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The effect of geographical regions (urban and rural areas) on movement competence of Egyptian schoolchildren from 6-7 years

Mohamed fawzy abd el shakour

movement sciences, faculty of physical education, helwan university, Cairo , Eygpt

Introduction

Life is unimaginable without movement. Human movement starting from birth and continuing until the end of life, it develops from simple reflexive, random movements to highly complex models coordinated at higher nerve centers.

Since healthy behavior habits are formed during childhood, the acquisition of movement competence in a child's first 10 years of life is critical . Most of researches refer to child's major muscle skills develop to a significant degree in the first eight years of life (13:pp.174). While simple movements and locomotor models are obtained in infancy, a great number of motor skills are addedto the movement repertoire during childhood. The development of high levels ofmovement competence is the result of a long journey that involves, among other aspects, high amounts of intentional practice (13:pp175).

Some countries as many as fifty percent of children will leave school without the fundamental movement skills competence required for successful recreation games, sport, and physical activity (PA) (MacNamara, Collins, & Giblin, 2015; Morgan et al., 2013) (18:pp. 48). Over the last twenty year period more methodological studies of

children's movement competence have occurred (18:pp. 48).

Movement competence is sometimes called "fundamental" or "essential" movement skills that are suggested as the foundation of an active lifestyle during adolescence and into adult life. The movement competence is often referred to as skills, classified into locomotor and manipulative or object control skills (18:pp. 47) . Gallahue, Ozmun, & Goodway, (2012) classify movement competence withinthree distinct holistic categories: locomotion, object control, and stability skills and state that there are typical developmental progressions between skills and also between the categories. They surmise that children need to master certain stability skills before they can progress onto locomotor skills and that children seem to formrudimentary stability and locomotor skills earlier than they develop object control skills (17:pp.478).

Actual movement competence can be defined as the basic observable building blocks for movement (11:pp.2).

Movement competence is defined as the development of sufficient skill and ability to assure successful performance in a variety of physical activities(6: pp.1). Research suggests that actual movement competence (e.g., fundamental movement skill (FMS) proficiency) in early childhood may be an important prerequisite for engagement in PA later in life (16:pp.2). Longitudinal evidence has identified that ball skills are an important predictor of later levels (20:pp.90).

Movement competence is a critical component for a young child. It contributes to future participation in physical activity (A2:pp.90). A child with less skill than his or her peers will often be the last person selected to participate in group games or out of school activities (13:pp.174). When children develop movement skill by being encouraged to “get outside and play”, movement competence is more likely to be achieved (Lubans et al., 2010) (18:pp. 48).

Previous research has shown that children find outdoor environments stimulating and motivating, large spaces and areas provide affordances to play and run, climbing, galloping, jumping and also object control (9:pp.2).

It is important to appropriately evaluate and monitor children’s motor competence, starting in the early years. Appropriate assessment helps to identify motor delay and provide appropriate support (2:pp.75).

Different countries have different methods for assessing movement competence in children, many assessments have been developed and validated to evaluate movement competence, and these tests include process-oriented and/or product-oriented measures. Process-oriented assessments focus on the quality of movement, while product-oriented assessments focus on quantitative measures. However it is unclear whether the test batteries that are used measure the same aspects of movement competence (17:pp.477), in North America the Test of Gross Motor Development (TGMD) has been a test battery of choice to examine children’s movement competence. The TGMD is a process oriented test battery that measures competence in

a set of motor skills deemed essential for predicting participation in PA and sport (17:pp.480).

Various factors are related with adopting and maintaining a physically active lifestyle, such as socioeconomic status, cultural influences, lifestyle, environmentalfactors, and health status. (16:pp.6)

Over the last several decades, there has been a trend towards an increased concentration of the population in cities, which is referred to as urbanization, that influences biological development and behavioral choices of human beings. Research has indicated differences in behavioral choices such as eating habits and physical activity between urban and rural region. Urbanization has been associated with lack of space for play, safety concerns and an increase in inactive habits such as reading, playing computer games, and watching TV. (10:pp.1) .

Arto L. , Farid B. , Matthieu L. , Vitor P. , Tommi V. , Pauliina H. and Arja S.(2018)(14) examined differences in motor competence in children aged 6-9 years old in northern, central, and southern European regions. It was found that Cross- cultural differences in children's motor competence increased substantially across age, independent of weight status. Girls slightly underperformed in motor competence compared to boys in regions where the overall level of motor competence was lower. Interestingly, the association between body weight status and motor competence was relatively consistent across the regions. Future cross-cultural studies should further explore the influence of individual (eg, physical activity) and environmental (eg, physical activity and sport policy) factors on MC development.

