



COMPARATIVE ANALYSIS OF MUSCLE MASS AND TOTAL BODY WATER PERCENTAGES AMONG VARIOUS INTER UNIVERSITY WOMEN KABADDI PLAYERS OF SOUTH INDIA

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Abstract:

To achieve the purpose of the study 91 inter university level Women kabaddi players were selected from 8 universities of south India namely University of Mysore, Kerala University, Osmania University, Kaakathiya University, Mangalore University, Madras University, Bharathiar University, and Mother Theresa University. The age group of the subjects was ranged from 18 to 25 years old. The selected criterion variables namely muscle mass and total body water percentages were selected and they were measured by Electronic Body composition Scale. To find out the difference exists among the 8 universities of south India the "ANOVA" calculation was applied for this study. The variable on which a significant 'F' value is found, then it is further subjected to Scheffe's post hoc test to determine the paired mean significance difference. The result of the study reveals that there was a significant difference found muscle mass and total body water percentage of university level women kabaddi players among various states of south India.

Key Words: Kabaddi, Women Athletes, Body Composition, Muscle Mass & Total Body Water

Introduction:

Sports in the present world have become extremely competitive. It is not the mere participation or practice that brings out victory to an individual. Therefore, sports life is affected by various factors, like physiology, biomechanics, sports training, sports medicine, sociology and sports psychology etcetera. All the coaches, trainers, physical education personnel and doctors are doing their best to improve the performance of the players of their country.

The human physique differs in many ways and variation in physical characteristics is an interesting aspect. This variety of human physique plays an important role to attain better performance in particular sports. Every game requires a specific type of body whereas unsuitable body types in relation to the sports may build great stumbling block in the progress of the sports performance. Apart from the considerations of body size, the constitutional make up of body composition components are also important. The division of the body weight into various components can well be conceived by considering the major parts of the body, i.e. fat mass, muscle mass and bone mass. Knowing and understanding the effect of training and competition on body composition can help athletes control weight and alter body composition safely. Following body composition trends in specific sports enable coaches and athletes to accurately prepare athletes for specific events/positions.

Body composition is the percentage of body weight that is fat, muscle and bone. Body composition is influenced by genetics, although it can be improved by exercise and diet. Height and weight are genetic. Elite athletes work hard to achieve a good body composition for their sport. Body fat percentage is the amount of fat tissue in our body as a percentage of total body weight. Total body water percentage (TBW%) is the total amount of fluid in the body expressed as a percentage of your total body weight. Your body needs water for a wide variety of reasons including transportation of nutrients around the body and for waste products carried out of the body in the form of urine. It also allows organs to function, regulates body temperature, aids digestion and helps our muscles to contract and relax.

Statement of the Problem:

The purpose of the study was to analyze the comparison of muscle mass and total body water percentage among various inter university women kabaddi players of south India.

Methodology:

To achieve the purpose of the study, 91 inter-university women Kabaddi players were selected from eight universities in South India, namely: University of Mysore (11), Kerala University (11), Osmania University (11), Kakatiya University (11), Mangalore University (12), Madras University (12), Bharathiar University (12), and Mother Teresa University (11). The age of the subjects ranged from 18 to 25 years. The investigator, considering the feasibility of the study, selected muscle mass and total body water percentage as the criterion variables for this study.

Statistical Technique:

To find out the difference exists among the universities the "ANOVA" calculation was applied for this study. The variable on which a significant 'F' value is found, then it is further subjected to Scheffe's post hoc test to determine the paired mean significance difference.

Results and Discussion:

Table 1: Analysis of Variance of Muscle Mass Percentage among Various Inter University Women Kabaddi Players of South India

Source of Variance	SS	DF	MS	F	“p” value
Between	1487.10	7	212.45	12.77	0.01
Within	1380.53	83	16.63		

* Significant at 0.05 level

Table 1 shows that the obtained ‘F’ ratio 12.772. Since the ‘p’ value is lesser than the 0.05 value it is significant at 0.05 level. It is clear that the inter university level women kabaddi players among various universities of south India differ significantly on their muscle mass percentage. The muscle mass percentage of various universities of south India is graphically illustrated in figure 1.

