Rationing training loads for free style wrestler in the light of some functional responses

Dr. Tamer Emad eldeen said Mohamed Darwish (*)

Research problem

Free style wresting sport need high degree of physical technical because of the performance nature which have many catches that must be done on suitable time, and it's also characterized by continuous Changing in body level according to conflict situation.

the searcher noticed that free style wresting doesn't have attention of many researchers and experts in the field of training and measurement beside it's importance of acquisition practitioners multiple physical qualities, the matter that made both (Petrove., R,1986 and Umbach . A.W., & Johnson. W.R,1984) pointing to the wrestler who has high level of these qualities beside special moving performance can easily beat his competitor in the game and turns defeat into victory any time in game.

both Horst wein(2001,p23) ali el bek (1997,p75) R .J . Shepherd and P.P. A strand(1996,p32) agreed that improving physical qualities based on specific impact of the training on the vital aspects of sports, and determine intensity levels by functional responses shows significant advantage when compared to other methods results .

Both AbulElelaa Abdel Fattah (1997,p64) Mohamed Osman (2000,p 65), BahaSalama (2002,p97) Aliglal(2003,p 218,219) confirms that rationing of training loads process is the structure of the training programs for (intensity – size – rest) to be set based on the training process to get his player to physiological adjustment .

The searcher noticed that using functional reaction of body responses is one of the important means that help the trainer to determine wrestler level From here the problem of the researcher had come in the need for a standard attributed to determine the degree of training load and a way to identify the most appropriate functional response for rationing of training loads to fit the nature of the conflict of junior wrestler .

(*)Lecturer, Department of Sports training and Movement Science, Faculty of Physical Education, Banha University.

So the researcher studied the relation between these functional reaction and training load level and it's contribution rate in rationing training loads for junior free style wrestler .

Research objective

The researcher aims to rationing training loads for junior free style wrestler using functional responses .

Research hypotheses

- There are differences between training loads means in functional response .
- There is connected relation between functional responses in training loads means for junior free style wrestler .
- The contribution rate of functional responses and predictive equations are different in determine training loads levels for junior free style wrestler .

Research procedures

Research Methodology

The researcher used the descriptive approach as it suits research nature.

Research sample

The basic research sample selected form sports school from (16) wrestlers and (5) wrestler from the same research sample for the pilot study .

Table (1)
Sample description
(n = 16)

Variables	unit	Mean	SD	Median	High value	Low value	Skewness
Age	Year	17.4	0.60	17.35	18.0	16.0	0.68
Training age	Year	8.18	0.75	8.0	9.0	7.0	0.33
Height	Cm	168.13	1.67	168.5	170	165	0.52-
Weight	Kg	69.50	3.05	68.50	75	66	0.56
Physical efficiency	Watt	265.19	5.06	256.0	274.0	259	0.21

Table (1) shows that the Skewness coefficient averge value between (0,68:0,52-)and this value between ± 3 which indicates homogeneity of sample.

Methods and data collection tools

training loads:
Simple load- Medium load- lower than maximum- maximum.
functional responses:

Heart rate	pulse/min	Ventilation coefficient	L/min
Stroke volume	ml/pulse	Oxygen pulse	ml/pulse
Cardiac output	L/min	volume of oxygen consumed	ml/min
VO2 expressed per kg	ml/kg/min	volume of carbon-dioxide produced	ml / min
Lactic acid	Mmole/l		

Tools and equipment used
- Restameter to measure height of the body.
- medical thermometer to measure the weight.
- Quark Cpet device produced by COSMED company to measure functional variable
-Ergometer bike – Stopwatch. - Accusport device to measure Lactic acid.