Donna N., Taija F., Eero A. , Marja C., Elisa K. and Arja S. (2019)(9) examined the associations of environmental factors with motor competence in children. Children (N = 945) from 37 childcare centers in the Southern (n = 17), Central (n = 13) and Northern Finland (n = 7) participated. It was found that children from the countryside had better motor competence and spent most time outdoors, while children from the metropolitan area most frequently engaged in organized sports. The findings suggest that versatile outdoor environments may support motor development through PA.

Williams, Pfeiffer, O'neill, Dowda, McIver, Brown, & Pate, (2008)(12) examine the relationship between motor skill performance and PA in preschool children. Participants were 80 three- and 118 four-year-old children. The study found the importance of constant monitoring by parents of the motor skills of their children, with the need to encourage them to participate in activities that develop general motor skills.

Decio R. , Eric L. and Jose A.(2015)(8) verify the proficiency of fundamentalmotor skills of 6 and 9 year old children from a public school in the city of Sao Paulo. 82 children were tested of TGMD-2. The results indicated that 9 years old children were advanced in fundamental motor skills proficiency compared of 6 years, but children from both age were delayed to the expected fundamental motor skills proficiency.

Chow, & Louie, (2013) (7) assessed the influence of preschool type (Public vs private) on motor skill performance in 239 (121 boys, 118

girls) preschool

children ages 3 to 6.5 years. The results indicated that there is a relationship between the nature of the school and the children's motor skills.

Hardy, King, Farrell, Macniven, & Howlett (2010) (12) did a study on primary school aged children, he found low levels of motor competence mastery indicating the need to implement FMS programs during the preschool years.

Barnett, Morgan, van Beurden, & Beard, (2008) (4) studied the relationship between sports competence and subsequent adolescent physical activity and fitness. He suggested that developing a high perceived sports competence through object control skill development in childhood is important for both boys and girls in determining adolescent physical activity participation and fitness.

Alwasif N. (2015) (3) described and compared the motor coordination in urban-rural schoolchildren in the age average of 10.2 years old. Motor coordinationwas assessed by the Body Coordination Test for Children (KTK). The Subjects consisted of 299 Egyptian primary school children, 185 boys (94 urban & 91 rural)and 114 girls (63 urban & 51 rural). His findings suggested that Egyptian boys and girls who attended the urban school had a better motor coordination than those whoattended the rural school.

Abdelazeim F., Ragaa E. , Saad K. , Alkhouli M. (2015)(1) compared the rural infants with urban infants according to Peabody Developmental Motor Scale (PDMS-2) and tried to find a method of evaluation which

might be suitable for Egyptian infants. Normal Five hundred and forty eight infants (rural 336 & urba 212) were participated in this study, their chronological age are six months. They were evaluated every two weeks using (PDMS-2). The Results revealed that Egyptian rural infants differ from urban infants in their motor development according to PDMS-2. Rural were superior to urban Egyptian infants' in motor development.

From the previous, Children and adolescents living in urban vs. rural communities regularly differ in fitness status and anthropometric/body built indices(22:pp.2). But does civilization affects movement competence of children?

The purpose of this study was to determine whether movement competence of Egyptian children differed according to geographical regions.

Terminology

- Movement competence: The development of sufficient skill to assuresuccessful performance in different physical activities (18:pp.48).
- Urban region: in this study means areas classified by the Department of General Administration, the ministry of health and population of Egypt. It has an increased density of building structures, population and better infrastructural development (16:pp.66).

 Rural region: in this study means areas classified by the Department of General Administration, the ministry of health and population of Egypt. Ithas villages and village tracts, or remote areas where areas with low population density and a land use which are predominantly agriculture

(16:pp.66).

 Method

Aim: This study aimed to determine relation between movement competence of Egyptian children and geographical regions (rural vs. urban). This is in addition to studying the differences between:

- Rural and urban boys in the subtest components of the TGMT-2 test.
- Rural and urban girls in the subtest components of the TGMT-2 test.
- Rural boys and girls in the subtest components of the TGMT-2 test.
- Urban boys and girls in the subtest components of the TGMT-2 test. Hypotheses: Researcher hypothesized that rural children at the age of 6-7 yearsdisplay higher movement competence as compared with their urban peers.

Study design: Descriptive method was used in this study due to its suitability for the purpose of this research.

Subjects: The participants were chosen using multi-stage random sampling involving several stages. The first stage was choosing the sampling area (school location). The second stage was determining the number of subjects based on the eligibility criteria and the number of all students in the sampling area (using proportional random sampling).

