	Pre mean $\pm$ S.D	Post mean $\pm$ S.D	Mean. Diff	Std. Error	DF	't' ratio
Experimental	15.87 $\pm$ 2.41	18.73 $\pm$ 2.73	2.87	0.33	14	8.52*
Control	15.46 $\pm$ 2.23	15.20 $\pm$ 2.11	0.26	0.31	14	0.84

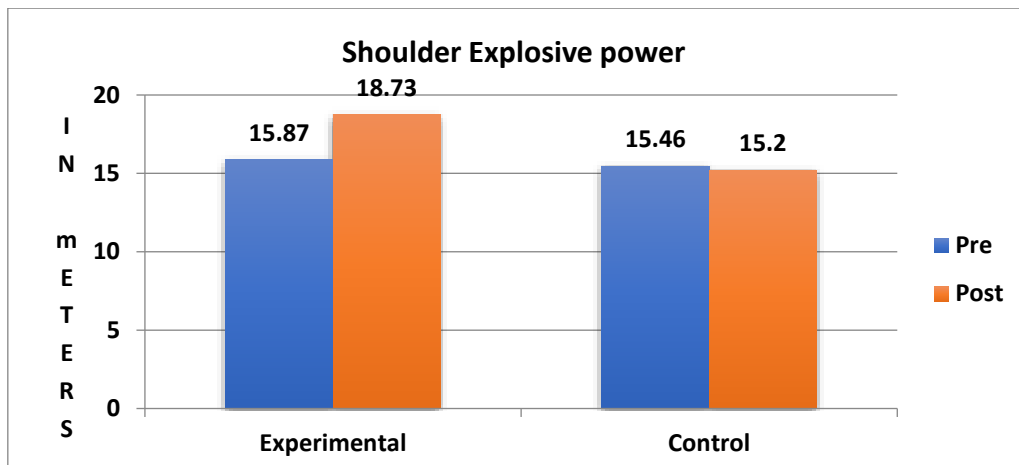
\*Significant at 0.05 level

The above table – III reveals that pre and post test mean value on shoulder explosive power of experimental group of intercollegiate level cricketers are 15.87 and 18.73 respectively. The obtained 't' ratio value is 8.52 which is greater than 2.14 table value. This shows that there is significant difference between the pre test and post test mean value of experimental group on shoulder explosive power. The pre and post test mean values on shoulder explosive power of control group of intercollegiate level cricketers are 15.46 and 15.20 respectively. The obtained 't' ratio value is 0.84 which is less than 2.14

table value. This shows that there is no significant difference between the pre test and post test mean value of control group on shoulder explosive power. Pre- test and post- test results of Experimental and control group on shoulder explosive power are presented in figure 2.

**FIGURE-2**

**FIGURE SHOWING MEAN VALUES OF EXPERIMENTAL AND CONTROL GROUP SHOULDER EXPLOSIVE POWER**



**TABLE - IV**

**SIGNIFICANCE OF MEAN GAINS /LOSSES BETWEEN PRE AND POST TEST OF EXPERIMENTAL AND CONTROLGROUP ON LEG EXPLOSIVE POWER**

Group	Pre mean ±S.D	Post mean ±S.D	Mean. Diff	Std. Error	DF	't' ratio
Experimental	1.47 ±0.30	1.78 ±0.23	0.32	0.31	14	10.15*
Control	1.58 ±0.20	1.61 ±0.21	0.08	0.05	14	1.57

*\*Significant at 0.05 level*

The above table – III reveals that pre and post test mean value on leg explosive power of experimental group of intercollegiate level cricketers are 1.47 and 1.78 respectively. The obtained 't' ratio value is 10.15 which is greater than 2.14 table value. This shows that there is significant difference between the pre test and post test mean value of experimental group on leg explosive power. The pre and post test mean values on leg explosive power of control group of intercollegiate level cricketers are 1.58 and 1.61 respectively. The obtained 't' ratio value is 1.57 which is less than 2.14 table value. This shows that there is no significant difference between the pre test and post test mean value of control group on leg explosive power. Pre- test and post- test results of Experimental and control group on leg explosive power are presented in figure 3.

