44 - CARDIAC FREQUENCY BEHAVIOUR OF STUDENTS IN THE 1000 METER REDUCED SPACE TEST

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INTRODUCTION

The application of scientific knowledge to determine the type and quantity of physical activity required to attend the individual needs of people is most certainly indispensable to the subsequent improvement of the physical preparation programs (Champlin, apud MATHEWS, 1980).

For GUEDES & GUEDES (1997), among the tests proposed for the assessment of the cardio respiratory resistance, a preference for long distance running was observed, due to the fact that the specific muscular group involved, coincided with the motor requests of the day to day activities.

According to MATSUDO (1998), the monitoring of the cardiac frequency supplies a complete record of the physiological process, potentially reflecting the quantity and intensity of physical activity, thus being one of the most widely used methods to measure the level of physical activity in children and adolescents.

The aerobic resistance is the basis by which all other physical qualities will be supported. The resistance is determined by the cardio respiratory system, by the organic system, by the co-ordination of movements and by psychic components (BARBANTI, 1979).

Lydiard (apud BARBANTI, 1979) states that only when the cardiovascular and respiratory systems are well developed, can the aerobic resistance work be applied in order to develop the muscular system, the speed and the power.

Basing oneself on these affirmations, one can conclude that if tests which can efficiently measure the aerobic resistance simultaneously, a job of individual assessment of the physical and physiological conditions of each child can be carried out, thus being able to adequately dose the physical activities in Physical Education classes.

Children and adolescents should be able to run at a slow rhythm, in as many continuous minutes as their age. Thus, a 10 year old boy should be able to run 10 minutes (Lydiard, apud BARBANTI, 1979).

COOPER (1972) does not recommend the use of the 12 minute test to measure the aerobic resistance in children less than 13 years of age, as it is difficult to obtain a true maximum exertion in the children which confirms that a test with these characteristics may take all the fun out of any child performing the test.

Based on Cooper's observations (1972), Lydiard (apud BARBANTI,1979), BARBANTI (1979), opted for the use of the 1000 meter sprint test, standardized by KLISSOURAS (1973), to assess the maximum consumption of oxygen in students from 8 to 13 years of age.

Based on this premise a problem was created which stimulated the execution of this study, configured as follows: “What is the cardiac frequency behavior in female and male gender students when they are submitted to the 1000 meter reduced space sprint test (oval configuration), standardized by KRUG & NUNES (1994)?”.

The objective of this research was to investigate the behavior of cardiac frequency in students of male and female gender when they are submitted to the 1000 meter reduced space sprint test (oval configuration), standardized by KRUG & NUNES (1994).

Considering that few schools have a track to carry out the test, this research is justified, which proposes to check the reliability of the 1000 meter reduced space sprint test (oval configuration), in order to help Physical Education teachers, with the objective of improving the assessment of physical conditions of students, particularly aerobic resistance.

MATERIAL AND METHODS

The population was made up of 8.534 students of both genders, from 9 to 12 years of age, enrolled in public schools in the city of Pelotas (RS). The sample was randomly made up of 240 students of both genders, 120 students by gender and 30 students in each age group and gender, enrolled in public schools in the city of Pelotas, RS.

The 1000 meter reduced space sprint test was used to measure the aerobic power, where the subjects cover the distance at the shortest possible time, not being allowed to walk during the test. The test was carried out in a reduced space (oval configuration, restricted to the rectangle of 14, 50 m X 10 m, according to attachment 2) of 50 meters, where the assessed subjects ran 20 laps.

Determination of the Body Composition a clinical skinfold was used in order to reach the thickness of the subcutaneous tissue and a slide gauge was used to reach the bone diameter. The LOHMAN (1986) mathematics Model was used to determine the percentage of fat for children and adolescents of both genders.

Prediction of the maximum consumption of oxygen the prediction of the maximum consumption of oxygen was carried out through the 1000 meter sprint test. The value of the maximum consumption of oxygen was calculated through the following formula: $VO_2max = (652, 17 - Y) / 6,762$ (KLISSOURAS, 1973).

