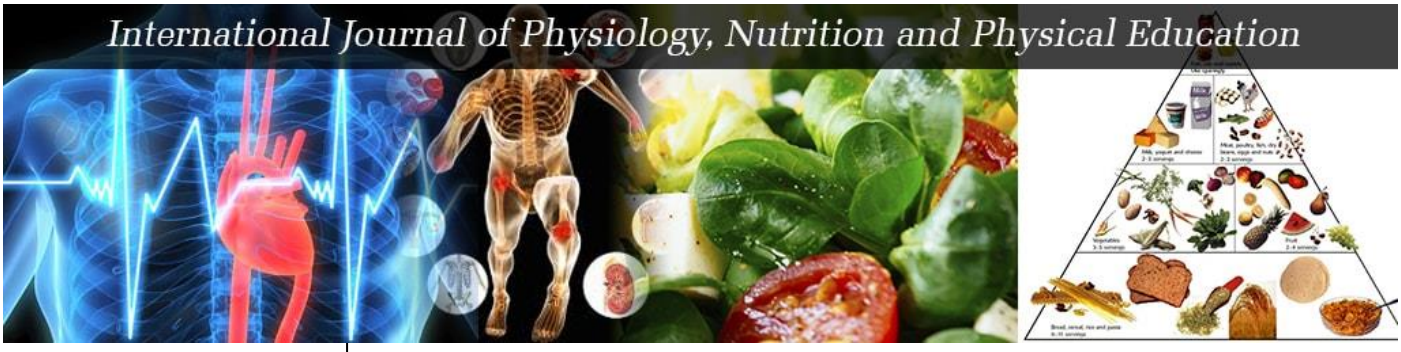

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A study on selected fitness variable of taekwondo players between hill and plain area

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Abstract
The objective of the study was to compare the fitness variables of taekwondo players between hill and plain area For the study 20 female athletes were selected randomly as the subject for the study. Among them 10 were selected randomly from Kalimpong (Kalijhora Yuwa club) W.B and rest of 10 were selected from Bolpur martial art club WB. The age of the subjects were ranged between (15-20). The fitness variables selected purposively were Speed, Agility, Explosive Strength and Cardio-respiratory Endurance. Standard tests and measurements were used for collecting the data. The data were then computed by using descriptive statistics and independent t-test. The result of the study showed that the hill area athlete group was in upper side in respect to speed (t-5.035), agility (t-4.296), explosive strength (t-2.073) and cardio-respiratory endurance (t-3.252) than the plain area athlete group.

Keywords: Taekwondo players, speed, agility, explosive strength, cardio-respiratory endurance

1. Introduction
Taekwondo is a martial art based on strikes (instead of grapples), where you learn punching techniques but focus on kicking techniques. Taekwondo is a unique martial art and sport which has gained international popularity as an Olympic sport since 2000. The success or failure of an individual athlete depends on the blending of physical ability, conditioning, training mental preparation and the ability to perform well under pressure. It is common to hear coaches and athlete express disbelief on how poorly their team performed against a certain opponent or how they field in the crucial situation. For competitive sports or for selection of a particular sport, one has to consider the measures of the physical fitness, which play a dominant role at higher level of sports competition.
In sports its vital for the players to have endurance, speed, strength, agility, flexibility and other factors to overcome the situation and tackling the opponent and also for performing better at the field. The lack of those fitness factors will have a deep effect on the players, so it is important to have better fitness level. The existing literature in the field of taekwondo shows that endurance, speed, agility, maximum leg strength, upper body strength, leg power, muscular endurance, flexibility, coordination and reaction time are important pre- requisites for efficient performance, where as excess body fat proves to be a hindrance.
The researcher find that there was a very few literature on the physical fitness variables of taekwondo players in India comparing the hill and plain area. Therefore she has undertaken the study.