Subjects in this study were conducted with 60 children (32 males, 28

females). Characteristics and equivalence of the research Subjects are shown in table (1) & figure (1). It consisting of 35 urban children (19 males , 16 females)and 25 rural children(13 males , 12 females) from Egyptian public primary schools. The exclusion criteria were children with known developmental disability (e.g. Cerebral palsy, Down's syndrome, Autism Spectrum Disorder, Attention Deficit Hyperactive Disorder), obvious deformity (e.g. scoliosis, bow leg), and orthopedic injury in both upper and lower extremities within six months. The subject's age ranged between 6 to 7 years, living in two different geographical regions:

- Cairo (Nasr city) as urban area (100% urban) Total Population 9,539,673(10.10%), Males(4,960,625) Females(4,579,048)
- Al Minia as rural area (18% urban , 82% rural) Total Population 5,497,095 (5.80%), Males(2,834,948) Females(2,662,147) . Central agency for public mobilization and statistics 2017 were used in identification of the distribution by age and gender of children living in Egypt.
- Percentage Population Distribution: 11.1% Age 5-9, 57.8% rural vs 42.2%urban.

Table 1. Statistics and equivalence of Subjects

Subjects Statistics						T-test for Equality of Means			
sex			N	Mean	Std. Deviation	t	df	Sig. (2-tailed)	Mean Difference
Boys	Age	Rural	13	78.4	.768	1.416	30	.167	.385
		Urban	19	78.0	.745				
	Length	Rural	13	126.9	1.115	2.212	30	.035	.870
		Urban	19	126.1	1.079				
	Weight	Rural	13	25.3	1.316	3.800	30	.001	-3.113
		Urban	19	28.4	2.735				
	BMI	Rural	13	15.7	.632	4.926	30	.001	-2.166
		Urban	19	17.9	1.490				
Girls	Age	Rural	12	75.8	.622	0.689	26	.497	-.188
		Urban	16	75.9	.772				
	Length	Rural	12	123.8	.965	2.344	26	.027	.750
		Urban	16	123.0	.730				
	Weight	Rural	12	30.1	2.843	4.148	26	.001	3.208
		Urban	16	26.9	1.088				
	BMI	Rural	12	19.6	1.896	3.812	26	.001	1.889
		Urban	16	17.8	.531				

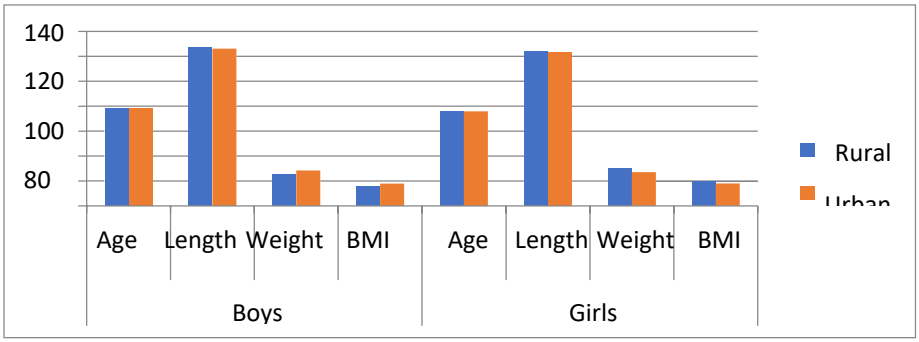


Figure 1. Statistics and equivalence of Subjects

Table (1) indicates that there were no age differences between the members of the research sample from rural and urban boys and girls. Rural subjects were slightly taller than urban subjects and this difference was significant. The average weight of urban boys (28.4) was greater than that of rural boys (25.3), whereas the average weight of rural girls (30.1) was greater than that of urban (28,4). And based on this differences in mean weight and height, there was a difference in mean BMI (urban boys 17.9 , rural boys 15.7 , urban girls 17.9 , rural girls 19.6).

The differences in anthropometric variables between regions were mainly due to cultural differences and social customs between rural and urban people.

TGMD-2 Description:

The Test of Gross Motor Development-2 (TGMD-2) (Ulrich, 2000) is a qualitative measure assesses movement competence in six locomotor skills(L) (run, hop, slide, gallop, leap, horizontal jump) and six object control skills(O) (striking a stationary ball, stationary dribble, catch, kick, overhand throw, underhand roll) (Appendix A). Each child completes all 12 skills of the TGMD-2. Each skill was scored against performance criteria prescribed in the test instruction (3–5 criteria per skill). The assessment can typically be completed within 20-30 minutes per child. This test has both norm- and criterion-referenced characteristics that can measures the movement competence in children from 3- 10 years of age.