**FIGURE-3**

**FIGURE SHOWING MEAN VALUES OF EXPERIMENTAL AND CONTROL GROUP LEG EXPLOSIVE POWER**

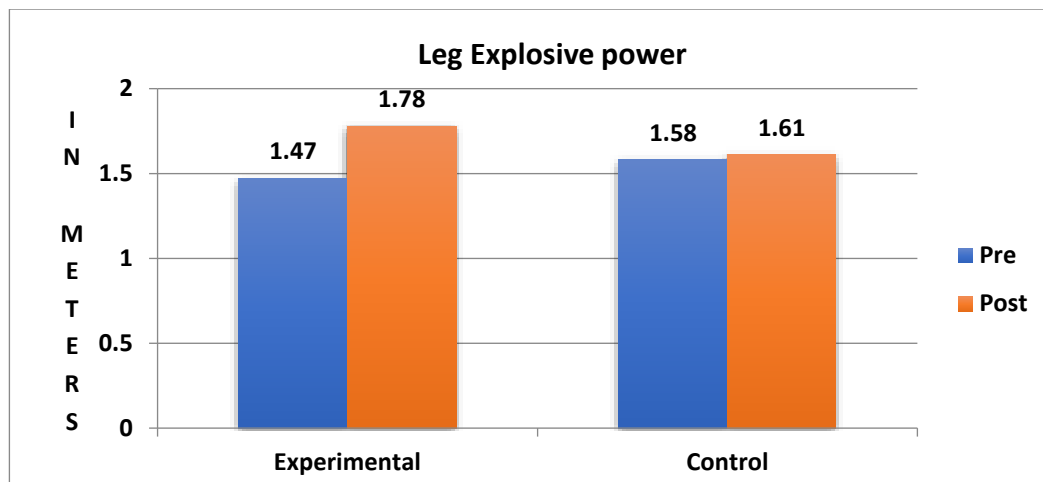


TABLE - V

SIGNIFICANCE OF MEAN GAINS /LOSSES BETWEEN PRE AND POST TEST OF EXPERIMENTAL AND CONTROL GROUP ON AGILITY

Group	Pre mean ±S.D	Post mean ±S.D	Mean. Diff	Std. Error	DF	't' ratio
Experimental	9.82 ±0.84	9.51 ±0.90	0.30	0.35	14	8.52*
Control	9.80 ±0.83	10.11 ±0.62	0.29	0.19	14	1.15

\*Significant at 0.05 level

The above table – III reveals that pre and post test mean value on agility of experimental group of intercollegiate level cricketers are 9.82 and 9.51 respectively. The obtained 't' ratio value is 8.52 which is greater than 2.14 table value. This shows that there is significant difference between the pre test and post test mean value of experimental group on agility. The pre and post test mean values on agility of control group of intercollegiate level cricketers are 9.80 and 10.11 respectively. The obtained 't' ratio value is 1.15 which is less than 2.14 table value. This shows that there is no significant difference between the pre test and post test mean value of control group on agility. Pre- test and post- test results of Experimental and control group on agility are presented in figure 4.