2. Methodology
Subjects: For the purpose of study 20 female taekwondo players were selected purposively as the subject for the study. Among them 10 were selected from Bolpur, Birbhum, W.B and rest of 10 were selected from Kalimpong, WB. The age of the subjects ranged between 15 to 20 years

Variable: The fitness variables selected for the purpose of the study were Speed, Agility, Explosive Strength and Cardio-Respiratory Endurance.

Test and Criterion Measure: To measure speed, 50 meters Dash Test was used and the score was recorded in seconds. Agility was measured by 4x10 meter shuttle Run Test and the score was recorded in seconds.
Explosive Strength was measured by Standing Broad Jump Test and the score as recorded in meter. Cardio-Respiratory Endurance as measured by Queen's College Step Test and the score was recorded in ml/kg/min.

Collection of Data: The subjects were oriented for the tests and the data was taken. All the subjects were given three trials and best score was recorded.

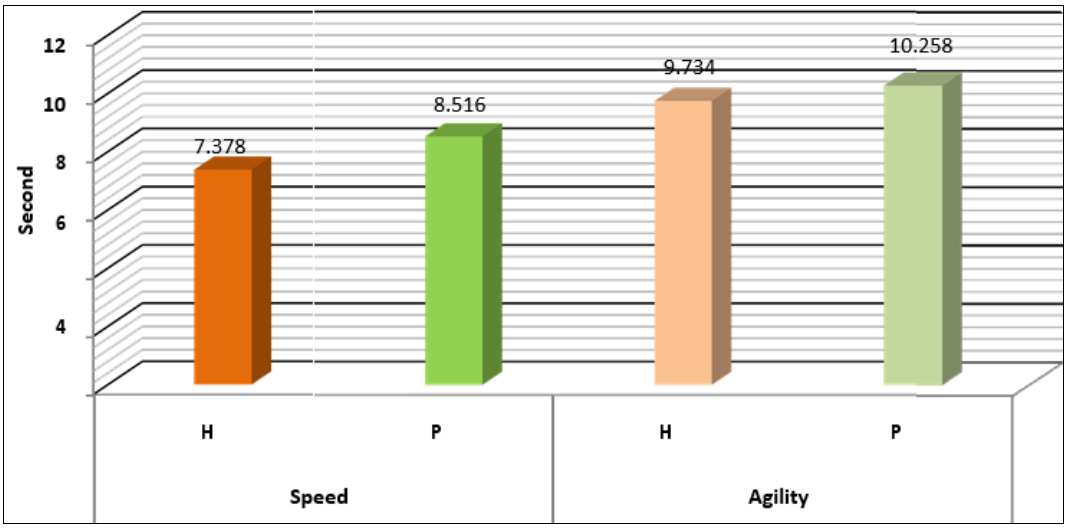
Statistical Analysis: To compare the selected fitness variables of the Taekwondo players between the Hill and the Plain areas, descriptive statistics, independent t-test were applied. The level of significance was set at 0.05 level.