Determination of the Cardiac Frequency The cardiac frequencies at rest, exertion and recovery were determined with the help of a range finder the polar Electro OY type - PE 3000 Sport Tester. Upon reaching the **SMA/LEPE/ESEF/UFPel**, the students were monitored individually with the range finder and remained seated during a period of 5 minutes in order to obtain the cardiac frequency at rest. The warm up was based on this time, which was also individualized with a predicted duration of more or less 10 minutes.

After warming up, the 1000 meter reduced space test was initiated (oval configuration), where the considered cardiac frequencies were identified as being exertion frequencies. Immediately after the test, the student walked for 1 minute and shortly after sat down and remained in the sitting position for 2 minutes. The observed cardiac frequencies in this period were considered as recovery cardiac frequencies.

The range finder has a cardiac frequency storage system as well as a simultaneous time lapse system (chronometer). The chronometer and memory were zeroed based on the monitoring of each individual and the zero time corresponded to the start of the determination of cardiac frequency at rest, the final time was considered in the last minute of recovery after the 1000 meter reduced space test. At every 15 seconds, the cardiac frequencies were stored in the memory of the range finder.

After the execution of the 1000 meter reduced space test, of each assessed student, the cardiac frequency reading (rest, exertion and recovery) and the respective times were taken, as well as the duration time of the test.

RESULTS AND DISCUSSIONS

With the objective of characterizing the sample used in the study, data regarding the body weight (**BW**) and structure (**STR**) of students of both genders between the ages of 9 and 12, enrolled in public schools in the city of Pelotas (RS) were collected. This data was analyzed regarding the arithmetic average, standard deviation and Student “t” test for the independent sample, at the significance level of 5%, according to TABLES 1 and 2.

One can observe in TABLE 1, that there is a growth in the average values of the student **BW** of both genders, between the ages of 9 and 12, where the students of the female gender present higher averages than those of the male gender, however

between the ages of 10 and 11, the opposite takes place.

TABLE 1. Average values, standard deviation and Student "t" test of the **BW** variable of students of both genders, between the ages of 9 and 12.

Age (years)	Body Weight (Kg)		"t" Test
	Male	Female	
9	35,28 ± 5,73	35,89 ± 6,45	- 0,548
10	37,24 ± 9,60	36,47 ± 7,30	0,495
11	40,22 ± 7,07	39,99 ± 9,05	0,155
12	42,43 ± 8,01	45,85 ± 8,79	- 2,228*

* p< 0, 05 ⇒ t = 1,671 ** p< 0, 01 ⇒ t = 2,390 *** p< 0, 0005 ⇒ t = 3,460

There were statistically significant differences when comparing the average **BW** values between the students of the male gender with those of the female gender, through the "t" test, at the level of 5%, in the 12 year old age group, being favorable to the students of the female gender. However between the ages of 9 and 11, no statistically significant differences took place, at the level of 5%, demonstrating equilibrium in the **BW** of both students.

TABLE 2. Average values, standard deviation and Student "t" test of the **STR** body variable for students of both genders, between the ages of 9 and 12.

Age (years)	Structure (m)		"t" Test
	Male	Female	
9	1,38 ± 0,05	1,38 ± 0,07	0,000
10	1,41 ± 0,07	1,41 ± 0,06	0,000
11	1,46 ± 0,07	1,46 ± 0,08	0,000
12	1,51 ± 0,08	1,53 ± 0,09	-1,287*

* p< 0, 05 ⇒ t = 1,671 ** p< 0, 01 ⇒ t = 2,390 *** p< 0, 0005 ⇒ t = 3,460

One can observe in TABLE 2, that there is a growth in the average values of **STR** of the students of both genders between the ages of 9 and 12, being that they have similar **STR** between the ages of 9 and 11, but in the 12 year old age group, the students of the female gender presented average values higher than those of the male gender.