FIGURE-4

FIGURE SHOWING MEAN VALUES OF EXPERIMENTAL AND CONTROL GROUP ON AGILITY

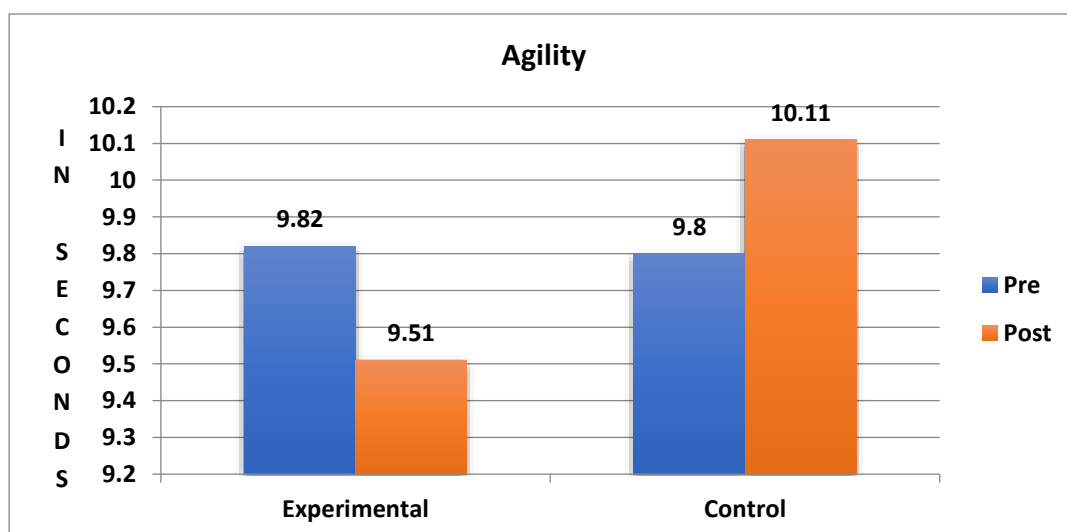


TABLE - VI

## SIGNIFICANCE OF MEAN GAINS /LOSSES BETWEEN PRE AND POST TEST OF EXPERIMENTAL AND CONTROL GROUP ON BATTING

Groups	Pre test mean $\pm$ SD	Post test mean $\pm$ SD	M. D	SEM	DF	't'-ratio
Experimental	20.46 $\pm$ 5.70	27.07 $\pm$ 6.52	6.60	0.37	14	17.58*
Control	20.80 $\pm$ 4.04	20.60 $\pm$ 5.01	0.20	0.88	14	0.23

\*Significant at .05 level.

Table – VI Indicates that the obtained 't' ratio for Skill performance variable were: 17.58 (Batting). The obtained 't' ratios on skill performance variable were greater than the table value of 2.14 for degrees of freedom 14. It was observed that the mean gains and losses made from pre 20.46 and post-test 27.07 were statistically significant resulting that eight weeks practice of Aquatic with cricket skill training produced significant improvement from the performance of baseline. The obtained 't' ratio for Skill performance variable were: 0.23 (Batting). The obtained 't' ratios on skill performance variable was lesser than the table value of 2.14 for degrees of freedom 14. It was observed that the mean gains and losses made from pre 20.80 and post-test 20.60 of control group were statistically insignificant. The Graphical Representation of the Pre and Post Test Mean Value of Aquatic with cricket skill training Group and control Group on Batting presented in Figure-5.