3. Result and Discussion

Table 1: Descriptive Statistics of Selected Variables of the Two Groups

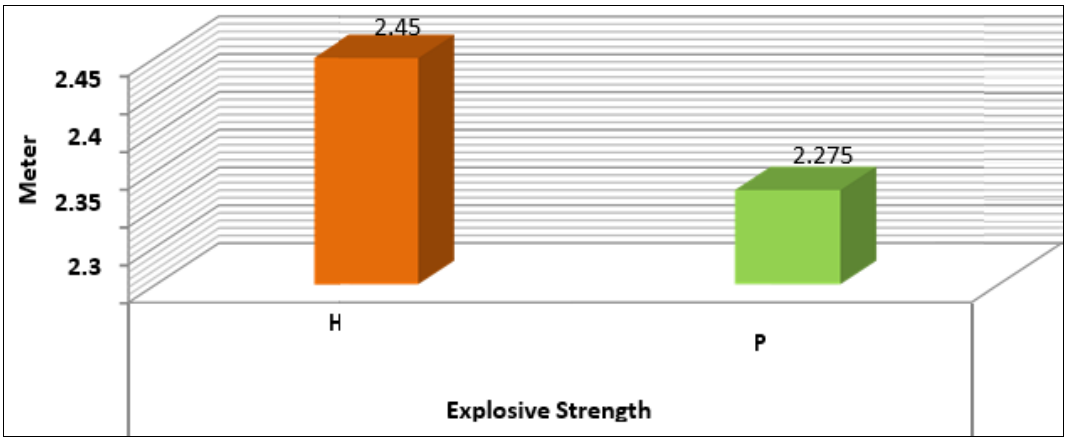
Group		N	Mean	Std. Deviation	Std. Error Mean	Skewness	Kurtosis	Best Score	Worst Score
Speed (sec)	H	10	7.378	0.550269	0.17401	0.401294	-1.02003	6.64	8.2
	P	10	8.516	0.613464	0.193994	0.149072	-1.84545	7.8	9.36
Agility (sec)	H	10	9.734	0.432774	0.136855	-0.88765	1.517049	8.8	10.32
	P	10	10.258	0.4522	0.142998	0.5493	-0.59744	9.66	11
Explosive Strength (Meter)	H	10	2.45	0.161589	0.051099	--0.5431	-0.93401	2.65	2.2
	P	10	2.275	0.127475	0.040311	-0.90515	1.470273	2.45	2
C-R Endurance (ml/kg/min)	H	10	46.411	2.403727	0.760125	-0.60266	-1.01345	49.078	42.168
	P	10	43.424	3.462009	1.094783	0.069282	-0.37729	48.817	37.735

Table 1 describes the mean, standard deviation, standard error, Skewness, Kurtosis, maximum score and minimum score on the selected variables of the two subjects groups.



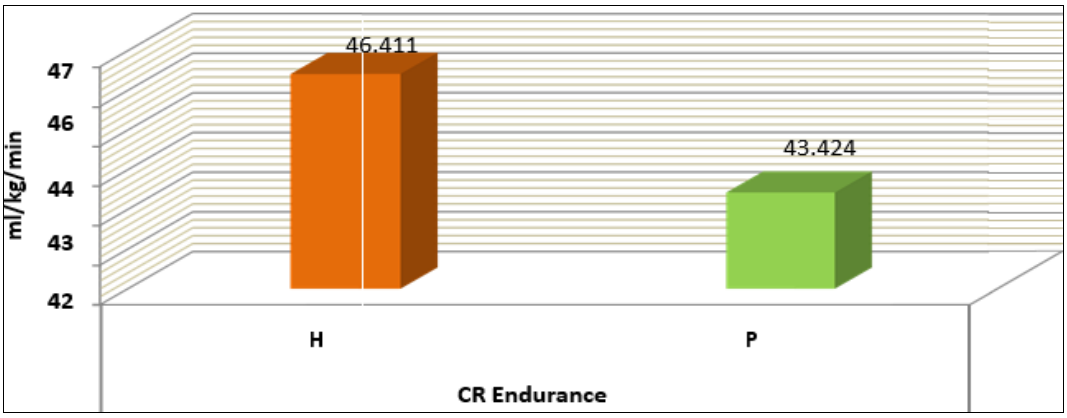
Graph 1: Graphical representation of the speed and Agility between the Hill area and Plain area Groups

Graph-1 showed the graphical representation of speed and Agility between the Hill area and Plain area groups



Graph 2: Graphical Representation of the Explosive strength between the Hill Area and Plain Area Groups

Graph-2 showed the graphical representation of explosive strength between the Hill area and Plain area groups



Graph 3: Graphical Representation of C-R Endurance between the Hill Area and Plain Area group

Graph-3 showed the graphical representation of CR Endurance between the Hill area and Plain area groups

