15 - BODY COMPOSITION AND CONDITIONAL CAPACITIES

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INTRODUCTION

This research work is highly relevant to the community of the city of Armenia, and that through the implementation of the procedure, we determined that the present development status conditional capacities of young schoolchildren and body composition and its corresponding relationship .

To some extent, there is a perception of social alarm about the changing habits of young people, mechanization and modern technology in its various variants developed in recent decades, have made them to be less physically active, carrying other damages as a sedentary lifestyle, leisure healthily, increased cholesterol and body fat, so favoring chronic diseases.

For this reason you should pay particular attention to young people in school ages, they constitute a population of utmost importance to society as a basis for future production and as a group vulnerable to the influences and general consumer lines from the social and progressive perspective where a sedentary lifestyle and bad habits are gaining space, wreaking havoc on a functional level, leaving physical and organic result in multiple diseases in young people.

This reality is largely constructed by the uncontrolled use of some technologies, video games, systems of mass communication, social networking pages and limiting physical activity of students and cover more free time than the school day, away entirely on the sports and recreation offered by the company.

Given this situation, it is necessary to determine body composition and level of conditional capabilities of high school students from public institutions of Armenia, to evaluate the condition of their development and be aware if overuse of the technology is leading more sedentary lifestyles.

It is necessary to speak of body composition that has been divided into body compartments, which are purely morphological, as each has different physiological aspects, in order to be studied in greater detail and accuracy Rodriguez & et.al. (1998) among the evaluated parameters are: the height, weight, skinfolds.

Regarding defined as conditional capacities innate physiological predispositions people according Quesada (2003), and are therefore essential constituent for providing driving and sports, with the possibility of being improved and measures, allowing movement and tone stance, in which the resistance were evaluated conceived as the ability to withstand physical and mental fatigue efforts against relatively long and / or fast recovery capacity after effort. Zintl Fritz (1991). The force defined as the ability to generate tension intramuscular et Bennassar under specific conditions. al (2003), the ability velocidadentendida complex as derived from a set of functional properties (strength and coordination) for adjusting, based on existing temporal parameters, activation of cognitive and functional individual to elicit an optimal motor Bennassar et. al (2003) designed as flexibility and the ability to adapt to bodies of certain shape, without breaking, this feature is usually attributed to the joint complex, while the elasticity is the ability to deform and recover its original form, attributing to muscles Andujar et. al. (1996), each with its respective classification, and evaluate it as evolution by age group.

Based on the above, the research was the objective to determine body composition and conditional capabilities level high school students of public institutions of Armenia and within the specific student population identify level of flexibility, strength, speed and resistance, identify fat percentage of students tested, to assess height and weight data and compare regional, national and international level and identify the relationship of the different variables.

Based on the above, the research was the objective to determine body composition and conditional capabilities level high school students of public institutions of Armenia and within the specific student population identify level of flexibility, strength, speed and resistance, identify fat percentage of students tested, to assess height and weight data and compare regional, national and international level and identify the relationship of the different variables.

MATERIAL AND METHODS

The study was conducted within the explanatory approach, cross-sectional data collected by Quese in a moment, in a unique time, descriptive, which sought to specify the characteristics and profiles of people who were subjected to an analysis that is , were measured and evaluated on different data variables; correlational type where each variable is presumably related measured and then analyzed the correlation.

The population of all high school students in public institutions of Armenia was 23,212 for the year 2011.La sample consisted of 1150 students who were selected by clusters or cluster, to an estimated error of 3% and a level of 95% confidence. margins presented in this research.

The technique was direct observation and manual data entry. The instrument of data collection as the researcher developed where different data were collected in a spreadsheet to then pass it to the database in Excel XP version 2007.

The procedure initially design a battery of tests for the assessment of height, weight, BMI, fat percentage and conditional capabilities, then the format was developed to collect the data, the assistants were later used and scorers. Later the pilot and proceeded to the selection of the population that participated in the study. Finally we applied the test battery and performed the analysis and discussion of the data obtained.