When the EST average value was compared between the students of the male gender with those of the female gender, through the Student "t" test, statistically significant differences were observed at the level of 5%, in the 12 year old age group, where these differences are favorable to the students of the female gender, thus demonstrating that they are higher than those of the male gender. However between the ages of 9 and 11, no statistically significant differences at the level of 5% took place, pointing out that these students presented similar growths.

The **BW** and **STR** results, of this research are in accordance with the studies carried out by PAPALIA & OLDS (1981), which affirm that children of a young age present small differences in **BW** and **STR**. According to BEE & MITCHEL (1984), it is normal for girls at around the age of 11 or 12 to go through *an adolescent stretch*, winning from the boys in **BW** and **STR**.

The percentage of body fat (**F %**), fat (**FBM**) and thin (**TBM**) body mass was determined in this research with the objective of studying the body composition of students, which could influence the results of the maximum oxygen consumption (**VO_2 max.**), principally in the student results with a high **F %**.

One can verify in TABLE 3, that there is an increase in the average values of **F %** in students of the male gender between the ages of 9 and 12; whilst, in the students of the female gender, there was a decrease of the **F %** in the 9 to 10 age group which grew in the 11 to 12 age group.

TABLE 3 Average values, standard deviation and Student "t" test of the **F %** variable, for students of both genders between the ages of 9 and 12.

Age (years)	Percentage of fat (%)		"t" Test
	Male	Female	
9	16,96 ± 5,97	24,23 ± 7,62	- 5,817***
10	20,54 ± 7,00	21,69 ± 6,65	0,923
11	21,58 ± 6,27	25,98 ± 5,95	- 3,943 ***
12	21,69 ± 6,65	28,90 ± 9,21	- 4,916***

* p< 0, 05 ⇒ t = 1,671 ** p< 0, 01 ⇒ t = 2,390 *** p< 0, 0005 ⇒ t = 3,460

When the average values of **F %** between the students of the male gender were compared with those of the female gender, through the Student "t" test, statistically significant differences were observed, at the level of 0, 5% in the 9, 11 and 12 year old age group where these differences were favorable to the students of the female gender, thus, showing that they presented a higher **F %** than those of the male gender. Whilst in the 10 year old age group, there were no statistically significant differences, at the level of 5%. Moreover, it should be pointed out that students of both genders are above the normal standards of body fat (male gender, 15 to 18% and female gender 18 to 22% - McARDLE, KATCH & KATCH, 1999), with the exception of students of the male gender in the 9 year old age group, who are placed in the normal bracket.

One can observe in TABLE 4, that there is an increase in the average values of the **FBM** and **TBM** of students of both genders, in the studied age groups, with the exception of the 10 year old age group of the female gender in the **FBM** variable. It is understood that the students of female genders in the **FBM** variable, present average values higher than those of the male gender. On the other hand, the students of the male gender, present average results higher than those of the female gender in the **TBM** variable.

TABLE 4. Average values, standard deviation and Student "t" test of **FBM** and **TBM** variables, for students of both genders, between the ages of 9 and 12.

Age (years)	FBM (Kg)		TBM (Kg)	
	Male	Female	Male	Female
9	6,01 ± 2,94	8,95 ± 3,91***	28,25 ± 3,85*	26,91 ± 3,90
10	8,26 ± 5,14	8,60 ± 4,20	29,20 ± 5,45	27,40 ± 6,52
11	8,86 ± 3,70	10,74 ± 4,56**	31,58 ± 5,39**	29,23 ± 5,11
12	9,44 ± 4,14	11,47 ± 5,13*	32,99 ± 5,43	34,21 ± 7,38

* p< 0, 05 ⇒ t = 1,671 ** p< 0, 01 ⇒ t = 2,390 *** p< 0, 0005 ⇒ t = 3,460

Comparing the average results between the students of the male gender with those of the female gender, through the Student "t" test for independent standards, a statistically significant difference at the level of 5% was verified in the **FBM** variable in the 12 year old age group, 1% was verified in the 11 year old age group and 0,5% was verified in the 9 year old age group, where these differences were favorable to students of the female gender, which have a higher quantity of fatty tissue than the students of the male gender. In the **TBM** variable, a statistically significant difference at the level of 5% in the 9 year old age group was observed and 1% was observed in the 11 year old age group, where these differences were favorable to students of the male gender, as they have a higher thin body mass, pointing out that they have a larger muscular, bone and residual weight than those of the female gender.