Figure 1: Bar Diagram Shows That the Mean Values of Muscle Mass Percentage among Various Inter University Women Kabaddi Players of South India

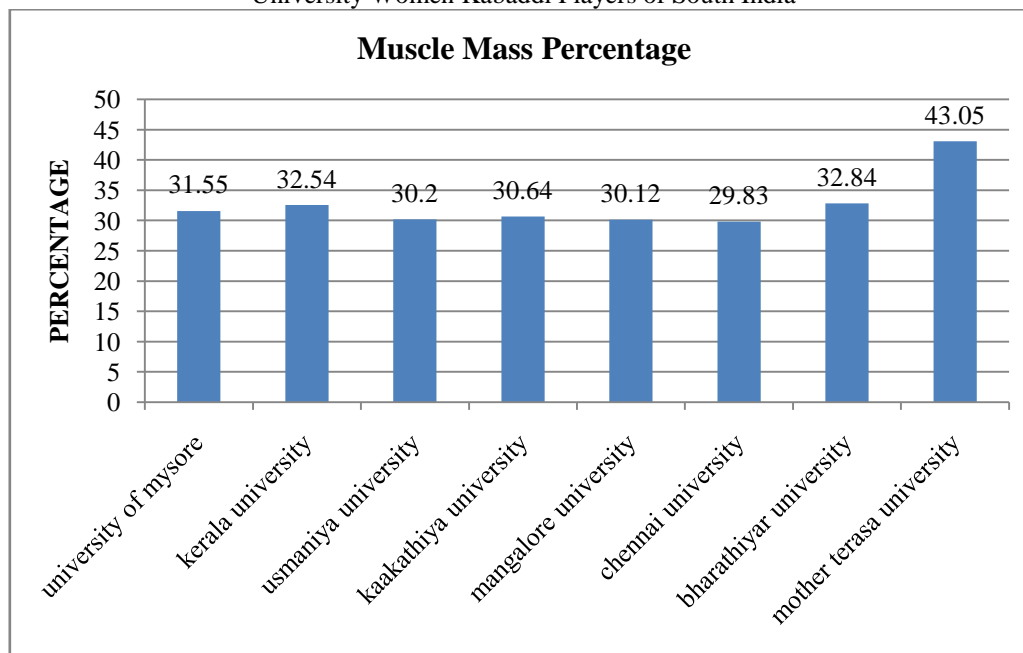


Table 2: Scheffe’s Post Hoc Test for Difference between the Paired Means of Muscle Mass Percentage among Various Inter University Women Kabaddi Players of South India

UOM	KU	OU	KAU	MU	CU	BU	MTU	MD	SIG
-	-	-	-	-	-	32.84	43.05	10.21*	.000
-	-	-	-	-	29.83	-	43.05	13.23*	.000
-	-	-	-	-	29.83	32.84	-	-3.0166	.854
-	-	-	-	30.12	-	-	43.05	12.94*	.000
-	-	-	-	30.12	-	32.84	-	-2.7250	.910
-	-	-	-	30.12	29.83	-	-	.29167	1.000
-	-	-	30.64	-	-	-	43.05	12.42*	.000
-	-	-	30.64	-	-	32.84	-	-2.2053	.974
-	-	-	30.64	-	29.83	-	-	.81136	1.000
-	-	-	30.64	30.12	-	-	-	.51970	1.000
-	-	30.2	-	-	-	-	43.05	12.85*	.000
-	-	30.2	-	-	-	32.84	-	-2.6416	.931
-	-	30.2	-	-	29.83	-	-	.37500	1.000
-	-	30.2	-	30.12	-	-	-	.08333	1.000
-	-	30.2	30.64	-	-	-	-	-.43636	1.000
-	32.54	-	-	-	-	-	43.05	10.52*	.000
-	32.54	-	-	-	-	32.84	-	.30530	1.000
-	32.54	-	-	-	29.83	-	-	2.7113	.921
-	32.54	-	-	30.12	-	-	-	2.4197	.957
-	32.54	-	30.64	-	-	-	-	1.9000	.990
-	32.54	30.2	-	-	-	-	-	2.3363	.968
31.54	-	-	-	-	-	-	43.05	11.51*	.000