Tests
1 – Novak test (Watt/kg)
2 - Physical Efficiency Test (Watt)

It is done on ergometer bike; wrestler pedal on it for 6 minutes with heart rate so limited heart rate between 120: 140 pulse/sec, then wrestler take 10 minutes rest and then re-test on the bike for another 6 minutes so heart rate is between 150-170 pulse/sec, heart rate and energy produced are recorded for each time efficiency for wrestlers calculated by applying the following equation: (Kostov, Zlatin et al, 2003: pp190-196)

$$PWC_{170} = \left[\frac{(P_1 \times HR_2) - (P_2 \times HR_1)}{(HR_2 - HR_1)}\right] + \left[170 \times \left[\frac{(P_1 - P_2)}{(HR_1 - HR_2)}\right]\right]$$

P_1	Energy produced in the first time	P_2	Energy produced in the second time
HR_1	Heart rate in the first time	HR_2	Heart rate in the second time

pilot study:

the researcher conducted a pilot study in the period from 6/07/2015 to 12/07/2015 on the exploratory sample (5) out of the basic sample the study aimed to make sure of the validity of tools and equipment used and adjust the way of rationing training loads .

- basic study :

basic study was conducted in the period from 20/07/2015 taking into account determine of the intensity of training loads according Novak method (Watt/kg).

in physiological measurement lab in faculty of physical education for boys, zagzig university which is Training load is determined based on body on treadmill (Watt per each Kg) so if body weight for player (80 kg), we begin with load (80 watts) for (2 minutes) and doubles load every two minutes so that it becomes in minute (3, 4) = 160 watts, and (5 ,6) = 240 watts) and gradually increase the load until it reaches the individual maximum possible performance load(Elgohari, Y., 2003: pp77-79).

Statistical work :

The researcher used statistical work for sample data with the following statically ways

- Mean- Median- Skewness- SD-ANOVA-L.S.D-Correlation.

Results and discussion

Results

Table (2)

The research sample characterization in intensity of training loads and functional responses after performing simple and medium load .

variables	Unit	Simple load				Medium load			
		mean	median	SD	Skewness	mean	median	SD	Ske
load intensity	watts	71.61	72.33	3.54	0.10-	147.62	150.70	4.25	0.1
Heart rate	pulse/min	126.88	126.50	4.92	0.02	156.31	156.50	9.9	0.2
Stroke volume	ml/pulse	25.08	25.12	0.88	0.2 -	30.82	30.69	1.12	0.2
Cardiac output	L/min	8.95	9.23	0.59	0.06	11.38	11.37	0.87	0.1
Oxygen pulse	ml/pulse	25.67	25.60	0.65	0.2 -	27.49	27.92	0.73	0.8
Volume of oxygen consumed	ml /min	2421.4	2414.0	128.8	0.12-	2710.5	2755.0	131.6	0.9
Total volume of carbon-dioxide produced	ml /min	13.59	13.13	0.98	0.79	22.59	22.17	0.93	1.1
VO_2 expressed per kg	ml/ kg/s	26.55	26.30	0.91	0.18	28.31	28.13	0.99	0.1
Ventilation coefficient	L/min	1.31	1.32	0.03	0.3 -	1.46	1.47	0.06	0.3
Lactic acid	Mmole/l	3.27	3.12	0.35	2.02	4.41	4.22	0.42	1.3

Indicates that the skewness coefficient was between ± 3 for load intensity and functional responses which suggesting homogeneity of the sample after performing simple and medium loads .

Table (3)

Description of the research sample for load intensity functional responses after lower than maximum and maximum loads .

variables	Unit	lower than maximum				maximum			
		mean	median	SD	Skewness	mean	median	SD	Skewness
load	watts	221.85	222.0	4.79	0.76	305.13	311.88	13.05	1.10-

intensity									
Heart rate	pulse/min	181.69	184.0	5.85	0.58 -	204.0	208.0	8.33	0.55 -
Stroke volume	ml/pulse	36.24	36.12	1.38	0.41	42.08	41.76	1.77	0.82
Cardiac output	L/min	13.44	13.48	0.92	0.36	16.60	17.1	1.03	0.60-
Oxygen pulse	ml/pulse	30.74	30.48	1.05	0.03	33.05	33.18	0.83	0.14
volumeof oxygen consumed	ml /min	2981.2	3004.0	110.5	0.32 -	3225.6	3222.0	83.8	0.12
Total volume of carbon-dioxide produced	ml /min	27.58	27.23	1.23	1.11	33.65	33.21	0.88	0.62
VO_2 expressed per kg	ml/ kg/s	30.14	30.09	0.81	0.05	34.35	34.21	0.91	0.13
Ventilation coefficient	L/min	1.59	1.59	0.11	0.20	1.76	1.72	0.12	0.48
Lactic acid	Mmole/l	6.48	6.34	0.51	0.72	8.57	8.44	0.52	0.62

indicates that the skewness coefficient was between ± 3 for load intensity and functional responses which suggesting homogeneity of the sample after performing lower than maximum loads .

