

Complex Coordinative Abilities as an Indicator for Selection of Youngsters

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Abstract: The present research aims at identifying the levels of complex coordinative abilities in children aged 9.5-10 who are applying for the National Project for the Preparation of Youngsters as a selection indicator. The researchers used the descriptive method as it suits the nature of this research. The study was conducted on a sample of 60 children randomly drawn from among the children applying for the National Project for the Preparation of Youngsters from three governorates, i.e., Sohag, Assiut and Hurghada (20 children from each governorate). To collect data for the study, the researchers used the Complex Coordinative Abilities Test designed by Kassel University in Germany in 1996, which assesses five coordinative abilities simultaneously under time pressure. The sample under study was assessed using the same specifications of the test during the period from 11/04/2009 to 23/04/2009. One of the most important results is that the times achieved by the children under study were relatively modest compared with the European criteria. The researcher recommends the inclusion of the Complex Coordinative Abilities Test in the tests administered to select the children applying for the National Project for the Preparation of Youngsters and development of programs to train children aged 6-10 in coordinative abilities, as this stage is best stage for developing these abilities and is of great importance for achievement in all sports.

Key words: Complex Coordinative Abilities • Indicator • The Selection of Youngsters

INTRODUCTION

Childhood is considered one of the most important stages in man's life. During this stage, a child's abilities develop and his talents mature and s/he gets manageable and docile. This makes the early years crucial for his/her future as they have a profound effect on his/her lifelong formation. This also makes the attention paid to childhood one of the most important criteria against which the progress of any society is measured [1].

Training of youngsters is of great importance as it is an indispensable requirement for achieving future accomplishments. Therefore, all potential repertoires must be detected when preparing this stage and must be effectively made use of in the sports training process to raise sports achievement level [2].

Complex coordinative abilities represent one of the key physical abilities which affect the speed of sports performance development. These complex abilities must be addressed as they, along with other physical abilities,

effectively influence performance. [3, 4]. Complex coordinative abilities consist of reaction, diversification, rhythmic control, balance and spatial orientation [5, 6].

Coordinative abilities serve the formation of the overall movement from partial movements in a consistent and coordinated way. If these movements are coordinated, we can achieve the highest level of general motor coordination needed for the performance of motor skills, as they are considered general motor and psychological conditions for sports achievement through which an individual can control motor performance in all sports activities [7]. Motor capacities and excellent available for motor orientation, which are components of coordinative abilities, have important aspects for physical-sports achievement ability [8]. That through having a wide motor coordinative base, the high functioning of the body organs, the nervous system and muscles and the multiple motor experiences, specially in the first years of life, technical performance can be learned faster and more effectively [9].

This is what the researchers seek in this research to try to make available a complex coordinative abilities base in children applying for the National Project for the Preparation of Youngsters in the governorates of Egypt. These complex coordinative abilities is to be used as an indicator for the selection of these children applying for participation and continuing in this national project to prepare them as a nucleus in all specialized sports to represent Egypt in Arab, continental and international circles.

The National Project for the Preparation of Youngsters is a project sponsored by the National Sports Council, where school children aged 10 are tested in a series of separate tests (each test assesses an element of physical fitness) and the best children are selected according to their scores on the tests to join the national project in order to train and prepare them physically for a year (12 months), after which they are assigned to the individual sports listed according to a set of tests to which the participating children are subjected under the supervision of the supreme committee.

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The researchers noticed that all the tests administered to the children do not address complex coordinative abilities, despite their importance for achievement in all types of sports. This led the researchers to conduct the present study to use complex coordinative abilities which are assessed under time pressure, in addition to the tests which assess other physical abilities, as they complement each other.

Research Objective: The present research aims at identifying the level of complex coordinative abilities in children aged 9.5-10 who applied for the National Project for the Preparation of Youngsters as a selection indicator.

Research Question: What is the level of complex coordinative abilities which the children applying for the National Project for the Preparation of Youngsters should have?

MATERIALS AND METHODS

Method: The descriptive method was used as it suits the nature of this research.

Population and Sample: The research population involves children aged above 9.5-10. The research sample was randomly selected and it involved 60 children drawn from among the children applying for the National Project for the Preparation of Youngsters in Sohag, Assiut and Hurghada (20 children from each governorate).