Table 2: Paired Sample t-Test between the Hill and Plain Area on the Selected

Variable	Groups	df	Mean	Mean Difference	Std. Error Difference	t	Sig. (2-tailed)
Speed (Sec)	H	18	7.378	1.138	1.330357	2.24*	0.0003
	P		8.516				
Agility (Sec)	H	18	9.734	0.524	0.197934	2.65*	0.016
	P		10.258				
Explosive Strength (Meter)	H	18	2.45	0.175	0.0651	2.69*	0.015
	P		2.275				
CR End (ml/kg/min)	H	18	46.411	2.987	0.306636	4.37*	0.037
	P		43.424				
Significant at 0.05 level							

Table-2 expressed the t-value of the selected fitness variables of the athlete groups between the hill area and plain area. For fitness variables the t-value of speed, agility, explosive strength and cardio-respiratory endurance were 2.24, 2.65, 2.69 and 4.37which were significant at 0.05 level. From the result it was cleared that the hills area athlete group was in upper side in respect to cardio respiratory endurance and explosive whereas the plain area athlete group was in upper side in respect to agility and speed than the hill area athlete group. The result may be due to daily activities on uphill and downhill movement which was against the gravitational force that ultimately helps to get the result. The study was also supported by the study of Laishram BS (2016) who worked on Topographical Conditions and physical fitness: An analytical Study. The Researcher conducted the study with the intension of comparing selected physical fitness variables in active tribal school going female students residing at different terrains. The variables selected were endurance, speed, agility, flexibility, abdominal strength and explosive strength. Findings suggest that the female students residing in hill area were in upper side of fitness than the female students residing in plain area in respect to endurance, speed, agility, abdominal strength and explosive strength. However in flexibility no difference was observed between the groups. The study was also supported by the study of Zabihi, E. *et al*. (2015) [7]. The purpose of this study was to comparison of physical fitness in secondary male students in altitude and coastal areas and difference between the physical fitness on based AAHPERD test'. The students of altitude have higher power and cardio-respiratory endurance rather than coastal area. But the students of coastal area have stronger abdominal muscles rather than altitude. High altitude reduces the distance covered by youth athlete students during tests. Neither acclimatization nor lifelong residence at high altitude protects against detrimental effects of altitude on tests activity profile.

4. Conclusion

On the basis of the result it was concluded that the hill area taekwondo players were better in Speed, Agility, explosive strength and cardio-respiratory endurance while compare with the plain area taekwondo players.

5. References

1. Adhikari M, Kumar S A Comparative Study of Cardio-vascular Endurance among Adolescent Girls of Plain & Hilly Region of Uttarakhand, International Journal of Fitness, Health, Physical Education & Iron Games; c2022. p. 20-25. DOI:10.14704/nq.022.20.NQ2207.
2. Bikram SL. Topographical conditions and physical fitness: An analytical study. International Journal of Applied Research. 2016;2(8):665-666.
3. Boutios S, Cagno DA, *et al*. Comparison between the anaerobic intermittent kick test & Wingate anaerobic test in taekwondo athletes. Sports (Basel). 2022;10(10):154. DOI: 10.3390/Sports10100154.
4. Bridge CA, Jonatas DSS, *et al*. Physical and physiological profiles of taekwondo athletes. Sports Med. 2014 Jun;44(6):713-33. DOI:10.1007/s40279-014-059.
5. Chatterjee S. Physical and motor fitness level of Indian school-going boys. The journal of sports medicine and physical fitness. 1993 Sep;33(3):268-277.
6. Dihingi P. Comparative study on selected anthropometric Measurement and Physical Fitness between Hills and Plain area people. Journal of International Academic Research for Multidisciplinary Impact Factor. 2014;1:393.
7. Zabihi E, Alavi SH. The comparison of physical fitness in secondary male students in altitude and coastal areas. Turkish Journal of Sport and Exercise. 2015;17(3):10. DOI: 10.15314/tjse.50273.
8. Nam SS, Lim K. Effects of taekwondo training on physical fitness factors in Korean elementary Students, Journal of Exercise Nutrition & Biochemistry; c2019. DOI: 10.3390/jenb.2019.006.