تقييم بعض عوامل الاداء الرئوية لفريق البحرين القومي لكرة اليد

يوجد نقص في التوصيف الرئوي لقيم : سرعة ضربات القلب – ضغط الدم – السعة الحيوية – اقصي كمية تنفسية – أقصي زفير – حجم الأكسجين المستهلك – عمق الصدر – عرض الصدر – الضغط الجوي المحيط – العمر – الوزن – الطول.

ووجد ان هناك عوامل ارتباطية بين بعض هذه القيم ومنها :

علاقة سرعة ضربات القلب والسعة الحيوية وأقصي زفير وكذلك حجم الأكسجين المستهلك. كما وجدت علاقة ترابطية بين عمق الصدر وعرض الصدر مع حجم الأكسجين المستهلك. واوصي البحث ان تكون هذه القياسات هي المثلي للاعبي كرة اليد في اليد في منطقة الخليج العربي .

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Conclusion

The litratures established that there was a correlation between oxygen volume and voluntary ventilation. Also a direct relation between heart rate and some pulmonary factors was proved. In this study it was found that there is a significant correlation between rest heart rate and vital capacity, forced expiratory volume and very close relation with oxygen volume. Also oxygen volume was correlated to chest dimension maximum voluntary ventilation and very close to rest heart rate. Astrand (1977) (7) said that it is well known that the highest maximum oxygen uptake is usually reached at age of eighteen to twenty. The best performance in endurance events is usually obtained by athletes twenty-five to thirty years of age. Also he mentioned that with athletes they keep lower heart rate with ageing the some with systolic blood pressure. For oxygen uptake when they grow olders they keep a low level of Vo_2 and become lower if they stop training to keep fit.

The results of this work has agreed with Astrand (1977) in relation to pulmonary factors.

In addition to the previous data in this work it was found that there is a correlation between weight and oxygen volume and chest dimension. Forced experatory volume was correlated to rest heart rate, vital capacity and maxmium voluntary ventilation.

The vital capacity has a correlation to height and wieght in addition to forced expiratory volume and rest heart rate.

Recommendations

1. The records of Bahrainin Handball National Team has a closed measures to litrature records in some pulmonary factors. it is advisable to be taken in consideration this records for Gulf Countries specially after the results of these team in Gulf Countries championships.

2. More studies about the cardiovascular system must be done for its effect in fitness programs.

7. Exercise heart Rate: (E.H.R.)The level of significance showed that the exercise heart rate relations was not significant with any factors. But near to significant with vital capacity weight.

8. Systolic Blood Pressure: (Sys. B.P.)Systolic blood pressure wad found significant only with age. But not significant with the rest of the factors.

9. Diastolic Blood Pressure: (Dia.B.P)It was found that diastolic blood pressure was significant with weight, chest wide, rest heart rate. But not significant to the rest of the factors.

10. Vital Capacity (V.C.)Ir was found a positive significant relation between vital capacity and: height, weight, chest wide, rest heart rate and forced expiratory volume. Logically this data are accepted.

11. Maximum Voluntary Ventilation: (M.V.V.)It was found that the M.V.V. has a positive significant relation with: weight, chest dimension, chest wide, forced expiratory volume and pressure force. But the oxygen volume has a negative significant relation.

12. Forced Expiratory Volume (F.E.V.)Forced expiratory volume has positive a significant relation with height, weight, chest wideth, rest heart rate, vital capacity, maximum voluntary ventilation and pressure force.

13. Pressure Force (P.F)Pressure force has a significant positive relation with chest wideth, maximum voluntary ventilation and forced expiratory volume. it has a negative significant relation with oxygen volume.

14.Oxgen Volume It was found that the oxygen volume has a negative significant correlation with weight, chest dimension maximum voluntary ventilation and pressure force these significant relation due to negative relations with main weight.

1. Age: There was a negative significant relation between age and rest heart and systolic blood pressure. This was results accepted physiologically for adults and specially athletics.

2. Height: (Ht) It was found that the height has a positive significant relation with weight, vital capacity and forced expiratory volume. The souronding atmospher pressure force has a direct relation to : hieght, vital capacity and forced expiratary volume from the physics lows. Also the body surface area has a direct relation to hieght and weight in addition to pulmonary factors.

3. Weight (Wt) Weight was the heighest significant factor in the data. It was found positively significant - with height, chest dimension, chest wide, rest heart rate, vital capacity, maximum voluntary ventilation, forced expiratory volume and negative significant relation with oxgyen volume. The relation between weight and the significant positive factors is accepted logically but with oxgyen volume it depends on the amount of heomoglobin cells.

4. Chest dimension (Ch.D) There was a positive relation between chest dimession and weight and maximum voluntary ventilation. But there was a negative relation between chest dimension and oxygen volume.

It is know that the chest dimension effected by weight and affect on the maximum volentary ventilation. For the oxygen volume it depends on the working muscles and needs more investigation.

5. Chest Wide (Ch.w) Chest wide has a positive/ significant relation with rest heart rate, diastolic blood pressure, vital capacity, maximum voluntary ventilation, forced expiratory volume and pressure force - No significant relation with exercise heart rate, systolic blood pressure and oxygen volume.