Tools:

- Masking tape, chalk, traffic cones, or other marking devices.
- Beanbag
- Batting tee
- 4 inch light-weight ball
- Plastic bat
- 8-10 inch playground ball
- 6-8 inch sponge ball
- 8-10 inch plastic or slightly deflated
- playground ball
- Tennis ball

Exploratory study

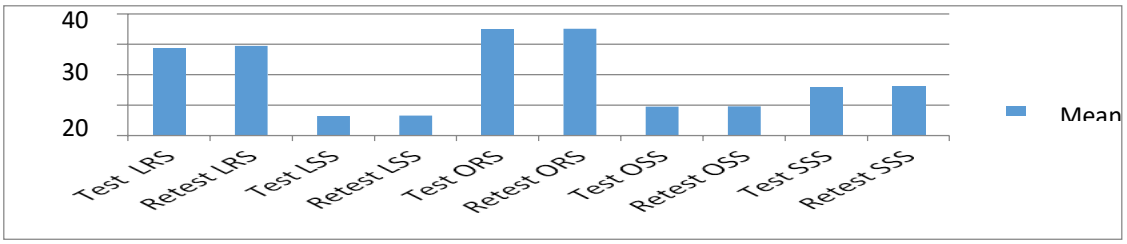
There are several evidences for the reliability of the TGMD-2 as cross-cultural studies in Australia, Belgium, Brazil, Chile, China, Iran, Philippine, South Korea, and many other countries for typically developing children and children with special needs. Although there are evidences of reliability of the TGMD-2 all over the world, it should be considered the sociocultural differences in children in Egypt. The purpose of this exploratory study was: 1- Investigate the reliability of the TGMD-2 for assessing the movement competence of Egyptian children. 2-To ensure that the test is understood and correctly applied.

Subjects in this study were conducted with 20 children (10 boys, 10 girls) from Cairo city. The characteristics of the subjects were age: 6.4 ± 0.3 years, height: 124.5 ± 7.0 cm, weight: 24.4 ± 2.5 kg. The exclusion criteria were children with known developmental disability (e.g. Cerebral palsy, Down's syndrome, Autism Spectrum Disorder, Attention Deficit Hyperactive Disorder), obvious deformity (e.g. scoliosis, bow leg), and orthopedic injury in both upper and lower extremities within six months. 20 children were randomly selected to be asked to perform all the required skills. The performance of each child was video recorded and assessed with TGMD-2 test. After 3 weeks, the TGMD-2 test was reapplied on the same 20 children. The reliability of the TGMD-2 was calculated by test-retest reliability. The results presented no differences between the sample results in Day 1 and Day 2 assessments after 3 weeks, which indicatesthe validity of the TGMD-2 test for use.

Table 2. Test-retest statistics

	Descriptive Statistics						T-test for Equality of Means			
	N	Minimum	Maximum	Mean	Std. Deviation	Coeff. Of variations	T	Df	Sig.	Mean Difference
Test LRS	20	22	36	28.85	4.902	17.0%				
Retest LRS	20	22	36	29.45	4.639	15.8%	2.04	19	0.055	0.6
Test LSS	20	4	9	6.40	1.698	26.5%				
Retest LSS	20	4	9	6.55	1.605	24.5%	1.37	19	0.18	0.15
Test ORS	20	26	43	34.95	5.871	16.8%				
Retest ORS	20	26	43	35.10	6.129	17.5%	0.68	19	0.51	0.15
Test OSS	20	7	11	9.50	1.100	11.6%				
Retest OSS	20	7	11	9.60	1.142	11.9%	1	19	0.33	0.1
Test SSS	20	15	19	16.00	1.214	7.6%				
Retest SSS	20	15	19	16.15	1.268	7.9%	1.37	19	0.19	0.15

LRS:Locomotor Raw Scores, LSS:Locomotor Standard Scores, ORS:Object Control Raw Scores, OSS: Object Control Standard Scores, SSS: Sum of Standard Scores



Procedure: **Figure 2.** Test-retest statistics
LRS:Locomotor Raw Scores, LSS:Locomotor Standard Scores, ORS:Object Control Raw Scores, OSS: Object Control Standard Scores, SSS: Sum of Standard Scores

Procedures data collected on the school's playground.