Table (4)
Analysis of radiance between four training loads and functional responses

Variables	Status	Degrees of freedom	total Squares	Mean squares	f
Load intensity (watt)	Within measurements	3	477773	159257.7	2847.2*
	Between measurements	60	3356	55.9	
Heart rate (pulse/min)	Within measurements	3	52940	17646.8	312.5*
	Between measurements	60	3388.6	56.55	
Stroke volume (ml/pulse)	Within measurements	3	2548.1	849.01	479.01*
	Between measurements	60	106.39	1.77	
Cardiac output (L/min)	Within measurements	3	503.55	167.85	221.24*
	Between measurements	60	45.52	0.75	
Oxygen pulse (ml/pulse)	Within measurements	3	520.81	173.60	250*
	Between measurements	60	41.60	0.69	
Volumeof oxygen consumed(ml/min)	Within measurements	3	5767924	1922641	144.74*
	Between measurements	60	797026	13284	
Total volume of carbon-dioxide produced (ml/min)	Within measurements	3	3453.15	1151.05	1209.29*
	Between measurements	60	57.11	0.952	
VO_2 expressed per kg (ml/kg/min)	Within measurements	3	538.16	179.38	218.01*
	Between measurements	60	49.37	0.823	
Ventilation coefficient (L/min)	Within measurements	3	1.737	0.5791	64.91*

	Between measurements	60	0.5353	0.0089	
Lactic acid Mmole/l	Within measurements	3	263.12	87.71	414.23*
	Between measurements	60	12.70	0.212	

F significance at 0.05 level that there are statistically significant differences on level 0,05 between measurements, the value of calculated (F) bigger than the value of schedule (F) in radiances in this study so the researcher conducted the difference by calculating (L.S.D)

Table (5)
The difference between the arranges of training loads in functional responses

Variables	measurements	Mean	Simple	Medium	Lower than maximum	maximum	L.S.D
Load intensity	Simple	71.61		78.27	150.3	233.5	0.934
	Medium	149.88			71.97	155.3	
	Lower than maximum	221.85				83.28	
	maximum	305.13					

Continued Table (5)
The difference between the arranges of training loads in functional responses

Variables	measurements	Mean	Simple	Medium	Lower than maximum	maximum	L.S.D
Heart rate	Simple	126.88		29.43	56.81	77.12	0.945
	Medium	156.31			25.38	47.69	

	Lower than maximum	181.69				22.31	
	maximum	204.0					
Stroke volume	Simple	25.08		5.74	11.16	17.0	0.211
	Medium	30.82			5.42	11.26	
	Lower than maximum	36.24				5.84	
	maximum	42.08					
Cardiac output	Simple	8.95		2.43	4.5	7.65	0.109
	Medium	11.38			2.07	5.22	
	Lower than maximum	13.45				3.15	
	maximum	16.60					
Oxygen pulse	Simple	25.67		1.82	5.07	7.38	0.125
	Medium	27.49			3.25	5.56	
	Lower than maximum	30.74				2.31	
	maximum	33.05					
Volume of oxygen consumed	Simple	2421.4		289.1	559.8	804.2	14.41
	Medium	2710.5			270.7	515.1	
	Lower than maximum	2981.2				244.4	
	maximu	322					

	m	5.6					
Total volume of carbon-dioxide produced	Simple	13.59		9.0	13.99	20.06	0.122
	Medium	22.59			4.99	11.06	
	Lower than maximum	27.58				6.07	
	maximum	33.65					
VO2 expressed per kg	Simple	26.55		1.76	3.59	7.8	0.132
	Medium	28.31			1.83	6.04	
	Lower than maximum	30.14				4.21	
	maximum	34.35					
Ventilation coefficient	Simple	1.31		0.15	0.28	0.45	0.011
	Medium	1.46			0.13	0.30	
	Lower than maximum	1.59				0.17	
	maximum	1.76					
Lactic acid	Simple	3.27		1.14	3.21	5.3	0.573
	Medium	4.41			2.07	4.16	
	Lower than maximum	6.48				2.09	
	maximum	8.57					

The difference between the arranges of training loads in functional responses

Table (5) indicates that there are statistically significant in functional responses.