Data Collection Tools: To collect data for the study, the following tools were used:

- The Complex Coordinative Abilities Test which was designed by Kassel University in Germany (HKM, LSBH and GHK) 1996 [10] (Appendix 1)

The following scientific coefficients of the test were conducted:

Discriminate validity was used to calculate the validity coefficient of the test used by administering the Complex Coordinative Abilities Test to two groups, one is a non-distinctive group of children of the same age group (9.5-10 years) and the other is a distinctive group of children (aged 12-14), each having 10 children. Results showed that there are statistically significant differences between the two groups, thus indicating the validity of the test for discriminating between the two groups.

The test was administered to a sample of 10 children from the research population and from outside the research sample. Then it was re-administered a week later to calculate the reliability coefficient of the test. Results showed a statistically significant correlation between the first and second administrations, thus indicating the reliability of the test.

30Punkte-Tabelle zur Bewertung sportmotorischer Leistungen von TAG-Kindern der Altersklasse 10

Mädchen							JUNGEN						
Punkte	Ausdauer	Beweglichkeit	Schnellkraft/ Wurf	Schnellkraft/ Sprung	Schnelligkeit/ Sprint	Koordinations- lauf	Punkte	Ausdauer	Beweglichkeit	Schnellkraft/ Wurf	Schnellkraft/ Sprung	Schnelligkeit/ Sprint	Koordinations- lauf
	(Zeit/line (sek) in m)	(Rumpfhöhe in cm)	(Wurfhöhe in m)	(Sprunghöhe in m)	(Spritzzeit in s)	(Fehlerzeit in s)		(Zeit/line (Sek) in m)	(Rumpfhöhe in cm)	(Wurfhöhe in m)	(Sprunghöhe in m)	(Spritzzeit in s)	(Fehlerzeit in s)
0	≤ 828	≤ -15	≤ 3,8	≤ 1,01	≥ 5,25	≥ 77,4	0	≤ 890	≤ -16	≤ 4,1	≤ 1,08	≥ 5,14	≥ 73,9
1	≤ 865	≤ -14	≤ 4,1	≤ 1,04	≥ 5,16	≥ 75,4	1	≤ 931	≤ -15	≤ 4,4	≤ 1,11	≥ 5,07	≥ 72,0
2	≤ 902	≤ -13	≤ 4,4	≤ 1,08	≥ 5,11	≥ 73,4	2	≤ 973	≤ -14	≤ 4,7	≤ 1,15	≥ 5,00	≥ 70,1
3	≤ 939	≤ -11	≤ 4,6	≤ 1,12	≥ 5,04	≥ 71,4	3	≤ 1014	≤ -13	≤ 5,0	≤ 1,19	≥ 4,93	≥ 68,2
4	≤ 977	≤ -10	≤ 4,9	≤ 1,15	≥ 4,97	≥ 69,4	4	≤ 1056	≤ -11	≤ 5,4	≤ 1,22	≥ 4,86	≥ 66,4