31.54	-	-	-	-	-	32.84	-	1.2962	.999
31.54	-	-	-	-	29.83	-	-	1.7204	.994
31.54	-	-	-	30.12	-	-	-	1.4287	.998
31.54	-	-	30.64	-	-	-	-	.90909	1.000
31.54	-	30.2	-	-	-	-	-	1.3454	.999
31.54	32.54	-	-	-	-	-	-	-.99091	1.000

- University of Mysore - UOM
- Kerala University- KU
- Osmania University - OU
- Kakatiya University - KAU
- Mangalore University - MU
- Chennai University - CU
- Bharathiar University - BU
- Mother Teresa University - MTU

The above table 2 clearly indicates that the level of muscle mass percentage of inter university level women kabaddi players among various universities of south India. And the variation in muscle mass percentage for inter university level women kabaddi players among various universities of south India were found to be significant between the paired means of university of Mysore and Mother Theresa University, Kerala University and Mother Theresa University, Osmania University and Mother Theresa University, Kaakathiya University and Mother Theresa University, Mangalore University and Mother Theresa University, Madras University and Mother Theresa University and Barathiyar University and Mother Theresa University inter university level women kabaddi players of south India. However there was no significant difference found on other universities paired means in muscle mass percentage.

Table 3: Analysis of Variance of Body Water Percentage among Various Inter University Women Kabaddi Players of South India

Source of Variance	SS	DF	MS	F	p value
Between	1181.21	7	168.74	4.59 *	0.01
Within	3051.23	83	36.76		

* Significant at 0.05 level

Table 3 shows that the obtained 'F' ratio 4.59. Since the "p" value is lesser than the 0.05 value it is significant at 0.05 level. It is clear that the inter university women kabaddi players among various universities of south India differ significantly on their total body water percentage. The total body water percentage of various universities of south India is graphically illustrated in figure 2.

Figure 2: Bar Diagram Shows That the Mean Values of Body Water Percentage among Various Inter University Women Kabaddi Players of South India

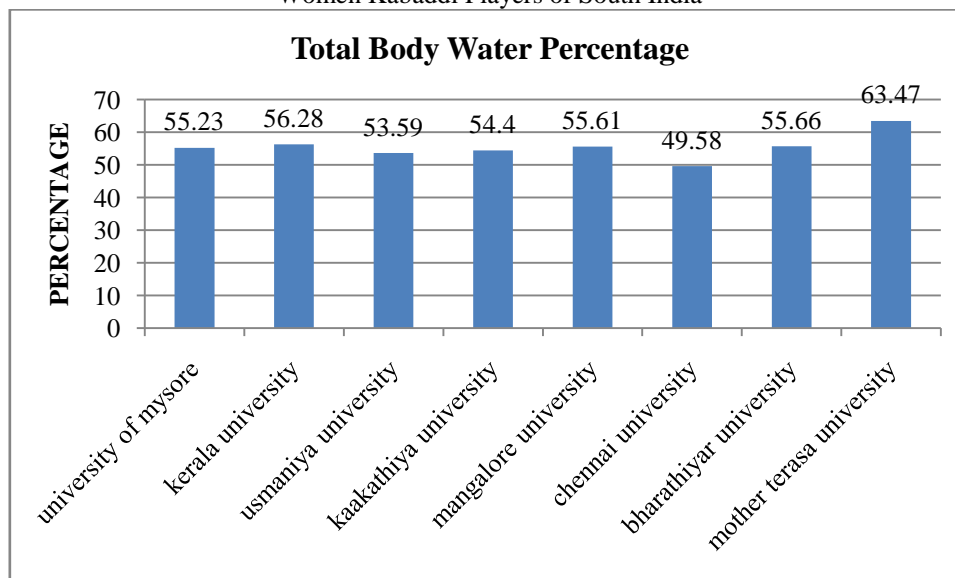


Table 4: Scheffe's Post Hoc Test for Difference between the Paired Means of Total Body Water Percentage among Various Inter University Women Kabaddi Players of South India