It can be concluded that the **FBM** average values of students of the female gender are superior to those of the male gender and that the variable **TBM** of the students of the male gender is superior to that of the female gender, which is due to physical factors, hormones and nutrition (KATCH & McARDLE, 1990).

The 1000 meter sprint test was used to determine the maximum consumption of oxygen (**VO_2 max**), variable which is considered internationally as the best physiological parameter to assess the functional capacity of the cardio respiratory system, and is also used to prescribe physical activities under the form of physical conditioning (LEITE, 1999).

TABLE 5. Average values, standard deviation and Student "t" test of **VO_2max** variable, for students of both genders between the ages of 9 and 12.

Age (years)	VO_2 max. (mL/Kg.min)		"t" Test
	Male	Female	
9	32,64 ± 5,50	27,21 ± 6,16	- 7,91***
10	37,18 ± 7,87	25,00 ± 6,53	- 2,40 *
11	37,25 ± 6,24	28,60 ± 8,41	- 3,19 **
12	39,04 ± 6,07	30,88 ± 7,67	- 4,21***

* p< 0, 05 ⇒ t = 1,671 ** p< 0, 01 ⇒ t = 2,390 *** p< 0, 0005 ⇒ t = 3,460

In TABLE 5, an increase in the **VO_2 max.** variable in all of the studied ages was verified, with the exception of the 10 year old age group, in students of the female gender, where a reduction took place. It is understood that students of the male gender reached higher average values as opposed to those of the female gender in all age groups of the students.

When the average results were compared between the students of the male gender with those of the female gender, through the Student "t" test for independent samples, it was verified that statistically significant differences at the level of 5% occurred in the 10 year old age group, 1% was verified in the 11 year old age group and 0,5% was verified in the 9 and 12 year old group, where these differences favored the students of the male gender, resulting in an improved cardio respiratory conditioning as opposed to those students of the female gender.

Another important factor to highlight in this variable is that the students of the female gender have a higher body mass rate (**BW/STR^2**) opposed to those of the male gender, contributing to a higher overcharge per covered meter, resulting in a lower **VO_2max.**

Cardiac frequency data at rest was collected (**CFR**), as well as data of maximum exertion (**MCF**) and reserve data (**RCF**) from students of both genders in the 9 to 12 year old age group, with the objective of assessing the heart beats of the students in the resting and exertion condition, as well as the quantity of heart beats which can be used by a student in the execution of a physical activity (**RCF** = (220 age) **CFR**).

One can verify in TABLE 6, in the **CFR** and **MCFE** variables, the existence of a change in the average results, with an increase of the FC in the 9 and 10 year old age group, with a reduction in the 10 to 11 year old age group, increasing once again in the 11 and 12 year old age group in both genders, with the exception in the 12 year old age group in the students of the female gender, in these studied variables. In the **RCF** variable, there is a change in the average results with a reduction of the FC in the 9 and 10 year old age group, an increase for the 11 year old age group and a reduction for the 11 and 12 age group for both genders, with the exception for the 12 year old age group in students of the female gender where an increase of FC occurs.

Upon comparing the average values of students of both the male and female genders, through the Student "t" test for independent samples, it was noticed that statistically significant differences at the level of 5% in the **CFR** variable took place in the 11 year old age group and 1% was noticed in the 9 and 10 year old age group, where the differences favored the students of the female gender, indicating that these students have a low level of aerobic conditioning and a large amount of fatty tissue, reflecting in a high **CFR**. In the 11 year old age group, statistically significant differences at the level of 1% in the **MCFE** variable were verified, and 0, 5% was verified in the 9 year old age group, where the differences favored the students from the female gender, observing a higher physiological exertion in the execution of the same physical activity compared to those of the male gender. In the **RCF** variable, statistically significant differences at the level of 5% were observed in the 11 year old age group and 1% was observed in the 9 and 10 year old age group, where these differences were favorable to the students of the male gender, as they have a higher available **CF** for physical exertion.

