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COMPARATIVE ANALYSIS OF SELECTED MORPHOLOGICAL AND MOTOR FITNESS VARIABLES BETWEEN MALE AND FEMALE RACE WALKERS

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The study was planned to compare the male and female race walkers on selected morphological and motor fitness variables. For this purpose total 150 male and female race walkers were selected, including 75 male and 75 female race walkers were taken as the sample.Th emorphoogical variables which selected for thiss tudy were: bodyweight, height, BMI, upper armcircumference (relaxed),upperarm circumference (flex) ,forearm circumference, hipcircumference, thigh circumference and calf circumference. The motor fitness variables which were select for this study i.e muscular leg strength, muscular back strength and cardiovascular endurance. To compare the data t-test was applied to see the significant of mean differences between male and female race walkers. From the finding of this study it was concluded that maleand female race walkers were significantly differed in hieght, weight, upper arm circumference(relax), thigh circumference, muscular leg strength, muscular back strength and cardiovascular endurance, as the calculated t values of9.060,13.045, 4.768, 6.323, 2.641, 2.110 and 3.645weregreater than the table value of 1.98 required to be significant at .05 level.

Keywords: Motor Fitness, Race Walkers, Athletic Performance.

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Introduction

Today it has been widely accepted by the experts that top performance in sports is achieved if an athlete possesses the basic anthropometric characteristics suitable for the event. There are numerous factors which are responsible for the performance of a sportsman. The physique and body composition, including the size shape and form are known to play a significant role in this regard. At present, sportsman for superior performance in any sports isselectedonthebasisofphysicalstructureandbodysize. Structuralmeasurementincludeanthropometric measurements which consist of objective measurement of structures such as height, weight, width, depth and the circumference of the various part of body.

The anthropometric characteristics are used to decide the morphological status, that is, body structure and body constitution of an athlete. Studies on Olympic athletes, somato type of athletes and elite athletes have been generally shown that the speed and strength dependent players tended to be mesomorphic while distance dependant players were found to be great ectomorphic with limited quantity of mesomorphic muscularity(Battinelli,2000).

Morphological characteristics of athletes play an important role in the performance atvariouslevelsofcompetitions.Physiqueofanindividua lhelpsalottoachievebetterperformance and to get refers top positions. Physique refers to the size, the shape and the form ofan individual. Athletes who have (or) acquired the optimal physique for a particular event aremorelikelytosucceedthanthosewholackthegeneral characteristics(Carter,1984).Morphologicalfeaturesa ndmotorfitnesscomponentseffectspositivelyontheperf ormanceofanathletebyimprovingfitnesslevel,techniqu esandtactics.Thetoplevelathleticperformancein a specific event demands particular form of body size and its composition. Morphology assiststo find out that sort of talent which is capable to performing well in their specific events as pertheir ability.

Tanner (1964) examined the physique and body composition of Olympic track and fieldathletes and inferred that athletes are born not made. "The basic structure", he stated, "must bepresent for the possibility of being an athlete to arise. "Physique Is factor in the success that mayleave to inclusion in an Olympic team or more negatively that lack of proper physique make italmost impossible for an athlete to reach that degree. It is evident that physique and body composition have an important role to play in the performance of various physical activities.Eiben (1972) defines physique as the morphological constitution of the adult personwhichisformedbymanifestationofgeneticallyen dowmentandasaresultofadoptionprocessto environment effect. Evaluation of one's physique is useful in choosing a suitable physicalactivityfor an individual whosemainobjectives iscompetition.

Procedure

The purposive method of sampling was used in which one hundred and fifty (N=150) male and female race walkers, including (N=75) male race walkers and (N=75) female race walkers were taken as the sample. This study was to compare selected morphological and motor fitness variables of male and female race walkers who had participated in state and nationallevel competitions. The morphological variables which selected in the study were:- :- body weight, height, BMI, upper arm circumference (relaxed), upper arm circumference (flex), fore arm circumference, hip circumference, thigh circumference and calf circumference. The motor fitness variables which were select for this study i.e muscular leg strength, muscular back strength and cardiovascular endurance. To compare the data *'t'* test was applied to see the significant of mean difference between male and female race walkers.

Result

Significance of mean differences in gross body measurement between male and female race walkers have been presented intable-1.

Table1 Significance of Mean Differences of Morphplogical Components (Gross Body Measurements) Between Male And Female Race walkers

Enclosed in Annexure 01

It has been obsereved from the table 1 that male and female race walkers were significantly differed in hieght and weight as their respective t ratio of 9.060 and 13.045 were greater then thetabulated value of t = 1.98 at 0.05 level. Whereas, did not

Show any statstically significant differences in BMI as thei rrespectivet–ratio of.188 were less then the tabulatedv alueoft= 1.98 at 0.05 level.

Significance of mean differences in circumference measurement between male and female racewallkershave beenpresented intable-2.

