

STATUS AND COMPARISON OF PHYSICAL COMPETENCE OF 9-10 YEARS MALE AND FEMALE SCHOOL GOING CHILDREN

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Introduction

Motor competence, as defined by Burton & Miller (1998) and Gabbard (2008), is an individual's degree of proficient performance in a broad range of motor skills as well as the underlying mechanisms including quality of movement, motor coordination and motor control. Proficiency in gross and fine motor skills is a must for conducting day to day tasks, motor development, therefore, is considered as an important aspect of the children over all development and development of cognition (Utesch, & Bardid, 2019).

Studies on association of motor competence and health related fitness concluded a promising relationship between the two (MC and HRF). This was evident both in boys and girls and in adults also, therefore, motor competence is a valid predictor of health-related fitness. Also, research showed that high motor competence in childhood leads to higher chances to physical activity participation in adolescent and adult life (Lubans, et al., 2010; Holfelder, et al., 2014; Barnett, et al., 2008; Cattuzzo et al., 2016 & Stodden, et al., 2009).

On the other hand, globally we are facing an alarming decrease in Physical activity which in turn leads to daily increase in NCDs and mortality. Luz, et al. (2019) in their study conducted on different cultures concluded that cultural differences significantly influence the motor fitness of children. They further stated that popularity of sport may have contributed to different characteristics of motor competence. In one way or the other, so to say, motor competence plays a great role in overall health related fitness and physical activity participation.

Researchers around the world used CAMSA to assess the motor skills among children. Various studies focusing on gender differences stated that female children are proficient in locomotion and stability skills and male children are performing object control skills very efficiently as compared to female children, this indicates that CAMSA scores differ as per gender (Hardy, et al., 2012 & Sekulic, et al., 2013). To know the physical competence status of marginalized children, our study focused on the people living in far flung and backward regions.

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METHODS:

For the purpose of this study the total numbers of 60 participants were selected randomly. The age of participants was between the 09 to 10 years. 30 boys and 30 girls presently enrolled in the schools.

Table-1: Selection of Variables and Tests

S.NO	VARIABLES	TEST / TOOL	Criterion Measured
01	Motor competence (CAMSA)	<ol style="list-style-type: none"> 1. Jumping (Two foot) 2. Sliding 3. Catching 4. Throwing 5. Skipping 6. Hopping (one foot) 7. Kicking 	Time in sec
02	Cardio Respiratory Endurance	<ul style="list-style-type: none"> • 15mpacer(shuttle run) 	Time in sec and no. of Laps
03	Torso strength	<ul style="list-style-type: none"> • Plank 	Time in sec.

Motor Competence

The participants were made to watch two demonstrations in order to make them aware about the Canadian Agility and Movement Skill Assessment test for motor competence (CAMSA-for motor competence), this was done before attempting the test. The tester while demonstrating the test first time move slow, performed each skill perfectly and clearly through the entire course so that the participants get acquainted with the test. The tester provided verbal description of all the aspects of the test during first demonstration. However, in the second demonstration the tester completed the CAMSA test in one go while performing the skill accurately.

Following steps were taken care of during the test:

- o Each Child was given 2 practice trials followed by 2 more trials which were timed and scored. The best score achieved by the participants were used in the study.
- o During Practice trial participants were provided with verbal prompts and verbal corrections were made immediately, as and when required, to rectify the mistakes made.
- o Verbal cues were provided throughout the test, as described in the test protocol, for smooth completion of the test by the children.

Cardio Respiratory Endurance- 15m pacer (shuttle run)

To measure the cardio-respiratory endurance smoothly the appraiser explained the test to the participants. The Tester then demonstrated the test to the children. He used speakers to make the recording audible enough to the participants and also performed 2-4 runs. 1 practice trial of 4 runs was given to each participant to make sure they understand

the test. Scores were recorded as laps and seconds.

For smooth conduct and to avoid any injuries the participants were told to take care of:

1. That their shoe laces are tied up perfectly.
2. That the beep sound is audible to them.
3. That they understood the instructions for stating the test.
4. That they will run from one side to another only after first beep and return back after the second beep.
5. That they will run from one side to other only after the beep and shall try to keep up with the beep as the test proceeds.
6. That they will they will reach the best level possible.