- The environment was organized before starting the test. All materials required for testing were prepared in advance.
- Each skill was demonstrated by the instructor, and then the child performed 3 trials of each motor skill. The first trial was performed in order to make sure that the child had understood what was required, and the next two attempts of each motor skill was evaluated .
- Children performances were recorded in the sagittal plane, using a digital video camera (Cyber-Shot DSC-H20, 10.1 megapixels). The cameras' arrangement was based upon previous studies. In order to do so, a digital camera was positioned in a half of the court in such way that it was possible to videotape the participants, in the sagittal plane, performing the run, gallop, hop, leap, horizontal jump, and slide tasks. Another digital camera was positioned in the other half of the court allowing videotaping the participants' sagittal plane performing the striking a stationary ball, stationary dribble, catch, kick, overhand throw, and underhand roll tasks.
- The children's video performances were evaluated by the experimenter in slow motion using Media Player Classic (free download software). Theskills were assessed based on 3 to 5 qualitative criteria wherein assigned a score of 1 (one) to performances that meet the specific skill criteria andscore of 0 (zero) to performances that did not meet the criteria. This procedure was

completed for each of the trials, and scores were summed to obtain a total raw skill score. Raw skill scores were then added to obtain a raw locomotor subtest score and a raw object control subtest score.

- This total for each subtest, following the TGMD-2 instructions, was considered the raw scores for the locomotor and object control subtests separately.
- Row score is the total number of performance criteria scored correct for a subtest. It calculated by summing the results of the 24 locomotor and 24 object control criteria, respectively.
- For comparison between groups, the raw score was converted to a standard score using TGMD-2 published performance criteria by age for locomotor and by sex and age for object control.

Standardization:

The TGMD-2 test has been shown and established as a valid and reliable measure to assess fundamental movement patterns of children (Ulrich, 2000)(19). This test is well-standardized assessment tool to measure the gross motor skill development of the children with and without disabilities (19), and it has been widely used. The TGMD-2 was confirmed content-description validity, criterion prediction validity and construct-identification validity. Content-description validity and Criterion prediction validity was confirmed (19).

Standardized procedures included:

- In this study, the original English version of the TGMD-2 examiner's record forms was used and the assessment procedures were done according to the standardized guidelines of the TGMD-2.
- An accurate demonstration and verbal description of the skill to the participants prior to performing the skills.
- A practice trial to confirm understanding.

- Providing an additional demonstration of the skill if the child did not understand the performance criterion.
- Two test trials with performance scores for each trial as outlined in the guide (Ulrich 2000).
- The TGMD-2 was administered (Information, demonstration and evaluation) by the previously trained instructors who followed the standard testing procedures.
- Children's trials were evaluated by three different instructors (Their average score was recorded for each skill).

Statistical Methods

The collected data were treated with independent "t" test at 0.05 level of significant.

- **Results:**

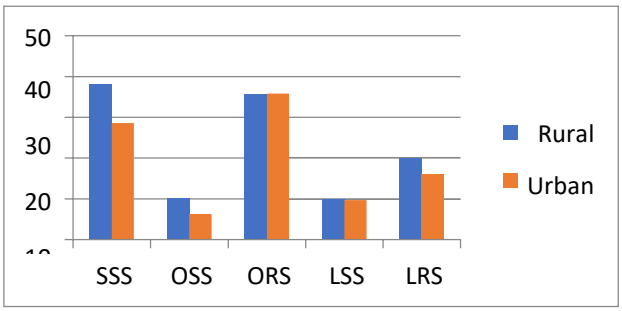
To identify the effect of the geographical area on the movement competence, the results of the rural children group were compared with the results of the urban children in the TGMD-2 test. Table (3) details the results of this comparison including the raw scores (RS), Standard Scores (SS) and Sum of Standard Scores (SSS) for Locomotor and Object control Subtests.

Table (3) and Figure (3) show the results between rural and urban children. The significant differences were found on SSS (Sum of Standard Scores) which represents the final result of the TGMD-2 test (t:12.021)(rural: mean=20.1 , urban: mean=16). But when observing the subtest result we will notice significant differences on LRS (t:6.968)(rural: mean=38.2, urban: mean=28.6) and LSS (t:6.807)(rural: mean=10.2, urban: mean=6.3), while there were no significantdifferences on ORS (t:0.04)(rural: mean=35.7, urban: mean=35.8) or OSS (t:0.481)(rural: mean=20.1, urban: mean=9.7).