Table (6)
Correlation coefficients between study arranges (functional responses) for simple load

Variables	Heart rate	Stroke volume	Cardiac output	Oxygen pulse	Volume of oxygen consumed	volume of carbon-dioxide	VO_2 expressed per kg	Ventilation coefficient	Lactic acid
Heart rate		0.391	0.338	0.276	0.242	0.438	0.367	0.372	0.432
Stroke volume			0.543	0.367	0.281	0.368	0.114	0.434	0.332
Cardiac output				0.434	0.226	0.131	0.312	0.273	0.222
Oxygen pulse					0.468	0.552	0.474	0.333	0.637
Volume of oxygen consumed						0.572	0.438	0.321	0.241
Total volume of carbon-dioxide produced							0.463	0.228	0.321
VO2 expressed per kg								0.327	0.216
Ventilation coefficient									0.226
Lactic acid									

indicates that there are (36) correlation coefficients, in which correlation value between (0.637-0.114) on level 0.05

Table (7)
Regression analysis for simple load functional responses

Variables	Partial regression coefficient	Standard error	t	f	contribution rate
Load intensity	155.8	194.5	0.80	0.16	0000
Heart rate	0.1120	0.4693	0.24	0.24	0.012
Stroke volume	1.459 -	3.622	0.40 -	1.12	0.061
Cardiac output	1.717	5.064	0.34	8.51	0.106

Oxygen pulse	1.076 -	4.134	0.25 -	6.10	0.074
Volumeof oxygen consumed	0.0006	0.01593	0.04	7.24	0.007
Total volume of carbon-dioxide produced	1.619	2.66	0.61	0.73	0.022
VO_2 expressed per kg	0.090 -	2.53	0.04 -	6.76	0.010
Ventilation coefficient	55.90 -	87.28	0.64 -	12.59	0.426
Lactic acid	2.256 -	8.500	0.27 -	2.02	0.104
	¦contribution rate 0.822				

indicates that most responses contribution in simple load level is ventilation coefficient which is (0.426) and then cardiac output by contribution rate (0.106) and then lactic acid proportion by contribution rate (0.104) , it is worth mentioning that functional responses contributed in simple load by (0.822) 56 the predictive equation for simple load level for junior wrestler in terms of functional responses as follows: the degree of simple load level=156+0.112-1.46+1.72-1.08+0.0007+1.62-0.09-00.9-2.62

Table (8)

Correlation coefficients between study variables (functional responses) for medium load

Variables	Heart rate	Stroke volume	Cardiac output	Oxygen pulse	Volume of oxygen consumed	Total volume of carbon-dioxide	VO2 expressed per kg	Ventilation coefficient	Lactic acid
Heart rate		0.339	0.355	0.289	0.261	0.351	0.216	0.278	346
Stroke volume			0.556	0.478	0.321	0.355	0.412	0.237	0.342
Cardiac output				0.334	0.234	0.126	0.112	0.023	0.132
Oxygen pulse					0.443	0.462	0.237	0.213	0.327
Volume of oxygen consumed						0.348	0.427	0.221	0.341
Total volume of							0.367	0.238	0.321

carbon-dioxide produced									
VO2 expressed per kg								0.127	0.116
Ventilation coefficient									0.326
Lactic acid									

Table (8) indicates that there are (36) correlation coefficients in which correlation value between (0.556 – 0.112) on level 0.05

Table (9)