Torso Strength- Plank Assessment

As this test demands the participants to hold an elevated position for the longest possible time one could, the participants were guided and instructed to follow the steps of the test. A demonstration was provided at the beginning and a trial was also performed by the children to avoid any kind of confusion and to get acquainted with the test. The test starts with the participant taking upper body off the ground with the support of elbows and forearms. This is then followed by straightening the legs with the weight taken on both toes. In order to create a straight line from head to toes the participants required to lift hips off the floor, to ensure it they were instructed to tuck in their shirt.

The appraiser started the stopwatch as soon as the participants were in correct position. Participants were told to keep their face towards the ground and try to hold same position as long as possible. Scores were recorded when the participants were unable to hold their back straight and lowered their hips.

Data collection

For the study the data was collected among school going children in different schools of Kashmir Valley and the data was collected by administering Motor Competence for the school going children the age group were 9 years to 10 years of boys and girls of this age group 30 boys and 30 girls they were selected randomly. The first-hand source of information (primary source) were collected from respondents for the present study. We followed the prerequisite and needful aspects into account before test administration to collected primary source of data set for this research and they were: 1) Medical clearance; 2) Stop test indicators; 3) Administrative guidelines for test battery.

Statistical Procedure

Both descriptive as well as inferential statistics to check the difference, if any, among

the groups. Analysis was done with the help of SPSS 20.0. Mean, Standard deviation and t-test were conducted for that purpose. Also, the calculated average values for each variable were compared with the CAMSA norms for each age group and gender.

RESULTS:

Table 2: Mean, SD and t-test results of Motor Competence, Cardio-respiratory Endurance and Torso Strength on the basis of gender.

Group Statistics						
Variable	Boys and Girls	N	Mean	SD	t-test	Sig.(2-tailed)
Motor Competence	Boys	30	17.60	3.37	2.21	0.031
	Girls	30	15.63	3.48		
Cardio-respiratory Endurance	Boys	30	9.03	1.65	2.270	0.027
	Girls	30	7.83	2.37		
Torso Strength	Boys	30	9.66	.60	2.967	0.004
	Girls	30	9.03	.99		

The boy's group (N=30) was associated with Motor Competence, Mean =17.60 (SD = 3.37) and the girls group (N= 30) was associated with Mean =15.63 (SD = 3.48). In case of Cardio Respiratory Endurance the boy's group (N=30) was associated with, M=9.03 (SD=1.65) and the Girls group (N=30) was associated with Mean =7.83 (SD=2.37). Meanwhile in case of Torso Strength the boy's group (N=30) was associated with a Mean =9.66 (SD=.60) and the Girls group (N=30) showed a Mean value of 09.03 (SD=.99). While testing the hypothesis the t-test results showed significant difference for Motor Competence [t (58) = 2.22, p<0.03], Cardio-Respiratory Endurance [t (58) =2.30, p>0.02] as well as for Torso Strength [t (58) =2.90, p>0.01].

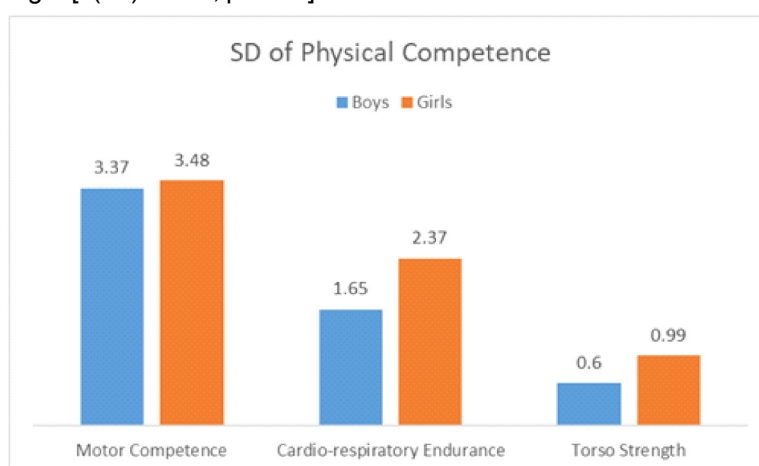


Fig. 1: Shows comparison of SD for Motor Competence, CRE and Torso Strength.