Anthropometric measurements taken were height, weight, fat folds triceps, subscapular and half leg. The assessment was made conditional capabilities for flexible cord and hamstring muscles (Wells and Dillon test) for lower body explosive strength (long jump without run-up), acceleration capacity (20mts test career the first tread) and endurance (LucLeger test).

PLAN INFORMATION ANALYSIS

The database was developed in the 2007 version of Excel program, which calculated measures of central tendency (mean and standard deviation). In this same program were calculated correlations, percentiles and percentages of adequacy.

ANALYSIS AND DISCUSSION OF RESULTS

Table 1. Variables evaluated body composition

	PESO		TALLA		IMC		PORCENTAJE DE GRASA	
	X	DS	X	DS	X	DS	X	DS
General	**48,66**	**10,90**	1,70	4,79	19,95	3,29	17,96	9,48
HOMBRES	49,35	12,17	1,58	0,12	19,45	3,22	10,97	7,54
Hombres 10	28,92	2,76	1,35	0,04	15,72	0,56	7,48	1,77
Hombres 11	35,24	8,12	1,40	0,06	17,76	3,26	12,42	7,44
Hombres 12	40,19	7,59	1,47	0,08	18,52	2,67	12,73	8,32
Hombres 13	45,32	8,13	1,55	0,08	18,75	2,53	11,57	5,92
Hombres 14	48,29	8,80	1,59	0,09	19,21	2,61	11,32	6,43
Hombres 15	54,50	11,00	1,64	0,08	20,23	3,64	12,50	9,38
Hombres 16	56,89	7,95	1,67	0,05	20,45	2,75	7,88	6,25
Hombres 17	58,71	10,53	1,69	0,07	20,46	2,87	8,08	6,61
Hombres 18	60,00	13,52	1,67	0,08	21,33	3,71	9,99	7,08
Hombres 19	54,61	5,14	1,67	0,07	19,60	0,87	5,62	2,25
Hombres 20	63,83	4,05	1,72	0,05	21,70	2,72	8,71	6,68
MUJERES	47,98	9,42	1,70	4,79	20,36	3,22	23,92	6,54
Mujeres 10	32,15	5,21	1,53	0,07	17,27	2,66	17,71	4,43
Mujeres 11	36,91	6,53	1,36	0,03	17,76	2,48	20,42	5,05
Mujeres 12	44,35	8,99	1,44	0,08	19,60	1,59	22,00	2,80
Mujeres 13	46,59	7,59	1,50	0,06	20,02	2,75	22,51	6,07
Mujeres 14	49,67	8,51	1,52	0,07	20,50	3,20	24,53	6,59
Mujeres 15	49,80	7,82	1,56	0,06	20,77	2,77	25,52	5,69
Mujeres 16	50,74	8,81	1,55	0,06	20,87	3,50	24,36	6,42
Mujeres 17	52,32	9,18	1,56	0,06	21,71	2,99	26,73	7,68
Mujeres 18	55,96	9,41	1,55	0,07	22,90	3,89	27,55	5,71
Mujeres 19	46,93	3,86	1,56	0,06	19,61	0,89	20,86	6,79

Note: In this table X and DS are specified for each variable assessed for body composition

The first test performed is the variable weight percentiles, in which normality is between (41.50 kg and 50.60 kg), for 24.84% of the population is below the normal 36, 6% within normal and 39.09% is at a high level for the population studied.

As for the percentages of fitness for women for weight-for-age at the international level is 48.85% below normal, 35.94% are between the normal ranges and 15.03% are is at a high level.

Weight-for-age nationwide is 34.81% below normal, 41.46% within normal and 23.72% is at a high level for the population studied.

Regarding the adequacy percentages for men for weight-for-age at the international level is 55.42% below normal, 33.71% are between the normal ranges and 10.85% are is at a high level

The weight for age nationwide is 25.60% below normal, 45.32% within normal and 29.06% is at a high level for the population studied.

As the variable size according to the percentiles is within normal those between (149 cm and 162 cm) for the 24.15% population is below normal, 50.39% within normal and 24.41% is at a high level for the population studied.

As for the percentage of adjustment for the case of women's height for age worldwide is 7.85% below normal, 92.14% is between the normal ranges and 0.0% were is at a high level.