FIGURE- 5

## SIGNIFICANCE OF MEAN GAINS /LOSSES BETWEEN PRE AND POST TEST OF EXPERIMENTAL AND CONTROL GROUP ON BATTING

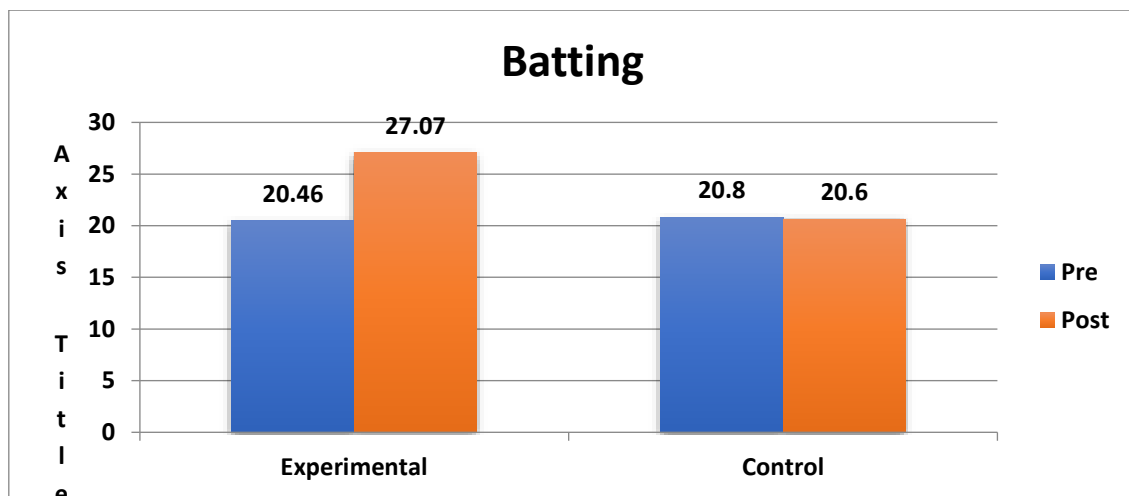


TABLE- VII

## SIGNIFICANCE OF MEAN GAINS /LOSSES BETWEEN PRE AND POST TEST OF EXPERIMENTAL AND CONTROL GROUP ON BOWLING

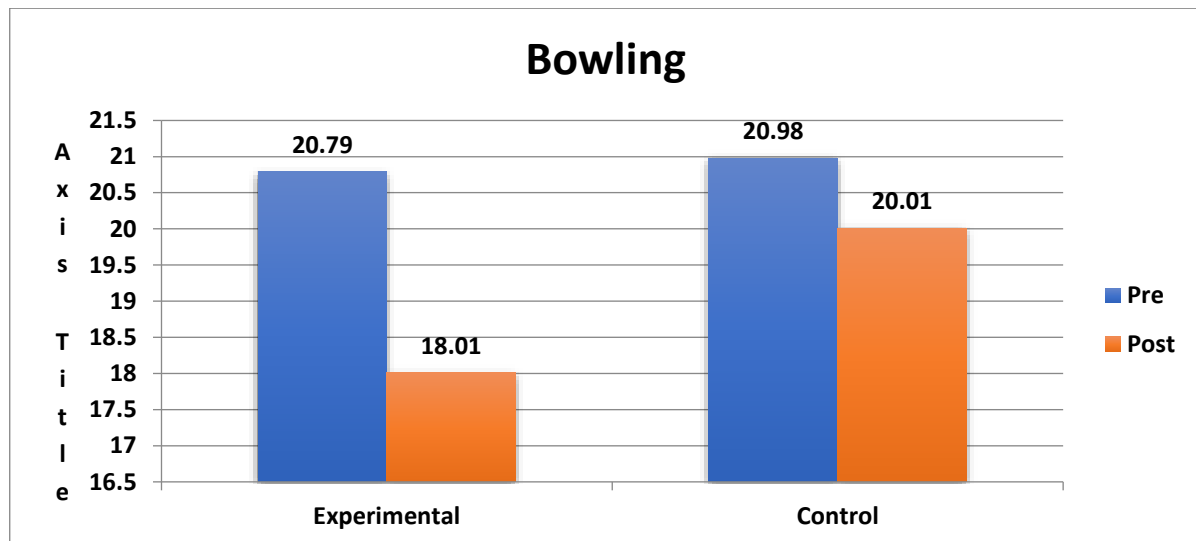
Groups	Pre test mean $\pm$ SD	Post test mean $\pm$ SD	M. D	SEM	DF	't'-ratio
Experimental	20.79 $\pm$ 4.33	18.01 $\pm$ 4.67	2.77	0.26	14	10.80*
Control	20.98 $\pm$ 4.12	20.01 $\pm$ 3.73	1.09	0.63	14	0.10

\*Significant at .05 level.