TABLE 6. Average values, standard deviation and Student "t" test of **CFR**, **MCF** and **RCF** variables, for students of both genders, between the ages of 9 and 12.

Age	CFR (bpm)		MCFE (bpm)		RCF (bpm)	
(years)	Male	Female	Male	Female	Male	Female
9	106 ± 18	114 ± 18 **	196 ± 13	202 ± 9 ***	105 ± 18**	97 ± 18
10	111 ± 22	120 ± 17 **	204 ± 10	205 ± 7	98 ± 21 **	89 ± 17
11	106 ± 15	113 ± 18 *	197 ± 10	203 ± 10 **	102 ± 15 *	96 ± 18
12	111 ± 21	109 ± 18	199 ± 10	201 ± 11	98 ± 21	99 ± 18

* p< 0, 05 ⇒ t = 1,671 ** p< 0, 01 ⇒ t = 2,390 *** p< 0, 0005 ⇒ t = 3,460

With the objective of studying the **CF** behavior during the execution of the 1000 meter reduced space test, **CF** was collected every 15 seconds, but the **CF** obtained after 30 seconds (**CFE-30 %**) of sprinting and the maximum cardiac frequency (**MCF %**) reached during the race was used for the behavior analysis.

The interest in measuring the **ECF-30** is due to the fact that the student is stopped (at rest) and after the command to start the exercise, he/she would have to leave the inertia position thus entering into movement in order to reach the constant speed for the test. Regarding the **MCF**, it would be important to know which is the maximum **CF** that each student can reach in the test.

TABLE 7. Average values, standard deviation and Student "t" test of the **CFE-30** and **MCF** percentage for students of both genders, between the ages of 9 and 12.

Age	%CFE-30 (%)		% MCF (%)	
(years)	Male	Female	Male	Female
9	45,32 ± 20,25	41,64 ± 18,12	95,08 ± 10,71*	91,38 ± 8,74
10	44,76 ± 26,74	37,74 ± 20,80	94,22 ± 10,61	95,32 ± 8,15
11	41,46 ± 15,90	42,73 ± 16,80	89,52 ± 14,25	94,34 ± 10,09*
12	43,04 ± 15,85*	51,55 ± 28,65	89,44 ± 16,37	97,69 ± 17,88*

* p< 0, 05 ⇒ t = 1,671 ** p< 0, 01 ⇒ t = 2,390 *** p< 0, 0005 ⇒ t = 3,460

One can verify in TABLE 7, in the **CFE-30 %** variable that a change of the average result percentages of one age to another occurred with students from the male gender where these values are higher than those of the female gender in the 9 and 10 year old age group where the opposite takes place in the 11 and 12 year old age group. While in the **MCF %** variable a

reduction in the average percentage in the 9 to 12 year old age group occurred in the students of the male gender and an increase in the average results in the 9 and 10 year old age group followed by a reduction of this variable in the 10 to 11 year old age group and grew again in the 12 year old age group, in students of the female gender.

When the average results were compared between students of the male gender with those of the female gender through the Student "t" test for independent samples, statistically significant differences at the level of 0, 5% were verified in the 12 year old age group in the **CFE-30 %** variable where this difference favored students of the male gender, showing that they reached a higher exertion percentage in the first 30 seconds of the test, due to a higher speed in a shorter execution time.

In the **MCF %** variable, there were statistically significant differences at the level of 5% in the 11 and 12 year old age group, where these differences favored the students of the female gender and the 9 year old group favored the students of the male gender.