The height for age nationwide is 0.68% below normal, 97.78% within normal and 1.53% is at a high level for the population studied.

As for the percentage of adjustment for the case of men's height for age internationally 11.42% is below normal, 88.38% are between the normal range and 0.19% is is at a high level.

The height for age nationwide is 2.64% below normal, 95.51% within normal and 1.83% is at a high level for the population studied.

Within the analysis made in the variable BMI percentiles are, within which normal is between (17.79 kg/m2 and 21.70 kg/m2) for the 25.02% population is below of normal, 49.95% within normal and 25.02% is at a high level for the population studied.

Table 2. Variables evaluated conditional capabilities

	FLEXIBILIDAD		RESISTENCIA		VELOCIDAD		FUERZA	
	X	DS	X	DS	X	DS	X	DS
General	2,26	7,76	41,59	7,29	4,70	7,39	149,68	34,01
HOMBRES	1,34	7,41	45,65	6,98	4,53	10,80	173,14	29,59
Hombres 10	3,96	3,02	46,36	3,05	4,67	0,60	138,22	15,19
Hombres 11	0,36	7,16	46,13	6,26	4,54	0,50	141,59	15,75
Hombres 12	-0,19	6,78	45,78	6,39	4,35	0,43	154,10	22,31
Hombres 13	-1,12	6,60	47,67	6,41	4,03	0,38	167,83	24,56
Hombres 14	1,38	6,68	46,58	6,49	4,05	0,47	170,30	23,64
Hombres 15	1,84	7,79	45,74	7,27	3,98	0,40	181,65	26,45
Hombres 16	3,51	7,53	47,40	7,73	3,83	0,62	190,93	26,04
Hombres 17	2,39	7,77	42,54	7,55	3,87	0,53	194,31	27,11
Hombres 18	2,87	8,70	41,63	8,62	3,88	0,50	188,76	32,69
Hombres 19	4,80	9,03	44,47	8,57	3,83	0,24	195,16	21,33
Hombres 20	2,25	0,16	40,17	6,61	3,48	0,16	215,67	24,29
MUJERES	3,09	7,96	38,05	5,50	4,84	0,66	129,26	22,47
Mujeres 10	1,08	2,89	45,20	3,63	5,14	5,14	111,48	9,44
Mujeres 11	2,06	5,42	42,83	3,80	4,92	4,92	125,23	20,39
Mujeres 12	2,43	10,04	41,03	3,62	4,89	4,89	126,87	7,04
Mujeres 13	1,81	7,37	40,05	4,81	4,77	4,77	130,84	17,81
Mujeres 14	4,69	7,44	38,32	4,49	4,79	4,79	127,99	22,58
Mujeres 15	3,96	7,35	37,86	5,19	4,87	4,87	127,69	28,44
Mujeres 16	2,23	9,28	35,35	4,65	4,83	4,83	132,52	22,50
Mujeres 17	4,24	9,08	34,20	4,86	4,86	4,86	134,67	23,02
Mujeres 18	3,85	7,61	29,70	3,43	5,00	5,00	128,57	16,01
Mujeres 19	7,83	9,57	37,50	8,20	4,53	0,28	133,13	20,92

Note: This table specifies X and DS of each variable evaluated each conditional capacity

The analysis is performed in the variable flexibility are percentiles, within which normality is between (-2.65 cm and 7.35 cm) for the 24.84% population is below the normal 49 , 86% within normal and 24.93% is at a high level for the population studied.

The analysis is performed on the variable resistor are the percentiles, within which normality is between (36.03 ml / kg / min and 46.52 ml / kg / min) for the population is 24.50% below normal by 49.78% within normal and 25.71% is at a high level for the population studied.

One analysis for the variable force percentiles are within the normal which is between (126.50 cm to 173.00 cm) for the 24.84% population is below the normal 49.86 % within normal and 25.28% is at a high level for the population studied.

For the variable speed percentiles analysis, are within the normal (4.0 sg and 4.85 sg) for the 24.58% population is below normal in the 50.39% of normal and 25.02% is at a high level for the population studied.