Regression analysis for medium load functional responses

Variables	Partial regression coefficient	Standard error	t	f	contribution rate
Load intensity	169.2	150.6	1.12	0.09	0000
Heart rate	0.0419 -	0.2318	0.18-	0.31	0.041
Stroke volume	1.537	2.263	0.68	6.03	0.063
Cardiac output	0.054	3.192	0.02	0.66	0.062
Oxygen pulse	1.591 -	6.956	0.23 -	3.10	0.102
Volume of oxygen consumed	0.01505-	0.02432	0.62-	19.38	0.006
Total volume of carbon-dioxide produced	0.837 -	3.050	0.27 -	2.21	0.074
VO_2 expressed per kg	0.497	2.461	0.20	0.37	0.044
Ventilation coefficient	23.43	71.99	0.33	5.85	0.400
Lactic acid	1.443 -	5.270	0.27 -	3.44	0.094
	contribution rate 0.886				

indicate that most responses contribution in average load is ventilation coefficient which is (0.426) and then cardiac output by contribution rate (0.400) and then oxygen pulse by contribution rate (0.102) and it's important to mention that functional responses made a contribution rate to medium load by (0.886) and so the predictive equations for medium load level for junior northers in terms of functional responses as follow: the degree of medium

load = 169-0.042+1.54+0.05+ -1.59 – 0.0151 – 0.84 + 0.50 + 23.4 – 1.44

Table (10)

Correlation coefficients between study averages (functional responses) for lower than maximum loads

Variables	Heart rate	Stroke volume	Cardiac output	Oxygen pulse	Volume of oxygen consumed	Total volume of carbon-dioxide produced	VO_2 expressed per kg	Ventilation coefficient	Lactic acid
Heart rate		0.389	0.365	0.284	0.263	0.381	0.316	0.298	0.421
Stroke volume			0.216	0.178	0.221	0.365	0.212	0.137	0.642
Cardiac output				0.134	0.127	0.178	0.197	0.021	0.111
Oxygen pulse					0.321	0.342	0.242	0.232	0.227
Volume of oxygen consumed						0.231	0.227	0.231	0.321
Total volume ofcarbon-dioxide produced							0.374	0.239	0.321
VO2 expressed per kg								0.124	0.112
Ventilation coefficient									0.226
Lactic acid									

Table (10)indicates that there are (36) correlation coefficients , the value of correlation between (0.642-0.112) on level 0,05

Table (11)

Regression analysis for lower than maximum functional responses

Variables	Partial regression coefficient	Standard error	t	f	contribution rate
Load intensity	258.2	260.5	0.99	0.14	000
Heart rate	0.0648 -	0.5714	0.11 -	0.43	0.064
Stroke volume	0.137	1.880	0.07	2.06	0.008
Cardiac output	1.621	3.676	0.44	3.32	0.090
Oxygen pulse	1.566 -	3.544	0.44 -	4.21	0.113
Volume of	0.00017	0.02804	0.01	0.22	0.007

oxygen consumed					
Total volume of carbon-dioxide produced	0.499 -	2.551	0.20 -	1.23	0.071
VO_2 expressed per kg	0.226	3.001	0.08	1.78	0.091
Ventilation coefficient	2.17 -	41.48	0.05 -	8.52	0.331
Lactic acid	1.750 -	4.991	0.35 -	1.08	0.112
	contribution rate 0.887				

indicates that the most responses contribution in lower than maximum is ventilation coefficient which is (0.331) and then oxygen pules with contribution rate (0.113) and then lactic acid proration by contribution rate (0.112) , and it's important to mention that functional responses contribute in lower than maximum degree by (0.887) and so the predictive equation of lower than maximum degree for junior wrestle in terms of functional responses as follow lower than maximum training load =258-0.065+0.14+1.62-1.57+0.0002-0.50+0.23-2.2-1.75

Table (12)

Correlation coefficients between study variables (functional responses) maximum load

Variables	Heart rate	Stroke volume	Cardiac output	Oxygen pulse	Volume of oxygen consumed	Volume of carbon-dioxide	VO2 expressed per kg	Ventilation coefficient	Lactic acid
Heart rate		0.439	0.255	0.298	0.216	0.220	0.229	0.287	0.242
Stroke volume			0.446	0.433	0.222	0.552	0.214	0.326	0.442
Cardiac output				0.426	0.334	0.162	0.121	0.025	0.132
Oxygen pulse					0.343	0.398	0.276	0.281	0.114
Volume of oxygen consumed						0.191	0.367	0.321	0.211
Total volume of carbon-dioxide produced							0.216	0.242	0.278
VO2 expressed								0.1	0.21

per kg								31	2
Ventilation coefficient									0.241
Lactic acid									

Table (12) indicate that there are (36) correlation coefficients, its value between (0.112-0.114) on lend 0.05