In World literature (AMERICAN COLLEGE SPORTS OF MEDICINE, 1987, 1994 e 1996), it has been considered that a person carries out an ergo meter test with maximum intensity (**MCF = 220 - age**), when a cardiac frequency higher than 85% of the **MCF** (**MECF = MCF x 0, 85)** is reached. In this study, the **MCF** of students of both genders in the 9 and 12 year old age group, are placed in the area of 211 to 208 bpm and the **MECF** would be in the area of 179 to 177 bpm, respectively. Thus, one can affirm that students of both genders reached the **MECF** (196 to 204 bpm for students of the male gender and 201 to 205 bpm for those of the female gender) during the 1000 meter reduced space test, reaching values higher than 85% of the **MCF** (89, 44 to 94, 22% for students of the male gender and 91, 38 to 97, 69% for those of the female gender).

FINAL CONSIDERATION

Faced with the results of this study, one can conclude that students of both genders did not surpass the maximum percentage (100%) of the **MCF** in the execution of the 1000 meter reduced space sprint test, although GHORAYEG & BARROS (1999) point out that there is no correlation between **MCF** and the age of the children, as these exceed the expectations of the **MCF** for age, in values obtained in the Karvonen equation (**MCF** = 220 age).

Aware of this alert by the authors, a **MCF %** analysis was carried out to verify if they produced results above 100%, which was not verified in this study; thus, it is believed that the Karvonen equation can be used with a safety parameter to avoid cardiovascular problems.

Based on these results, the researcher points out that the healthy students of both genders can be submitted to a field cardio respiratory assessment without causing problems to their systems.

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CARDIAC FREQUENCY BEHAVIOUR OF STUDENTS IN THE 1000 METRE REDUCED SPACE TEST

The objective of this study was to investigate the cardiac frequency behavior of male and female gender students when submitted to the 1000 meter reduced space sprint test (oval configuration), standardized by KRUG & NUNES (1994). The sample was randomly put together by 240 students of both genders, 120 students by gender and 30 students in each age group and gender, enrolled in public network schools in the city of Pelotas, RS. The 1000 meter reduced space sprint test was used (oval configuration, limited to the rectangle of 14, 50 m X 10 m), with the objective of measuring aerobic power. Body Weight (**BW**) data was collected as well as Stature (**STR**), Body Fat (**F %**), Fat (**FBM**) and thin (**TBM**) body mass, Cardiac Frequency at Rest (**CFR**), Maximum Cardiac Frequency (**MCF**), Reserve Cardiac Frequency (**RCF**), Maximum Cardiac Frequency Percentage (**MCF %**) and Cardiac Frequency Exertion after 30 seconds of sprinting (**CFE % -30**). Faced with the collected results, it is understood that in the **RCF, MCFE % -30** and **MCFP %** variables, the students of both genders from this study were maintained inside the physiological studies during the 1000 meter sprint, in no way compromising the cardio respiratory system.

Key words: Maximum oxygen consumption, Cardiac frequency and Students.

COMPORTEMENT DE LA FRÉQUENCE CARDIAQUE CHEZ LES ÉCOLIERS DANS LE TEST DE 1000 MÈTRES DANS UN ESPACE RÉDUIT

RÉSUMÉ

Le but de cette recherche a été celui d'examiner le comportement de la fréquence cardiaque des écoliers des sexes masculin et féminin soumis au test de course de 1000 mètres dans un espace réduit (configuration ovale) de KRUG & NUNES (1994). L'échantillon a été composé de façon aléatoire par 240 écoliers des deux sexes, 120 hommes et 120 femmes, 30 sujets pour chaque âge et sexe, étudiant aux écoles du réseau public de la ville de Pelotas, RS. On a employé le test de course de 1000 mètres pour un espace réduit (configuration ovale, circonscrite au rectangle de 14,50 m X 10 m) pour pouvoir mésurer la puissance aérobique. On a collecté des donnés du poids corporel **(PC)**, stature **(E)** , pourcentage de graisse **(%C),** masse corporelle grasse **(MCG)** et maigre **(MCM)**, fréquence cardiaque de repos **(FCR)**, d'effort maximum **(FCEM)** et de réserve **(FCRES)**, pourcentage de fréquence cardiaque maximum **(%FCM)** et d'effort après 30 secondes de course **(%FCE-30)**. A partir des donnés obtenus, on vérifie que dans les variables **FCRES, %FCE-30 e %FCM** les écoliers des deux sexes se sont

maintenus dans les paramètres physiologiques pendant la course de 1000 mètres sans compromettre leur système cardio-respiratorie.