CONCLUSIONS

- Around the females and in the assessment of aerobic endurance, but results were below the regional rate at 12 and 18 years of age in the other age groups valued always presented trend toward superiority in performance of this quality for girls in the city of Armenia.

- In accordance to the theory, the female gender has better flexibility rates than men, but in this study it was found that at 10 and 16 years outperformed men compared to women, a situation that leaves a discrepancy of assessment of the effect of exercise on the development of physical conditionals.

- According to the study, the women of the city of Armenia, showed that their rates of weight at all ages are valued below the international average, ie approaching more to maintain an ideal weight for age, but also compared to national and regional data, we found a superior valued indices referring to weight, except for the 16 and 17 where the results are presented below the national benchmark.

REFERENCES

1. Physical activity and health for life. EditorialKinesis. First Edition. Armenia-Colombia. p.256. ISBN :958-9401-74-0. 2003

2. Montoya Alvarez, Oscar Eduardo Martinez Gutierrez, Gonzalo Alberto and research teaching Sánchez Muñoz, Oscar Eduardo. Profiles anthropometric and physical conditions of children driving players between 10 and 12 years old, school soccer Quindío University. Armenia. Designation of degree work for a degree in Physical Education and Sports. University of Quindio. Faculty of Education. 2010

3. Bastos, A. A., Gonzalez Boto, R., Miller González, O. and Valley Salguero, A. Obesity, Nutrition and Physical Activity. International Journal of Medicine and Science of Physical Activity and Sport vol. 5 (18) p. 140-153 2005 [cited June 2011] Doctoral thesis. 2005

4. Bennassar, Marta; Campomar, Michelangelo Forcades, Joan; Galdon, Omar, et.al. basic physical qualities: strength, endurance and speed, manual of physical education and sport: technical and practical activities, Spain: océano.2003

5. Blanco Herrera, Gema, Che Quintal, Mary Chi Dzul, America and Palomo Gil, Edna. Slideshare. Carter and Piaget and Formal Thought adolescence. [Cited March 2011]. Available at: http://www.slideshare.net/gzy/carretero-y-piaget-y-el-pensamiento-formal-de-la -adolescencia.2009

6. Catarina Almeida, Joao Salgado and Daniela Nogueira. Iberoamerican Journal of Psychology and Health. Lifestyle and body weight in a Portuguese community in transition: a study of the relationship between physical activity, dietary habits and body mass index. [Cited June 2011]Available at: http://www.usc.es/suips/Revista/almeida.pdf

7. NATIONAL SURVEY OF NUTRITION SITUATION IN COLOMBIA. Made by the Colombian Family Welfare Institute (ICBF). 2005

8. Manso García, Juan Manuel; Navarro Valdivieso, Manuel Caballero and Ruiz, Jose Antonio. Theoretical basis of sports training. The force at school age. Editorial Gymnos. Colombia. ISBN :84-8013-053-9.

9. Azofeifa Garita, Elmer. MH.Salud Magazine. Motivation and satisfaction of participation in physical activity, exercise and sport. [Cited August 2011] Available at: http://redalyc.uaemex.mx/redalyc/pdf/2370/237017528002.pdf

10. Girona, Sebastian. I crezco.com. preadolescence particular stage. [Cited March 2011] Available: http://www.yocrezco.com/2009/05/pre-adolescencia-etapa-particular.asp. 2009

BODY COMPOSITION AND CONDITIONAL CAPACITIES

ABSTRAC

The purpose of this investigation is expressed by its title: Corporal composition and conditional capacity in high school children in public schools in the city of Armenia, we focus on the quantitive-explanation, in a descriptive, study correlacional and transversal. Court in the population of 23.212 students, we evaluated a representative survey of 1.150, with a level of 95% estimated error of 3%. We used functional test for the conditional training and the protocol of the international Society for the Advancement of Kinanthropometry(ISAK). Following we digited the information in excel XP2007 were we calculated an average, deviation standard (DS) and correlation. The results show that in the average was of (48,66 kg) in the men of (49,35kg) and in the women (47,98 kg). For the size was of (170 cm), for the men (158cm) and the women (153cm). In the case of the physical training for the flexibility the average was (2,26cm) for the men (1,34cm) and women (3,09cm); in the strength the average was of (149,68cm) in the women (129,26cm) and the men (173,14cm); in the aceleration the average was of (4,70sg) in men (4,53sg) and the women (4,85sg) and the resistant variety the data was (41,59Vo2) the men (45,65Vo2) and the woman (38,05Vo2). it is concluded that the aerobic capacity, the strength and the flexibility in the objective population, present low development in comparison with the national and international index.