CAMSA Comparison(Canadian Agility and Movement Skill Assessment)

CAMSA has provided norms on the basis of age and gender for Motor Competence, Cardio Respiratory Endurance and Torso Strength. These norms were divided into four titles as Beginning, Progressing, Achieving and Excelling. Each indicating the Physical Competence status of both boys and girls like as- Beginning denotes the individual performs at the initial stages of the movement skill to be utilised for a physically demanding skill and lifestyle; Progressing denotes that the individual has achieved all the movement related skills required for a lifestyle which is physically active; Achieving, on the other hand, denotes that the movement skill score of the individual performer is in sync with the health benefits; and Excelling in the movement skill score, however, means that the individual is getting a lot of health related benefits (see e.g. CAMSA, 2018). The Researcher tested each Physical Competence component based on the calculated mean values and the status was shown for each group accordingly.

Table-3: Comparison of Mean values of girls group with Norms of CAMSA as per age for Motor competence.

Girls	Beginning		Progressing		Achieving		Excelling	
9 years	< 16	-	16 to 21	16.27	22	-	> 22	-
10 years	< 17	14.66	17 to 22	-	23	-	> 23	-

Table-3, the calculated mean value of 9 year girls group was 14.66 and of 10 year girls group was 16.27, when compared with the test norms it was found that 9 year girls are in the progressing stage of their motor competence as the calculated values were in between 16-21 and 10 year girls are in the beginning stage of their motor competence as the calculated values were less than 16.

Table 4: Comparison of Mean values of boys group with Norms of CAMSA as per age for Motor competence.

Boys	Beginning		Progressing		Achieving		Excelling	
9 years	< 17	16.77	17 to 22	-	23	-	> 23	-
10 years	< 17	-	17 to 22	19.87	23 to 24	-	> 24	-

Table 4, the calculated mean value of 9 year boys group is 16.77 and of 10 year boys group is 19.87, when compared with the test norms it was founded that 9 year boys are in the beginning stage of their motor competence as the calculated values are less than 17 and the 10 year boys are in the progressing stage of their motor competence as the calculated values are in between 17-22.

Table 5: Comparison of Mean values of girls group with Norms of CAMSA as per age for CardioRespiratoryEndurance

Girls	Beginning		Progressing		Achieving		Excelling	
	9 years	< 10	7.50	10 to 21	-	22 to 29	-	> 29
10 years	< 10	8.33	10 to 21	-	22 to 30	-	> 30	-

The calculated mean value of 9 year girls group is 7.50 and of 10 year girls group is 8.33, when compared with the test norms it was found that 9 year girls are in the beginning stage of their Cardio Respiratory Endurance as the calculated values are less than 10 and the 10 year girls are also less than 10 and fall in the beginning stage of their Cardio Respiratory Endurance.

Table 6: Comparison of Mean values of boys group with Norms of CAMSA as per age for CardioRespiratoryEndurance.

Boys	Beginning		Progressing		Achieving		Excelling	
	9 years	< 10	9.09	10 to 27	-	28 to 39	-	> 39
10 years	< 11	8.87	11 to 28	-	29 to 41	-	> 41	-

The calculated mean value of 9 year boys group was 9.09 and of 10 year boys group was 8.87, when compared with the test norms it was founded that 9 and 10 year boys are in the beginning stage of their Cardio Respiratory Endurance as the calculated values were less than tabulated values for Cardio Respiratory Endurance.

Table 7: Comparison of Mean values of girls group with Norms of CAMSA as per age for Torso strength.

Girls	Beginning		Progressing		Achieving		Excelling	
	9 years	< 10	9.11	10 to 21	-	22 to 29	-	> 29
10 years	< 10	8.91	10 to 21	-	22 to 30	-	> 30	-

The calculated mean value of 9 year girls group was 9.11 and of 10 year girls group was 8.91, when compared with the test norms it was found that they are just beginning to gain the Torso Strength.