Mots-clés: Consommation Maximum d'Oxigène, Fréquence Cardiaque et Écolier.

COMPORTAMIENTO DE LA FRECUENCIA CARDIACA DE LOS ESCOLARES EM EL TEST DE 1000 METROS PARA ESPACIO REDUCIDO

RESUMEN

El objetivo de este estudio fue investigar el comportamiento de la frecuencia cardiaca de los escolares del sexo masculino y femenino cuando sometidos al test de corrida de 1000 metros, para espacio reducido (configuración oval), padronizado por KRUG & NUNES (1994).

La muestra fue constituida aleatoriamente de 240 escolares de ambos los sexos, siendo 120 escolares por sexo y 30 escolares en cada faja de edad y sexo, matriculados en las escuelas de la red pública de la ciudad de Pelotas, RS Se utilizó el test de corrida de 1000 metros para espacio reducido (configuración oval, circunscrita al rectángulo de 14,50 m X 10 m), con la finalidad de medir la potencia aeróbica. Fueron colectadas informaciones relativas a Peso Corporal (PC), Estatura (EST), porcentaje de gordura (**%G**), masa corporal gorda (**MCG**) y delgada (**MCM**), frecuencia cardiaca de reposo (|**FCR**), de esfuerzo máximo (**FCEM**), de reserva (**FCRES**), porcentaje de frecuencia cardiaca máxima (**%FCM**) y de esfuerzo después de 30 segundos de corrida (**%FCE-30**). Frente a los resultados obtenidos, se obtiene que en las variables **FCRES, %FCE-30 y %FCM** los escolares de ambos los sexos de este estudio se mantuvieran dentro de los parámetros fisiológicos durante la corrida de 1000 metros, no comprometiendo el sistema cardiorrespiratorio.

Palabras llave: Consumo máximo de oxígeno, Frecuencia cardiaca y Escolar.

COMPORTAMENTO DA FREQÜÊNCIA CARDÍACA DOS ESCOLARES NO TESTE DE 1000 METROS PARA ESPAÇO REDUZIDO

RESUMO

O objetivo deste estudo foi investigar o comportamento da freqüência cardíaca dos escolares do sexo masculino e feminino quando submetidos ao teste de corrida de 1000 metros, para espaço reduzido (configuração oval), padronizado por KRUG & NUNES (1994). A amostra foi constituída aleatoriamente de 240 escolares de ambos os sexos, sendo 120 escolares por sexo e 30 escolares em cada faixa etária e sexo, matriculados nas escolas da rede pública da cidade de Pelotas, RS. Utilizou-se o teste de corrida de 1000 metros para espaço reduzido (configuração oval, circunscrita ao retângulo de 14,50 m X 10 m), com a finalidade de medir a potência aeróbica. Coletaram-se dados de Peso Corporal (**PC**), Estatura (**EST**), percentual de gordura (**%G**), massa corporal gorda (**MCG**) e magra (**MCM**), freqüência cardíaca de repouso (|**FCR**), de esforço máximo (**FCEM**), de reserva (**FCRES**), percentual de freqüência cardíaca máxima (**%FCM**) e de esforço após 30 segundos de corrida (**%FCE-30**). Diante dos resultados obtidos, tem-se que nas variáveis **FCRES, %FCE-30 e %FCM** os escolares de ambos os sexos deste estudo mantiveram-se dentro dos parâmetros fisiológicos durante a corrida de 1000 metros, não comprometendo o sistema cardiorrespiratório.

Palavras Chaves: Consumo máximo de oxigênio, Freqüência cardíaca e Escolar.