KEY WORDS: Corporal composition, physical capacity conditional and schools

COMPOSICION CAPORAL Y CAPACIDADES CONDICIONALES

Le but de cette enquête est exprimée par son titre: la composition corporelle et la capacité conditionnelle chez les enfants du secondaire dans les écoles publiques de la ville d'Arménie, nous nous concentrons sur l'explication quantitative-, dans une étude descriptive et transversale correlacional. Cour de la population de 23.212 étudiants, nous avons évalué un sondage représentatif de 1.150, avec un taux d'erreur estimé à 95% de 3%. Nous avons utilisé de test fonctionnel pour la formation conditionnel et le protocole de la Société internationale pour la promotion de la Kinanthropometry (ISAK). Après nous digited les informations dans Excel XP2007 ont été, nous avons calculé une moyenne, écart-type (DS) et de corrélation. Les résultats montrent que dans la moyenne était de (48,66 kg) chez les hommes de (49,35 kg) et chez les femmes (47,98 kg). Pour

la taille était de (170 cm), pour les hommes (158cm) et les femmes (153cm). Dans le cas de l'entraînement physique pour la souplesse, la moyenne était (2,26 cm) pour les hommes (1,34 cm) et les femmes (3,09 cm); dans la force, la moyenne était de (149,68 cm) chez les femmes (129,26 cm) et les hommes (173,14 cm); dans le aceleration la moyenne était de (4,70 sg) chez les hommes (4,53 sg) et les femmes (4,85 sg) et de la variété résistante aux données est (41, 59Vo2) les hommes (45,65 Vo2) et la femme (38,05 Vo2). il est conclu que la capacité aérobie, la force et la flexibilité dans la population objective, présente le développement faible en comparaison avec l'indice national et international.

MOTS CLÉS: composition corporelle, la capacité physique conditionnelle et les écoles

COMPOSIÇÃO CORPORAL E CAPACIDADESCONDICIONAIS

RESUMO

O objetivo desta investigação é expressa por seu título: composição corporal e capacidade condicional em crianças do ensino médio em escolas públicas da cidade de Armenia, focamos a explicação quantitativa, em um estudo descritivo, correlacional e transversal. Tribunal da população de 23,212 estudantes, avaliou uma pesquisa representativa de 1,150, com um nível de 95% de erro estimada de 3%. Foi utilizado o teste funcional para a formação condicional e do protocolo da Sociedade Internacional para o Avanço da Cineantropometria (ISAK). A seguir, digited as informações em excel XP2007 foram calculamos uma média, o desvio padrão (SD) e de correlação. Os resultados mostram que em média foi de (48,66 kg) em homens de (49,35 kg) e nas mulheres (47,98 kg). Para o tamanho foi de (170 cm), para os homens (158 centímetros) e das mulheres (153 centímetros). No caso do treino físico para a flexibilidade a média foi de (2,26 cm) para os homens (1,34 cm) e mulheres (3,09 cm); com a força, a média foi de (149,68 cm), em que as mulheres (129,26 cm) e os homens (173,14 cm); no aceleration a média foi de (4,70 sg) em homens (4,53 sg) e as mulheres (4,85 sg) e da variedade resistente os dados foram (41, 59Vo2), os homens (45,65 VO2) e da mulher (38,05 Vo2). conclui-se que a capacidade aeróbica, a resistência e a flexibilidade na população objectivo, o desenvolvimento apresentam baixa em comparação com o índice nacional e internacional.

PALAVRAS-CHAVE: composição corporal, capacidade física condicional e escolas