6. Rest heart Rate:(R.H.R.)It was found that rest heart rate has a positive signifient relation with diastolic blood pressure, vital capacity, forced experatory volume and negative significant relation with oxygen volume but no significant relation with exercise heart rate systolic blood pressure, maximum voluntary ventilation and pressure force.

	AGE	Ht	Wt	C.H.D	CH.W	R.H.R	E.H.R	SYS B.P	DIA B.P	V.
Age		-0.28	0.06	0.10	0.04	-0.44	0.04	-0.39	-0.06	0.
Ht	-0.28		0.41	-0.14	0.05	-0.31	-0.06	0.21	0.24	0.
Wt	0.06	0.41		0.65	0.49	0.46	0.29	0.23	0.37	0.
Ch.D	0.10	-0.14	0.65		0.03	0.07	0.16	0.08	-0.02	0.
Ch.W	0.04	0.05	0.49	0.03		0.47	0.16	0.26	0.34	0.
R.H.R	-0.44	0.31	0.46	0.07	0.47		0.08	0.23	0.39	0.
E.H.R	0.04	0.06	0.29	0.16	0.16	0.08		0.29	0.11	0.
Sys B.P	-0.39	0.21	0.23	0.08	0.26	0.23	0.29		0.16	0.
Dia B.P	-0.06	0.24	0.37	-0.02	0.34	0.39	0.11	0.16		0.
V.C	0.01	0.49	0.54	0.32	0.14	0.48	0.27	0.16	0.29	
MEV	0.21	0.16	0.45	0.38	0.54	0.04	0.29	0.08	0.03	0.
PEV	0.24	0.63	0.08	0.35	0.47	0.34	0.15	0.28	0.16	0.
P>F	-0.09	0.13	0.36	0.29	0.37	0.14	0.08	0.19	0.15	0.
VO_2	-0.17	0.17	-0.54	-0.50	0.27	-0.33	-0.17	0.14	-0.04	-0

	AGE	HT	WT	CH.D	CH.W	RHR	EHR	SYS	DIAS	VC	MVV	FEVI	PF	VO2
	30	168.5	63.5	16.0	26.0	68	198	120	90	3.8	124.0	2.9	5.1	72.1
	23	175.0	65.7	16.0	25.0	65	199	130	80	3.3	122.0	3.0	9.2	51.2
	23	180.0	63.7	17.0	25.0	74	185	140	70	3.8	117.0	3.7	3.7	43.7
	23	164.0	87.0	21.0	32.0	74	200	130	80	3.6	193.0	3.5	10.6	38.5
	18	174.0	70.7	21.0	27.0	90	196	140	70	4.2	139.0	4.2	7.8	58.8
	20	165.5	66.5	17.0	29.0	77	198	120	68	3.6	119.0	3.3	3.3	56.1
	25	175.0	78.0	20.0	28.0	74	176	120	60	3.6	114.0	3.6	7.8	45.7
	20	176.0	65.0	16.0	27.5	84	204	110	70	3.2	150.0	3.2	8.0	49.3
	19	177.0	59.4	16.0	28.0	83	126	120	85	3.4	109.0	3.4	8.7	66.0
	23	169.0	69.5	20.0	27.0	71	191	130	60	3.3	140.0	3.3	7.8	62.2
	19	175.0	58.5	17.0	28.0	77	193	140	80	3.7	117.0	3.3	8.3	62.9
	21	180.0	94.0	24.0	29.0	76	194	140	90	3.9	153.0	3.3	9.6	52.4
	20	176.0	70.0	21.0	26.0	78	194	120	80	4.7	135.0	4.1	11.4	52.0
	26	179.5	75.3	20.0	29.0	60	179	110	60	4.5	172.0	4.2	9.4	60.0
	25	176.5	88.0	24.0	30.0	84	204	125	85	4.4	163.0	3.8	10.0	39.0
	21	178.5	66.0	19.0	26.0	67	200	120	80	4.3	162.0	4.1	8.5	63.2
	20	180.0	64.0	17.0	25.0	83	195	195	70	4.5	89.0	3.8	6.0	63.2
	22	174.5	71.5	18.5	25.0	72	188	110	70	4.1	134.0	3.4	7.2	59.0
	22	175.0	72.5	25.5	17.0	62	182	120	60	3.2	116.0	3.1	6.2	49.6
	19	182.0	75.0	17.0	25.0	75	189	120	80	3.4	139.0	3.9	8.7	63.0
	18	182.5	77.0	19.0	30.0	78	204	190	70	4.1	176.0	176.0	10.2	64.9
	20	178.5	89.0	20.0	29.0	79	204	150	90	4.2	95.0	95.0	7.3	61.1
	21	167.0	64.8	18.0	26.0	70	197	150	70	4.0	128.0	128.0	8.8	71.7
	21	189.0	114.5	22.0	32.0	104	200	140	90	5.6	171.0	171.0	9.5	35.5
	26	174.5	76.0	21.0	30.5	73	194	120	70	4.3	197.0	197.0	11.6	48.0
MAX	30.0	189.0	114.5	25.5	32.0	104.0	204.0	190.0	90.0	5.6	197.0	197.0	11.6	72.1
MIN	18.0	164.0	58.5	16.0	17.0	60.0	126.0	110.0	60.0	3.2	89.0	89.0	5.1	35.5
MEAN	21.8	175.7	73.8	19.0	27.3	75.9	191.6	129.5	75.1	3.9	139.0	139.0	8.5	55.6
S.D	2.8	5.6	12.4	2.7	3.0	9.0	15.4	16.8	9.8	0.5	28.1	28.1	1.5	9.9
VARIANCE	8.0	30.9	153.6	7.0	8.9	81.7	236.2	283.3	95.9	0.3	788.8	788.8	2.4	98.0
RANGE	12.0	25.0	56.0	56.0	9.5	15.0	44.0	78.0	80.0	30.0	108.0	108.0	6.5	36.6