UOM	KU	OU	KAU	MU	CU	BU	MTU	MD	SIG
-	-	-	-	-	-	55.7	63.5	-7.814	.232
-	-	-	-	-	49.6	-	63.5	-13.89*	.000
-	-	-	-	-	49.6	55.7	-	6.083	.539
-	-	-	-	55.6	-	-	63.5	-7.864	.225
-	-	-	-	55.6	-	55.7	-	-.0500	1.000
-	-	-	-	55.6	49.6	-	-	6.033	.550

-	-	-	54.4	-	-	-	63.5	-9.072	.107
-	-	-	54.4	-	-	55.7	-	-1.258	1.000
-	-	-	54.4	-	49.6	-	-	4.825	.818
-	-	-	54.4	55.6	-	-	-	-1.208	1.000
-	-	53.6	-	-	-	-	63.5	-9.881	.054
-	-	53.6	-	-	-	55.7	-	-2.067	.998
-	-	53.6	-	-	49.6	-	-	4.015	.923
-	-	53.6	-	55.6	-	-	-	-2.017	.999
-	-	53.6	54.4	-	-	-	-	-.8090	1.000
-	56.3	-	-	-	-	-	63.5	-7.190	.368
-	56.3	-	-	-	-	55.7	-	.6234	1.000
-	56.3	-	-	-	49.6	-	-	6.706	.435
-	56.3	-	-	55.6	-	-	-	.6734	1.000
-	56.3	-	54.4	-	-	-	-	1.881	.999
-	56.3	53.6	-	-	-	-	-	2.690	.993
55.23	-	-	-	-	-	-	63.5	-8.245	.196
55.23	-	-	-	-	-	55.7	-	-.4310	1.000
55.23	-	-	-	-	49.6	-	-	5.652	.661
55.23	-	-	-	55.6	-	-	-	-.3810	1.000
55.23	-	-	54.4	-	-	-	-	.8272	1.000
55.23	-	53.6	-	-	-	-	-	1.636	1.000
55.23	56.3	-	-	-	-	-	-	-1.054	1.000

The above table 4 clearly indicates that the level of total body water percentage of inter university level women kabaddi players among various universities of south India. And the variation in total body water percentage for inter university level women kabaddi players among various universities of south India were found to be significant between the paired means of Madras University and Mother Theresa University alone. However there was no significant difference found on all other universities paired means in total body water percentage.

Discussion on Findings:

The results of the study reveals that there was a significant difference found among inter university level women kabaddi players among various universities of south India on muscle mass percentage and also the study reveals that there was significant difference exists among the paired means of university of Mysore and Mother Theresa University, Kerala University and Mother Theresa University, Osmania University and Mother Theresa University, Kaakathiya University and Mother Theresa University, Mangalore University and Mother Theresa University, Madras University and Mother Theresa University and Barathiar University and Mother Theresa University inter university level women kabaddi players of south India. However there was no significant difference found on other universities paired means in muscle mass percentage. When comparing the mean values of muscle mass percentage for the among inter university level women kabaddi players among various universities of south India the Mother Theresa University players having more muscle mass percentage than the other university players.

The results of the study reveals that there was a significant difference found among inter university level women kabaddi players among various universities of south India on total body water percentage and also the study reveals that there was significant difference exists among the paired means of Madras University and Mother Theresa University alone. However there was no significant difference found on all other universities paired means in total body water percentage. When comparing the mean values of total body water percentage for the among inter university level women kabaddi players among various universities of south India the Mother Theresa University players having more total body water percentage than the other university players.

Conclusion:

The results of the study reveals that there was a significant difference found among various inter university women kabaddi players of south India on muscle mass percentage and total body water percentage.

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