Table –VII indicates that the obtained ‘t’ ratio for Skill performance variable were: 10.80 (Bowling). The obtained ‘t’ ratios on Skill performance variable were greater than the table value of 2.14 for degrees of freedom 14. It was observed that the mean gains and losses made from pre 20.79 and post-test 18.01 were statistically significant resulting that eight weeks practice of Aquatic with cricket skill training produced significant improvement from the performance of baseline. The obtained ‘t’ ratio for Skill performance variable were: 0.10 (Bowling). The obtained ‘t’ ratios on Skill performance variable was lesser than the table value of 2.14 for degrees of freedom 14. It was observed that the mean gains and losses made from pre 20.98 and post-test 21.01 of control group were statistically insignificant. The Graphical Representation of the Pre and Post Test Mean Value of Aquatic with cricket skill training Group and control Group on bowling presented in Figure-6.

**FIGURE- 6**

**SIGNIFICANCE OF MEAN GAINS /LOSSES BETWEEN PRE AND POST TEST OF EXPERIMENTAL AND CONTROL GROUP ON BOWLING**



## DISCUSSION OF FINDINGS

The results of the study indicate that the experimental group that underwent aquatic with cricket skill training showed significant improvement in the selected physical fitness variables, namely Shoulder Muscular strength Shoulder Explosive Power, Leg Explosive Power, Agility, skill performance variables namely batting and bowling compared to the control group. The findings further suggest that aquatic with cricket skill training had a greater impact on enhancing Shoulder Muscular strength Shoulder Explosive Power, Leg Explosive Power and Agility, than the absence of specialized training.

These results align with previous research, such as K Kamalakkannan (2010), which examined the Influence of aquatic training on selected physical fitness and skill performance variables among volleyball players. These results align with previous research, such as Senthil Kumar Ponmoorthi (2016), which examined the effect of specific batting skill training on selected psychomotor variables on college level cricket players. The study found that the training group demonstrated significant improvements in Muscular strength and flexibility compared to the control group. Similarly, the present study confirms that aquatic with cricket skill training can be an effective method for improving key physical fitness and skill performance variables in cricket players.

## CONCLUSION

The findings of this study demonstrate that aquatic training combined with cricket skill training significantly improved namely Shoulder Muscular strength Shoulder Explosive Power, Leg Explosive Power and Agility in intercollegiate-level cricketers compared to the control group. The results suggest that incorporating aquatic with cricket skill training as part of a structured cricket training program can have a greater impact on enhancing these physical fitness and skill performance variables than the absence of specialized training. Therefore, aquatic with cricket skill training can be considered an effective method for improving key physical attributes essential for cricket performance.

## Reference

- Caspersen CJ, Powell KE, Christenson GM. Physical activity, exercise, and physical fitness: definitions and distinctions for health-related research. Public health reports. 1985 Mar;100(2):126.
- American College of Sports Medicine's Guidelines for Exercise Testing and Prescription- 11th editions. Chapter 4- Health Related Physical Testing and Interpretation.

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- Farley JB, Stein J, Keogh JW, Woods CT, Milne N. The relationship between physical fitness qualities and sport-specific technical skills in female, team-based ball players: A systematic review. *Sports medicine-open*. 2020 Dec;6(1):1-20.
  - K Kamalakkannan, N Vijayaragunathan, R Kalidasan., (2010)., Influence of aquatic training on selected physical fitness and skill performance variables among volleyball players., *Indian Journal of Science and Technology*., Vol. 3 No. 7 (July 2010) ISSN: 0974- 6846Vol. 3 No. 7 (July 2010) ISSN: 0974- 6846.,pg.no-743 to 745.
  - Senthilkumar&Ramadevi.,(2023)., effect of nutrition with specific fitness training of physical fitness variables and body composition variables of intercollegiate level cricketers.,*RabindraBharati Journal of Philosophy*., ISSN : 0973-0087.,Vol. : XXIV, No:02, 2023 P.No:51-55.
  - Senthil Kumar Ponmoorthi.,(2016) effect of specific batting skill training on selectedpsychomotor variables on college level cricket players., *International Journal of Adapted Physical Education & Yoga*., Vol. 1, No. 1., ISSN : 2455-8958