Table 3. Comparison of movement competence between Rural and Urban

Descriptive Statistics					T-test for Equality of Means			
Region		N	Mean	Std. Deviation	t	df	Sig.	Mean Difference
LRS	Rural	25	38.2	5.979	6.968**	58	.001	9.571
	Urban	35	28.6	4.659				
LSS	Rural	25	10.2	2.809	6.807**	58	.001	3.903
	Urban	35	6.3	1.615				
ORS	Rural	25	35.7	2.821	0.040	58	.968	0.051
	Urban	35	35.8	5.981				
OSS	Rural	25	9.9	2.139	0.481	58	.633	0.206
	Urban	35	9.7	1.152				
SSS	Rural	25	20.1	1.288	12.021**	58	.001	4.109
	Urban	35	16.0	1.317				

LRS:Locomotor Raw Scores, LSS:Locomotor Standard Scores, ORS:Object Control Raw Scores, OSS: Object Control Standard Scores, SSS: Sum of Standard Scores



LRS:Locomotor Raw Scores, LSS:Locomotor Standard Scores, ORS:Object Control Raw Scores, OSS: Object Control Standard Scores, SSS: Sum of Standard Scores

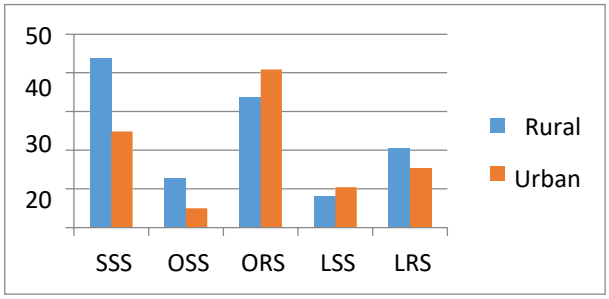
Figure 3. Comparison of movement competence between rural and urban

Table (4) and Figure (4) show the results between rural and urban boys. Thesignificant differences were found on LRS (t: 33.5) (rural: m=43.69, urban: m=24.79), LSS (t: 25.3) (rural: m=12.69, urban: m=4.95), ORS (t: 10.7) (rural: m=33.62, urban: m=40.89), OSS (t: 9) (rural: m=8, urban: m=10.42) and SSS (t: 13.3) (rural: m=20.69, urban: m=15.37).

Table 4. Comparison of TGMD-2 result between rural and urban boys

		Boys Statistics			T-test for Equality of Means			
region		N	Mean	Std. Deviation	t	df	Sig.	Mean Difference
LRS	Rural	13	43.69	1.032	33.5**	30	0.01	18.9
	Urban	19	24.79	1.843				
LSS	Rural	13	12.69	1.032	25.3**	30	0.01	7.8
	Urban	19	4.95	.705				
ORS	Rural	13	33.62	1.938	10.7**	30	0.01	7.3
	Urban	19	40.89	1.853				
OSS	Rural	13	8.00	.707	9**	30	0.01	2.4
	Urban	19	10.42	.769				
SSS	Rural	13	20.69	1.251	13.3**	30	0.01	5.3
	Urban	19	15.37	1.012				

LRS:Locomotor Raw Scores, LSS:Locomotor Standard Scores, ORS:Object Control Raw Scores, OSS: Object Control Standard Scores, SSS: Sum of Standard Scores



LRS:Locomotor Raw Scores, LSS:Locomotor Standard Scores, ORS:Object Control Raw Scores, OSS: Object Control Standard Scores, SSS: Sum of Standard Scores

Figure 4. Comparison of TGMD-2 result between rural and urban boys

Table (5) and Figure (5) show the results between rural and urban girls. The significant differences were found on ORS (t: 11.7) (rural: m=38, urban: m=29.69),OSS (t: 9.9) (rural: m=12, urban: m=8.88) and SSS (t: 6.1) (rural: m=19.42, urban: m=16.69). While there were no significant differences on LRS (t: 1.3) (rural: m=32.25, urban: m=33.19) or LSS (t: 1.6) (rural: m=7.42, urban: m=7.81)**.**

Table 5. Comparison of TGMD-2 result between rural and urban girls

Girls Statistics					T-test for Equality of Means			
region		N	Mean	Std. Deviation	t	df	Sig.	Mean Difference
LRS	Rural	12	32.25	1.603	1.3	26	0.205	0.94
	Urban	16	33.19	2.073				
LSS	Rural	12	7.42	.515	1.6	26	0.129	0.4
	Urban	16	7.81	.750				
ORS	Rural	12	38.00	1.537	11.7**	26	0.01	8.3
	Urban	16	29.69	2.056				
OSS	Rural	12	12.00	.603	9.9**	26	0.01	3.1
	Urban	16	8.88	.957				
SSS	Rural	12	19.42	.996	6.1**	26	0.01	2.7
	Urban	16	16.69	1.302				

LRS:Locomotor Raw Scores, LSS:Locomotor Standard Scores, ORS:Object Control Raw Scores, OSS: Object Control Standard Scores, SSS: Sum of Standard Scores