5	≤ 1014	≤ -9	≤ 5,2	≤ 1,19	≥ 4,90	≥ 67,4	5	≤ 1097	≤ -10	≤ 5,7	≤ 1,26	≥ 4,79	≥ 64,5
6	≤ 1051	≤ -8	≤ 5,5	≤ 1,22	≥ 4,83	≥ 65,4	6	≤ 1139	≤ -9	≤ 6,0	≤ 1,29	≥ 4,72	≥ 62,6
7	≤ 1088	≤ -6	≤ 5,8	≤ 1,26	≥ 4,76	≥ 63,4	7	≤ 1180	≤ -8	≤ 6,3	≤ 1,33	≥ 4,65	≥ 60,7
8	≤ 1125	≤ -5	≤ 6,1	≤ 1,30	≥ 4,69	≥ 61,4	8	≤ 1221	≤ -7	≤ 6,6	≤ 1,37	≥ 4,58	≥ 59,0
9	≤ 1162	≤ -4	≤ 6,3	≤ 1,33	≥ 4,62	≥ 59,4	9	≤ 1263	≤ -5	≤ 6,9	≤ 1,40	≥ 4,51	≥ 56,9
10	≤ 1200	≤ -3	≤ 6,6	≤ 1,37	≥ 4,55	≥ 57,3	10	≤ 1304	≤ -4	≤ 7,3	≤ 1,44	≥ 4,44	≥ 55,1
11	≤ 1237	≤ -1	≤ 6,9	≤ 1,40	≥ 4,48	≥ 55,3	11	≤ 1348	≤ -3	≤ 7,6	≤ 1,47	≥ 4,37	≥ 53,2
12	≤ 1274	≤ 0	≤ 7,2	≤ 1,44	≥ 4,41	≥ 53,3	12	≤ 1387	≤ -2	≤ 7,9	≤ 1,51	≥ 4,30	≥ 51,3
13	≤ 1311	≤ 1	≤ 7,5	≤ 1,48	≥ 4,34	≥ 51,3	13	≤ 1429	≤ -1	≤ 8,2	≤ 1,55	≥ 4,23	≥ 49,4
14	≤ 1348	≤ 2	≤ 7,7	≤ 1,51	≥ 4,27	≥ 49,3	14	≤ 1470	≤ 0	≤ 8,5	≤ 1,58	≥ 4,16	≥ 47,5
15	≤ 1385	≤ 4	≤ 8,0	≤ 1,55	≥ 4,20	≥ 47,3	15	≤ 1511	≥ 2	≤ 8,8	≤ 1,62	≥ 4,09	≥ 45,6
16	≤ 1423	≤ 5	≤ 8,3	≤ 1,58	≥ 4,13	≥ 45,3	16	≤ 1553	≤ 3	≤ 9,2	≤ 1,65	≥ 4,02	≥ 43,8
17	≤ 1460	≤ 6	≤ 8,6	≤ 1,62	≥ 4,06	≥ 43,3	17	≤ 1594	≤ 4	≤ 9,5	≤ 1,69	≥ 3,95	≥ 41,9
18	≤ 1497	≤ 8	≤ 8,9	≤ 1,66	≥ 3,99	≥ 41,3	18	≤ 1636	≤ 5	≤ 9,8	≤ 1,73	≥ 3,88	≥ 40,0
19	≤ 1534	≤ 9	≤ 9,2	≤ 1,69	≥ 3,92	≥ 39,3	19	≤ 1677	≤ 6	≤ 10,1	≤ 1,76	≥ 3,81	≥ 38,1
20	≤ 1571	≤ 10	≤ 9,4	≤ 1,73	≥ 3,85	≥ 37,3	20	≤ 1719	≤ 7	≥ 10,4	≤ 1,80	≥ 3,74	≥ 36,2
21	≤ 1608	≤ 11	≤ 9,7	≤ 1,76	≥ 3,78	≥ 35,3	21	≤ 1760	≤ 9	≥ 10,7	≤ 1,83	≥ 3,67	≥ 34,3
22	≤ 1646	≤ 13	≤ 10,0	≤ 1,80	≥ 3,71	≥ 33,3	22	≤ 1801	≤ 10	≤ 11,1	≤ 1,87	≥ 3,60	≥ 32,5
23	≤ 1683	≤ 14	≤ 10,3	≤ 1,84	≥ 3,64	≥ 31,2	23	≤ 1843	≤ 11	≤ 11,4	≤ 1,91	≥ 3,53	≥ 30,6
24	≤ 1720	≤ 15	≤ 10,6	≤ 1,87	≥ 3,57	≥ 29,2	24	≤ 1884	≤ 12	≤ 11,7	≤ 1,94	≥ 3,46	≥ 28,7
25	≤ 1757	≤ 16	≤ 10,9	≤ 1,91	≥ 3,50	≥ 27,2	25	≤ 1926	≤ 13	≤ 12,0	≤ 1,98	≥ 3,39	≥ 26,8
26	≤ 1794	≤ 18	≤ 11,1	≤ 1,94	≥ 3,43	≥ 25,2	26	≤ 1967	≤ 14	≤ 12,3	≤ 2,01	≥ 3,32	≥ 24,9
27	≤ 1831	≤ 19	≤ 11,4	≤ 1,98	≥ 3,36	≥ 23,2	27	≤ 2009	≤ 16	≤ 12,6	≤ 2,05	≥ 3,25	≥ 23,0
28	≤ 1869	≤ 20	≤ 11,7	≤ 2,02	≥ 3,29	≥ 21,2	28	≤ 2050	≤ 17	≤ 12,9	≤ 2,09	≥ 3,18	≥ 21,1
29	≤ 1906	≤ 21	≤ 12,0	≤ 2,05	≥ 3,22	≥ 19,2	29	≤ 2091	≤ 18	≤ 13,3	≤ 2,12	≥ 3,11	≥ 19,3
30	1906 <	21 <	12,0 <	2,05 <	3,22 >	19,2 >	30	2091 <	18 <	13,3 <	2,12 <	3,11 >	19,3 >