Table (13)

Regression analysis for maximum load functional responses

Variables	Partial regression coefficient	Standard error	t	f	contribution rate
Load intensity	537.5 -	544.0	0.99 -	1.49	000
Heart rate	0.1904 -	0.5550	0.34 -	0.498	0.004
Stroke volume	2.795 -	2.424	1.15 -	0.994	0.090
Cardiac output	8.470 -	6.116	1.38 -	2.342	0.0.096
Oxygen pulse	3.088 -	5.931	0.52 -	0.874	0.0.093
Volume of oxygen consumed	0.01213	0.04811	0.25	4.327	0.006
Total volume of carbon-dioxide produced	0.932	4.837	0.19	0.0670	0.094
VO_2 expressed per kg	0.835 -	4.546	0.18 -	0.034 -	0.091
Ventilation coefficient	6.24 -	51.25	0.12 -	- 0.0554	0.311
Lactic acid	7.688	7.833	0.98	0.896	0.0.099
contribution rate 0.884					

indicate that the most responses contribution in maximum load is ventilation coefficient which is (0.311) and then cardiac output by (0.096) and then oxygen pulse by (0.0.093) , its important to mention that functional responses contributed in maximum load by contribution rate (0.884) and so the predictive equation of maximum load for junior wrestler in terms of functional responses as follow: maximum training load =-537-0.190-2.80-8.47-3.09+0.0121+0.93-0.83-6.2+7069

Results and discussion

1-first query discussion

Tables (2,3) indicates that load intensity was (71,61) watt for simple load, for medium load was (147,62) watt for lower than maximum load was (221,85) watt and for maximum load was

(305,13) watt for research sample based on body weight on treadmill using Novak test (watt/kg)

(abo el Ela Abd el Fatah 2012) adapted from (blatonof) mentioned that low load intensity between %25:%15, and medium load intensity between %60 %40 and lower than maximum intensity between %75:%60 while the maximum intensity load can reach full fatigue stage %88 the researcher explain that as a result of changing training load in intensity and degree, play an important role in effecting functional body organs , as an example average plus rate after performing simple load was 126,88plmin while it reaches 156.31 after performing medium load until it reached 204.0 after performing maximum load the more load degree increases the more fatigue degree increased which need more recovery sessions, and that agreed with each of (ali el beak 1996) (bastawesy ahmed 1999) (bahaa salama 2000) (naeem fawzy and other 2004) (stefanon at all 2004) (abo el ela 2012) and (Mohamed abd el zaher 2014) table (4.5) indicate that there are statically significant differences between four levels of training loads and functional responses four junior freestyle wrestler for the benefits of maximum load

The researcher explain that is for the wrestler continued performance and the effects of changing training loads and the need of oxygen is more in active muscles therefore the results of oxidation processes increase.

which leads to responses and changes in the function of league organs and that's agreed with (Gazy yousef 1998) (Bahaa salama 2000) (Kostore and other 2003) (oparina 2003) (Kitman 2004) for increasing and changing training loads made some change in average body function responses rate as a result of body adapted to the loads.

where (bompe 1999) mentioned that any physical activity leads to functional and vitality responses training load increase (intensity - volume - size) lead to increase in functional responses.

this is agreed with (Abo el Ela abd ElFatah 2000) bahaa salma 2002) (bahaa salama 2002) (ABO EL Ela Abd Elfatah and Ahmed Naser Eldeen 2003) that Volumeof oxygen consumed after performing maximum load reached 4400 and (bajadzier 2004)n(Sheltnof and other 2004) mentioned that increasing training loads increase consumed oxygen while carbon-dioxide produced reaches 13.09 ml/min after performing simple load reached 33.66 ml/min after performing maximum load that's for relation between volume of ventilation coefficient and consumed

oxygen and carbon . dioxide produced and this agreed with (shetanof and others 2004) study that increasing training loads increased carbon - dioxide value.

(mohamed el kot 2006) noticed that load intensity differences made the accumulation of latic acid increased by average 2 : 4 equal double in rest and it reaches the best level at the end of the training : until fatigue.