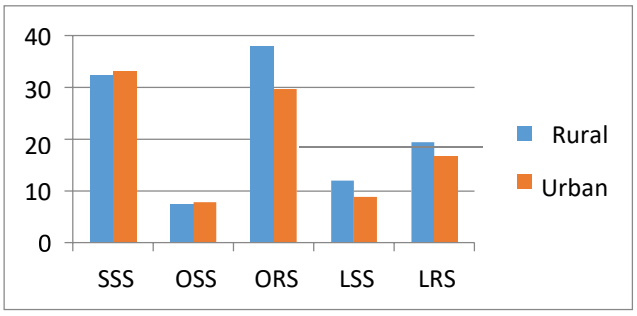


Figure : LRS:Locomotor Raw Scores, LSS:Locomotor Standard Scores, ORS:Object Control Raw Scores, OSS: Object Control Standard Scores, SSS: Sum of Standard Scores

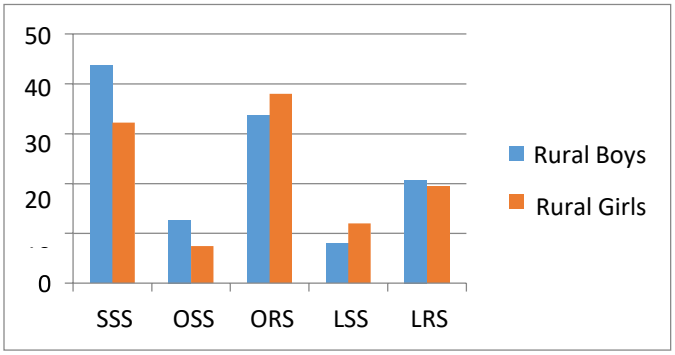
Figure 5. Comparison of TGMD-2 result between rural and urban girls

Table (6) and Figure (6) show the results between rural boys and girls. The significant differences were found on LRS (t:21.4) (boys: m=43.69, girls: m=32.25), LSS (t:16) (boys: m=12.69, girls: m=7.42), ORS (t:6.2) (boys: m=33.62, girls: m=38), OSS (t:15.2) (boys: m=8, girls: m=12) and SSS (t:2.8) (boys: m20.69=, girls: m=19.42).

Table 6. Comparison of TGMD-2 result between rural boys and girls

Rural Statistics					T-test for Equality of Means			
Gender		N	Mean	Std. Deviation	t	df	Sig.	Mean Difference
LRS	Boys	13	43.69	1.032	21.4**	23	0.01	11.4
	Girls	12	32.25	1.603				
LSS	Boys	13	12.69	1.032	16**	23	0.01	5.3
	Girls	12	7.42	0.515				
ORS	Boys	13	33.62	1.938	6.2**	23	0.01	4.4
	Girls	12	38.00	1.537				
OSS	Boys	13	8.00	0.707	15.2**	23	0.01	4
	Girls	12	12.00	0.603				
SSS	Boys	13	20.69	1.251	**			
	Girls	12	19.42	0.996				

LRS:Locomotor Raw Scores, LSS:Locomotor Standard Scores, ORS:Object Control Raw Scores, OSS: Object Control Standard Scores, SSS: Sum of Standard Scores



LRS:Locomotor Raw Scores, LSS:Locomotor Standard Scores, ORS:Object Control Raw Scores, OSS: Object Control Standard Scores, SSS: Sum of Standard Scores

Figure 6. Comparison of TGMD-2 result between rural boys and girls

Table (7) and Figure (7) show the results between urban boys and girls. The significant differences were found on LRS (t:12.7) (boys: m=24.79, girls: m=33.19), LSS (t:11.6) (boys: m=4.95, girls: m=7.81), ORS (t:16.9) (boys: m=40.89, girls: m=29.69), OSS (t:5.3) (boys: m=10.42, girls: m=8.88) and SSS (t:3.4) (boys: m=15.37, girls: m=16.69).

Table 7. Comparison of TGMD-2 result between urban boys and girls

Urban Statistics					T-test for Equality of Means			
Gender		N	Mean	Std. Deviation	t	df	Sig.	Mean Difference
LRS	Boys	19	24.79	1.843	12.7**	33	0.01	8.4
	Girls	16	33.19	2.073				
LSS	Boys	19	4.95	.705	11.6**	33	0.01	2.9
	Girls	16	7.81	.750				
ORS	Boys	19	40.89	1.853	16.9**	33	0.01	11.2
	Girls	16	29.69	2.056				
OSS	Boys	19	10.42	.769	5.3**	33	0.01	1.6
	Girls	16	8.88	.957				
SSS	Boys	19	15.37	1.012	3.4**	33	0.02	1.3
	Girls	16	16.69	1.302				

Table : LRS:Locomotor Raw Scores, LSS:Locomotor Standard Scores, ORS:Object Control Raw Scores, OSS: Object Control Standard Scores, SSS: Sum of Standard Scores