Appendix 2: Norms of Complex Coordinative Abilities Test

Purpose of the Test: Assessing the level of complex coordinative abilities in children aged 6-10 under time pressure. These abilities include:

- Reaction.
- Diversification
- Rhythmic control
- Balance
- Spatial orientation

Performance Method: The performance specified later on is done according to the course drawn as follows:

When the starting signal is given, the child runs towards the first funnel to make a whole turn round it, then goes to station 1 to pass below the barrier and climb on the Swiss chair to perform balance walk to the end of the chair. Then s/he makes a whole turn, jumps to get down and then runs towards the barrier to surpass it. After that, s/he runs towards the second funnel. When s/he reaches it, s/he makes a whole turn to go to station 2 to pass below the barrier. Then s/he hops through the hoops in the following order: left / left / right / both legs / both legs / right / right / left / right. Then s/he runs fast towards the third funnel and when s/he reaches it, s/he makes a whole turn round it to go to station 3, then s/he passes below the barrier and climbs up the steps of the

divided boxes, one part, then two parts, then three parts. Then s/he walks on the box till s/he reaches its end. After that, s/he hops and falls on a mat, then s/he returns quickly to jump over the barrier to go to the fourth funnel and when s/he reaches it, s/he makes a whole turn and then moves fast to the end.

Scoring Method: Performance time is calculated according to the specified course through two trials and the best trial time is to count.

RESULTS AND DISCUSSION

After the administration of the test to the research sample, statistical manipulations were conducted to identify the level of complex coordinative abilities in children aged above 9.5-10 who are applying for the National Project for the Preparation of Youngsters, then their level was compared with that of their peers of the same age group against the European criteria (Table 1).

The above table shows that the best performance times on the Complex Coordinative Abilities Test for the research sample were in Sohag, as the mean time was 31.6 sec., followed by Assiut (35.20 sec.) and finally Hurghada (36.20 sec.). The mean performance time for the total sample was 34.33 sec.

Table 1: Mean Scores, Standard Deviation and Standard Scores of the Research Sample on the Complex Coordinative Abilities Test (N = 60)

Governorate	Number	M	SD	Score (30)
Sohag	20	31.6	2.39	22
Assiut	20	35.20	1.82	20
Hurghada	20	36.2	1.50	20
Total	60	34.33	2.75	21

Comparison of these times with the standard tables prepared for this test shows that the mean standard score for performing this test is 21/30, as the total score for performing this test under time pressure is 30.

The researchers see that these results are relatively modest compared with the results of the same age group in the Republic of Germany. The researchers think that this may be due to neglecting the training of children in the early stages of life in coordinative abilities despite their paramount importance at this stage for building sports achievement in the future of every kind of sport.

This result is consistent with the results reached by Hirtz [8] who found a direct relation between the development of coordinative abilities and kinesiology which is important in childhood.

CONCLUSION

Within the limits of the method used, the sample on which the present research was conducted and the results reached by the study, the researchers concluded the following:

- The level of the children aged 9.5-10 in complex coordinative abilities is considered modest compared with that of their peers in European countries.
- The best level on the Complex Coordinative Abilities Test was achieved by the children of Sohag, followed by Assiut, then Hurghada.

Recommendations:

- Using a complex coordinative abilities test battery as an indicator for the selection of children participating in the National Project for the Preparation of Youngsters.
- Developing training programs for children aged 6-10 to help them acquire coordinative abilities at young age, as they are of great importance for achievement in different sports.

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