-second query discussion :

table (6,8,10,12) correlation coefficients between average functional responses in search for four training loads led (simple - medium - lower than maximum) for junior wrestler as theirs a significant relation between them.

we fined that highest correlation coefficients (functional responses) for arrange load of junior wrestlers was plus rate , Volume of oxygen consumed and ventilation coefficient it a positive relationship white we find correlation coefficient between functional responses arranges in maximum load for stroke volume , cardic output, oxygen pulse Volume of oxygen consumed and volume of carbon - dioxide produced and there is positive correlation in the functional responses.

the researcher explain that the wrestler in the begging of muscles work (physical effort) need an energy to Performa that most of functional organs responses as a result of training loads as an example maximum oxygen consumption level increase as the load increase as we find increased heart rate and Stroke volume which we hade from contains cardiac output its a positive relationship concentration of lactic acid in blood can be considered as good indicator for wrestler to carrying performance and its cleared from vo2 max rate as lactic and concentration.

these results agreed with (mohamed El Kot 2006) (mohamed Abo Elzahee 2014) According to (merle) foss & steven j , Keteyian) That there is a presence of positive correlation between function variables for regular respiratory .

both (Gazy yousef 1998) (Mohamed El Kot 1999)mentioned that it produces changes in various body function to the body to adapt to training loads .

both (Dobson 1990) (Powers hawley 1996) (Bahaa salama 2000) (Kojy Waka yosbi 2001) and (peter hanssen 2002) agreed that functional responses from used measurements as an indicator of training loads intensity and training programs evaluation .

from above it's clear that rationing training loads for junior wrestler needs understanding of the manifestations of adjustment through multiple stage of training and specialty direct adjustment stage which considered foundations of directing the training process during load rationing and using the relationship between functional responses and the overlap between them performance training programs.

Third query discussion

Tables (10,11,13) clears the differences of functional responses contribution rate in four loads degree(simple- medium – lower than maximum – maximum) for junior wrestler.

The researcher explain the logical of results pulse rate comes the most functional responses contribution in determine training loads level as the possibility of measuring this variable in physiological labs and stadiums which lead us to guide it in evaluating training case and suitable training load for each player specially junior players where the junior player subjected to non – rationing training loads displays him to negative symptoms and make training load not positive and it reflected to his performance contribution its also cleared that difference in functional response in lower than maximum load level and maximum load level for junior wrestler and the most contribution response in lower than maximum level is ventilation coefficient and then oxygen pulse and then proportioned lactic acid it's wroth to mention that this functional responses contribute in lower than maximum load level by (0.887) on it also cleared these functional responses contribute in maximum load by (0.884)

The researcher explain that to the increasing in training loads the junior have exposure which made changes in different body organs, also the type of free style wrestler as it need higher requirements than roman wrestler .

Where it's clear that at the beginning of the attack the breathing is deeply and slowly and with increasing load and the muscles need to oxygen increases respiratory rate and increases the need of volume of oxygen consumed and relative also oxygen pulse which decreases the time the body takes to complete operations of inbale and exhale .

As the level of lactic acid concentration in blood shows the correlation between the processes that load to his appearance in working muscles, and the processes that work to get rid of it as increasing breathing increase the level of oxygen in blood which need more cardiac out put and stroke volume and there for dilation of blood vessels .

So difference training loads represent objectively arrangement for both of them contribution rate, and using them in determine suitable training load level .

The results of these study agreed with the study of each bahaa salama(2000), mohi el deen el dosoky(2000), ashraf masade, and Mohamed abas(2004), Mohamed gaber(2005), and stevanor at al(l 2004) .

Conclusions :

In light of study results and research sample the following could be concluded :

- Changing training loads led to a contrast in functional responses in research .
- Maximum load consider the most training loads effect on functional responses
- There is a relationship between changing training loads and functional responses .
- Predictive equation can be used by the degree of load intensity in terms of functional responses .

Recommendations:

In the light of conclusion the research recommend the following :

- guided By functional responses in rationing training load and judgment on direct adaption for junior freestyle wrestler training loads
- interest of functional measurements before during and after season for wrestler.
- Do not use one functional indicator for evaluating taining loads for junior freestyle wrestler.
- Using predictive equations that . have been reached in predicting training load level for junior freestyle wrestler.

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