After the full data were completed, several computre programs were used to tabulate the results. Analysis of the data included: means. standard deviations, minimum and maximum values of the groups accordding to the requirements of the work.

1. Statistical discription of records:

Table 1, shows the mean, standard devilation, minimum and maximum range and lastly Variances of:

Age - Height - Weight, chest dimension, chest wide, resting heart rate, exercise heart rate, systolic blood pressure, diastolic blood pressure, vital capacity, maximum volumtary ventilation, forced expiratory volume, pressure force and oxygen volume.

2. Correlation Co-efficient

Table 2- shows the intercorrelation co-efecient between pulmonary measurments Factors. It was found that at the level of significacy at r=0.05 was: (0.34)

2. Measurments

1-	Height	(Ht)	cm.
2-	Weight	(Wt)	kg.
3-	Chest dimension	(Ch.D)	cm.
4-	Chest wide	(Ch.W.)	Cm.
5-	Rest heart rate	(R.H.R.)	beat/min.
6-	Exercies heart rate	(E.H.R.)	beat/min.
7-	Systolic blood pressure	(sys.B.P)	mm/Hg.
8-	Diastalic blood pressure	(Dia. B.P)	mm/Hg.
9-	Vital Capacity	(V.C.)	cm3
10-	Maximum Valuntary Ventilation	(M.V.V.)	cm3
11-	Forced expiratory volume	(F.E.V.)	cm3
12-	Pressure force	(P.F.)	mm/Hg
13-	Oxygen volume	(Vo_2)	cm3
14-	Age		Years

3. Test:

Bruce protocal was used involuing progressive increments, every 3 minutes on the treadmill. Electrical spirometer was used to get the data.

4. Statistics:

* Statistical description

* Mean - Standard devilation.

* Maximum and minimum

* Correlation Co-Effecent for the relation between factors.

RESULTS

The recrods obtained from the spirometer were collected and the data were keyed by the computer in main disk. The data were reatined, calculted and analysed statistically.

The pattern of breathing is dominated by the mechanical characteristics in terms of the elastances and resistance of the total respiratory system. Pobinson (1938) (4) documented the variation in vo_2 and heart rate at maximal exercise in men to the age. Astrand (1968) (5) mentioned that the greater valumes of vo_2 abserved in men than in women and greater values in physically active persons or athletes than sedentary persons. Bruece (1984) (6) said that when Vo_2 is adjusted for body weight, the hieghtest values are obsorved in young ages.

2. Problem

There is no discription of pulmonary factors for the values heart rate (HR), blood pressure, vital capacity (V.C.), maximum voluntary ventilation volume (MVV), forced expiretary volume (FEV) and VO_2 for the Bahraini Handball National Team. Also there is no studies to determine the relationship between these factors.

3. Purpose

a. Statistical description of some National team pulmonary factors.

b. Statistical descreption of the intercorrelation between these factors.

c. To find out some measurements of pulmonary factors to identify the best handball players for the Gulf Area.

11- PROCEDURES

1- Sample

A total sample of 25 handball players from Barhaini National Team has been volunteered for this study. The subjects were checked medically and they were completely free from any pulmonary diseases as reported by the physicia

Evaluation of Some Pulmonary Factors for Bahraini Handball National Team

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I Approach:

Exercise appears to have two forms in recent years. A progressive incremental test in which the power is increased contenuously or in small steps every minute. The other method is the test that the power output is maintained for 4-6 minutes which called steady state test (1). There are many exercise programs for training include walking, stairs climbing, cycling or using trademill for jogging or running. Each supervised physical activity should be oriented towards cardio work loads that are below the personal cardio capacity even for pulmonary evaluation to ensure the benefits of the exercise and to avoid the risks of fatigue. The provious forms of exercises used to measure are evaluate the pumonary fuctions such as oxygen volume (vo_2) vital capacity (VC), maximum voluntary ventilation (M.V.V.) forced experatory volume (F.E.V.). It is well established that there is a correlation between vo2 and VV (2). There was many litratures mentioned the direct relation between heart rate (HR) and pulmonary factors.