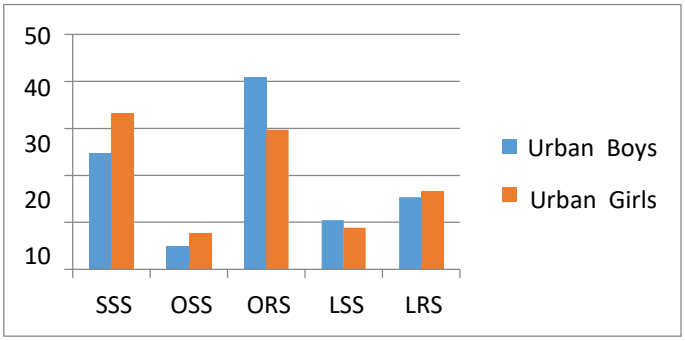


Figure : LRS:Locomotor Raw Scores, LSS:Locomotor Standard Scores, ORS:Object Control Raw Scores, OSS: Object Control Standard Scores, SSS: Sum of Standard Scores

Figure 7. Comparison of TGMD-2 result between urban boys and girls

Discussion

Within the limits of this research sample, the results in Table 3 indicate (in general) to a statistically significant superiority of rural children over urban children in the gross movement competence test scores. This means that the movement competence of elementary school children age 6-7 year-old in Egypthad a different tendency across the geographical regions (urban and rural areas).

It is worth noting that when looking separately at the results of subtest (Locomotor and Object Control skills), we will find that there are aspects that mustbe taken into account, as Table (3) indicates that rural children have more movement competence for locomotor skill than urban children, whereas there are no significant differences between them for object control skill.

The researcher attributes the superiority of rural children over urban children in locomotor skills to availability of large and safe spaces for rural children to practice movement in a large way, which is what the urban child lacks.

In other words the reason for the superiority of rural children over urban children in general movement competence especially the locomotor skills may be due to the lack of easy transportation or to the lack of use of technology in general. Thus, children walk to school instead of being driven, or play outside instead of play in the front of a monitor, so children in rural areas are more physically active and have various options to choose than urban area children. These, in turn will gradually improve their movement competence.

When we compared the movement competence between rural and urban boys in the subtest (Locomotor and Object Control skills), Table (4) indicated that the results of rural boys were better than urban boys in Locomotor skills, while urban boys were better than rural boys in Object Control skills. But when we compared between rural and urban girls, Table (5) indicated that the

results of rural girls were better than urban girls in Object Control skills, while there were no significant differences between them in locomotor skills.

And for gender comparison, the general results indicated that boys were superior to girls in the rural region table (6), while girls were superior to boys in the urban region table (7). But when looking at the results of the subtest separately,we find a statistically significant superior of rural boys over rural girls in locomotor skills, while rural girls surpassed rural boys in Object Control skills. On the contrary, we find a statistically significant superior of urban boys over urban girls in Object Control skills, while urban girls surpassed urban boys in locomotor skills.

Looking at the results of this research, we find that it raises many questions. Why are urban boys better than rural boys in Object Control skills? , Why are ruralgirls better than urban girls in Object Control skills? , why are rural girls betterthan rural boys in Object Control skills? Why are urban girls better than urban boys in locomotor skills? , why are urban boys better than urban girls in object control skills? And finally why are urban girls better than urban boys in the gross movement competence test scores? We need more studies to answer these important questions.

When comparing the results of this study with previous studies conducted in other countries, we found that there are some differences in the results. There were studies that have indicated differences between rural and urban children and between boys and girls, while other studies have indicated that there are no differences. So we can say that every country has different level of children's movement competence according to their geographical region, culture of the society and may be nutrition. This implies the necessity for each country to build movement education programs linked to the needs of its children.

The mastery of movement competence for children is not only beneficial for them during childhood, but also helpful for them during middle and high school to be physically active throughout their life and to be actively engaged in sports.

Conclusion:

- The nature of the geographical area affects the movement competence ofchildren.
- There were significant differences between urban and rural Egyptian childrenaged 6-7 years in movement competence.
- The rural children found to be better on locomotor skills when compared with

urban children.

- Boys found to be better on movement competence when compared with girls in rural region.
- Girls found to be better on movement competence when compared with boys in urban region.

Recommendations:

- Based on this finding, it is essential to do a larger scale, even a national scale assessment for children's motor skills with a larger Subjects size and different age group in order to be able to design a movement education programs linked to the needs of our children.
- The Egyptian government should pay more attention to urban children.
- A larger scale of assessment of children's movement competence in Egypt should be conduct

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