Table 8: Comparison of Mean values of boys group with Norms of CAMSA as per age for Torso strength.

Boys	Beginning		Progressing		Achieving		Excelling	
	9 years	< 10	9.68	10 to 27	-	28 to 39	-	> 39
10 years	< 11	9.62	11 to 28	-	29 to 41	-	> 41	-

The calculated mean value of 9 year boys group was 9.68 and of 10 year boys group was 9.62, when compared with the test norms it was found that they are just beginning to gain the Torso Strength.

Discussion :

There was a significant difference in motor competence between boys and girls. The motor competence of Boys was better than Girls. Researchers from time to time are assessing the child's physical ability to get involved in physical activities by means of physical competence domain. Belanger, et al., 2018, Tremblay, et al., 2018, Longmuir, 2017 and Tremblay, 2016 have shown same results for motor competence, cardio respiratory endurance and torso strength. Such physical fitness performance when assessed to provide the complete picture of physical competence. As we know that measuring the basic and fundamental movement skills of child contributes towards their physical competence to take active part in physical activity.

Participants were assessed based on the norms provided for each category Age and gender wise as Beginning, Progressing, Achieving, and Excelling. All the categories namely 9 year, 10 year boys and 9 year, 10 year girls were falling in beginning and progressing stages of their physical competence for motor competence, cardio respiratory endurance, torso strength. This indicated that the district Baramulla children need to work more on their physical competence.

Cardio respiratory Endurance of school going children was assessed to know whether or not the participants have the necessary endurance to take part in active games. The comparison however showed a significant difference in cardio-respiratory endurance between boys and girls. Physical activity if performed over a prolonged time demands our cardio respiratory system to overcome the oxygen deficit by supplying adequate amounts of oxygen to the cells of the body. The ability of our cardio respiratory system to deliver the required oxygen supply is fundamentally a fitness indicator and a wise health indicator therefore its assessment becomes a must. Finding of our study are in line with the findings of a study conducted by CAMSA, Canada in 2018 where they found a clear association between cardio respiratory endurance and physical ability for physical activity (CAMSA, 2018).

Torso strength and endurance are associated with the health of our back, the capacity of the body to stabilise, and the upper and lower limb's function. In this study torso strength of boys and girls was assessed and a significant difference was found in the participants. Boyer, 2013 performed a plank protocol in order to assess torso strength and muscular endurance in children of the age 8-12 years. They found that all children, virtually, attained

a non-zero score for plank. However, their research highlighted that age, cardiovascular endurance, waist circumference and flexibility had precise effects on plank performance. Meanwhile, Larouche et al., (2014) while studying relationship of various test and motor skills with physical activity found that torso endurance is related to aerobic fitness and overall physical activity.

This study used CAMSA, 2018 norms and criterion to assess the participants and it was found that they matched the recommended levels in all the measured skills. As per CAMSA the children need the ability to perform various skills in varied environmental conditions and in order to create more complex movement patterns children also need to combine and coordinate fundamental skills. They therefore in their study developed assessment based on 1; Fundamental-(jump, throw, skip, hop kick, catch and slide), 2; Complex- (inter-limb coordination, controlled acceleration or deceleration, rhythmic movement and hand-eye coordination), and 3; Combined- (coordination, core stability and balance) movement skill. We used same parameters to assess the participants of this study because the objectives were the same.

Conclusion :

Physical competence is an important indicator of motor skill level and health related fitness. This study, "Status and Comparison of Physical Competence of 9-10 years male and female children" was designed to assess the overall physical competence of both male and female children. To achieve the objectives of this study motor competence, cardiorespiratory endurance and torso strength were measured using CAMSA, 15 meter pacer test and Plank, respectively. Data was normal and t-test was applied. The results showed that male children were more proficient than female children in Motor Competence, Cardiorespiratory Endurance and Torso Strength. Motor competence is an important indicator of health-related fitness. Our study, therefore, made an important contribution by assessing the status of motor competence in marginalized population. The participants of this study matched the recommendation levels in all the measured skills. Further, research is needed to compare urban and backward population on these parameters and also include larger sample sizes.

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