Table 2 Significance of Mean Differences Of Morphplogical Components (Circumference of Body Parts) Between Male And Female Race Walkers

Enclosed as Annexure 02

It has been obsereved from the table 2 that male and female race walkers were differed significantly in upper arm circumference (relax) and thigh circumference as their respective t –ratio of 4.768 and 6.323 were greater than the table value of t = 1.98 at 0.05 levels. Whereas, didnotshowanystatsticallysignificantdifferencesinupperarmcircuference(flex),forearmcircumference,hipcircumferenceandcalfcircumferenceastheirrespectivet–ratioof1.801,

.625,.348 and 1.096 werelessthenthe tabulatedvalue of t=1.98 at 0.05 level.

Significance of mean differences in slected motor fitness components i e. muscular legstrength, muscular back strength and cardiovascular endurance between male and female racewallkershave beenpresented intable-3.

Table 3 Significance of Mean Difference of Motor Fitness Components Between Male And Female Race Walker

Enclosed as Annexure 03

Table3 indicated that maleand femalerace walkers differed significantly in muscular legstrength, muscular back strength and cardiovascular endurance as their respective t - ratio of2.641,2.110 and 3.645 weregreater thanthetabulated valueof t =1.98 at0.05 level.

Discussion

The analyse of data shows that male and female significantly differed in hieght, weight,upperarm circumference (relax), thigh circumference,muscular leg strength, muscular back strength and cardiovascular endurance, as the calculated 't' values of 9.060,13.045,4.768,6.323,2.641,

2.110 and 3.645 were greater

Than the table value of 1.98 required to be significant at .05 level. Where as the statistical analysis revealed that no significant difference in BMI, upper arm circuference (flex), fore arm circuference, hip circumference and calf circumference as their respectivet–ratioof.188,1.801,.625,.348 and 1.096 were less then the tabulated valueoft=

1.98 at 0.05 level. Outcomes of the present study concerned to gross body measurements areexactly on lines with the results of Kar, S.(2013) investigationson short, middle and long distance runners are in contrast with the present study as he found significant differences onweight. Josu Gomez Ezieza, et al. (2018) conducted a study on world class race walkers. Resultof this study was told us there were no significant difference in BMI. Singh, et al. (2012)examining the study on higher performance and low performance shot putter on the bases of anthropometric measurements. When higher performance shotputter compared with low performers results found better in circumferences of upperarm, forearm,chest and thigh.

Conclusion

01. There were significant differences found between male and female race walkers withrespect to Height and Weight. Whereas, did not show any significant differnces in BMI.
02. There were significant differences found between male and female race walkers with regards to in upper arm circumference (relax) and thigh circumference, however, insignificant differences in upperarm circumference (flex), fore arm circumference, hip circumference and calf circumference.
03. There were significant differences found between male and female race walkers with respect to muscular legs trength, muscular back strength and cardiovascular endurance.

Annexure

Annexure 01

Table1 Significance of Mean Differences of Morphplogical Components (Gross Body Measurements) Between Male And Female Race walkers

Variables	Mean±SD		MD	SED	T
	Male(N=75)	Female(N=75)			
Weight	60.87 ± 4.671	53.32 ± 5.497	7.547	.833	9.060*
Height	175.15 ± 6.30	163.73 ± 4.20	11.41	.875	13.04*
BMI	19.85 ± 1.43	19.91 ± 2.16	.056	.299	.188

Annexure 02

Table 2 Significance of Mean Differences Of Morphplogical Components (Circumference of Body Parts) Between Male And Female Race Walkers

Variables	Mean±SD		MD	SED	t
	Male(N=75)	Female(N=75)			
Upperarm Circumference (Flex)	26.41 ± 2.433	27.23 ± 3.103	.820	.455	1.801
UpperarmCircumference(Relax)	23.22 ± 2.299	25.35 ± 3.120	2.133	.447	4.768*
Fore ArmCircumference	23.08 ±2.967	23.37 ± 2.748	.292	.467	.625
HipCircumference	88.17 ±10.333	88.79 ±11.295	.616	1.768	.348
ThighCircumference	45.01 ± 4.007	49.73 ± 5.073	4.720	.747	6.323*
CalfCircumference	33.73 ± 2.924	33.06 ± 4.380	.667	.608	1.096

t 0.05 (148) =1.98

Annexure 03

Table 3 Significance of Mean Difference of Motor Fitness Components Between Male And Female Race Walker

Variables	Mean±SD		MD	SED	t
	Male(N=75)	Female(N= 75)			
MuscularLeg Strength(kg)	104.91 ± 12.794	99.24 ± 13.481	5.667	2.146	2.641*
Muscular Back strength(kg)	119.60 ± 9.291	116.40 ± 9.284	3.200	1.517	2.110*
Cardiovascular Endurance	2187.33 ± 213.733	2314.00±211.903	126.667	34.753	3.645*

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