

Impact of targeted training loads, according to the ratios of certain contributing physical traits, on the achievement level of handball juniors

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Introduction and problem of research:

Analysis of the skill performance of a handball game has shown that it requires special physical qualities that distinguish it from other sporting activities, so the availability of such requirements in those who exercise it can give it greater access to higher levels, especially if it is linked to skilled performance.

Hence, the problem of this research crystallized in developing a training program based on specific ratios instead of repeating the training programs, which are often different in intensity and sizes, and used the same training methods. The researcher's review of the research and studies related to preparing and developing proposed training programs and knowing the extent of their impact on the level of performance. We mention among them the study of Sami Muhammad Ali 1995 AD (45), Rashid Amer Muhammad and Ibrahim Mahmoud Gharib 2000 AD (41), Hossam Saad Salim 2001 (38), Muhammad Mahmoud Marzouk, 2001 (112). It is clear in these studies and research that they did not take into account the percentages of Contribution ratios of physical traits to the level of performance of basic skills and some physiological variables of

handball juniors, and that within the limits of the researcher's knowledge, there is no single scientific method that explains how to distribute the time of special physical preparation on special physical traits and contribute to the performance of skills.

Search objective:

The research aims to identify the Impact of targeted training loads, according to the ratios of certain contributing physical traits, on the achievement level of handball juniors.

Research hypotheses:

- There are statistically significant differences between the averages of the three measurements (pre-, inter- and post) in the contributing physical traits and the level of performance of the basic skills under discussion in favor of the post-measurement.

- There are statistically significant differences between the two measurements, the perioral and posterior measures, in the physiological variables in favor of the post-measurement.

Research Terms

Contributing physical traits*

They are the physical qualities required by each of the handball skills, each according to his position, which when developed and developed leads to the performance of those skills efficiently and effectively

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Research procedures.

The Research Sample:

The researcher chose the sample by a random, intentional method, consisting of (15) handball players under 18 years old in Benha Sports

Club who are registered with the Egyptian Handball Federation for the sports season 2019/2020 AD.

The homogeneity of the research sample

Table (1)

N=15

ser.	variables	unit	Average	Deviation	Mediator	Skewness
1	Chronical Age	year	17.75	0.639	18.00	0.253
2	tall	cm	170.55	1.701	170.00	0.369
3	weight	Kg	72.25	1.970	72.00	0.118
4	training age	year	5.87	2.345	5.00	1.113
5	22M curve running	(1:10) sec.	3.875	0.635	4.000	0.127
7	Standing shot of a medicine ball (800) gm.	M	23.330	1.711	23.000	0.354
9	Barro method Zigzag running	1/10 sec.	24.291	1.143	24.000	0.596
11	Passing and receiving on a wall (10 balls)	(1:10) sec.	11.427	1.391	12.000	0.548-

It is evident from Table (1) that the values of the skewness coefficients in the homogeneity variables are values less than ± 3 , which indicates

that they fall under the moderation curve (homogeneity of the research sample individuals).

Table (2)

N=15

ser.	variables	unit	Average	Deviation	Mediator	Skewness
1	Passing and receiving on a wall for 30 seconds	no.	19.200	1.014	19.000	0.493
2	Defensive motion and 22m curve fast break	(1:10)	24.067	1.100	24.000	-0.892

Table (2) shows the homogeneity of the research sample in the skill performance variables, as it is clear from the table that the skew

coefficients were limited to (± 3) , which indicates the homogeneity of the sample members in these variables.

Table (3)
N=15

ser.	variables		Unit	Average	Deviation	Mediator	Skewness
1	Maximum oxygen consumption (VO ₂ max)		liter/m .	2.118	0.072	2.120	0.376-
2	Heart Rate (HR)	At rest	p/m	68.221	1.079	68.000	1.682
		At max.	p/m	183.373	1.861	183.000	2.961
3	Blood concentration of lactic acid	At rest	millimole	0.887	0.028	0.890	3.032
		after the effort	millimole	3.000	0.756	3.000	0.000

Table (3) shows the homogeneity of the research sample in the physiological variables under study, as it is clear from the table that the skew coefficients were limited to (± 3), which indicates the homogeneity of the sample members in these variables.

Methods and tools of data collection:

First: Data collecting methods

- The data registration form for the players contains (name - club to which the player belongs - address - chronological age - training age).
- The form for recording the results of the physical tests for the players .
- The form for recording the results of the skill tests for the players.
- The form for recording the results of the physiological tests for the players .

Second: The tests used in the research: .

- Running (22m) in a curve.
- Throwing a medicine ball (800) G. from steady state.

- Barro method zigzag running
- Passing and receiving on a wall (10 balls)

Metamax 3B device to measure some variables of the circulatory and respiratory system, equipped with a computer

- heart rate, Maximum oxygen consumption
- Lactic Taking a blood sample after exertion Mmole

survey study:

The researcher conducted (2) exploratory studies, the first study during the period 2:1/1/ 2021AD. The exploratory sample numbered (5) from outside the basic sample. This study aimed to ensure the validity of the tools and devices used and the training of assistants, and the second study during the period 12:9/ 1/ 2021 AD and aimed at codifying the training loads of the training program.

Application procedures:

Pre- measurements:

Pre- measurements were conducted on members of the basic study sample in various aspects (physical, skilled, physiological) from 15/1/2021 to 18/1/2021.

Basic Experiment:

After conducting the exploratory study and its findings, the researcher conducted the basic study as follows: The core sample members underwent a standardized program in all its proposed contents, which was applied by the researcher to the search sample for a period of 8 weeks from 21/1/2021 to 24/3/2021.

The foundations that the researcher took into account in applying the experiment:

Traits of targeted training loads, according to the ratios of certain contributing physical qualities, on the achievement level of young people.
1-The program has been implemented in six training doses per week and at a time of 90: 180

minutes The researcher deliberately had a dose time of eight weeks during the special preparation period, and consequently the number of training modules is 48.

2-The standardized warm-up was carried out in the training doses on the research group with an aerobic load of 30%:50% Which included exercises that contribute to raising the body temperature, preparing the muscles for work and stimulating blood circulation (such as varied running and jumping), then various stretching exercises.

3- Then the main part was implemented, which included general preparation exercises for the research

group, whose content targeted most parts of the body.

4- The experimental variable (physical component ratio) has been applied in the special preparation and skill portion of the training dose of the group in question.

The unified calming part was implemented in the training doses of the experimental group (the research sample), which contains exercises that contribute to restoring recovery, such as swinging and stretches.

5- The training load, the relative and temporal distribution of the components of the training doses and the trial portion for each week are formed in the training program

The researcher indicates that the time of the contributing physical traits was distributed to the skills under study by giving a time to the experimental part equal to (25%) of the total time of special physical preparation and skill preparation, based on the dynamics of load.

Post- tests

The post-measurements were carried out in the period from 3/26/2021AD to 3/28/2021, and the researcher took into account the application of the same conditions for conducting the tests that took place in the pre-measurement, then he collected the results accurately after the completion of the application of the tests and scheduled and organized them in preparation for statistical treatment.

Statistical processors

In this research, the researcher used the following statistical treatments:

- SMA. - standard deviation. - skew modulus. - (T) test

- Variance analysis. - (L. S.D) - improvement rate %.

Presentation and discussion of the results:

Presentation of the results:

Table (4)

Analysis of the variance between the averages of the research measurements (pre - intersectional - post) In the physical characteristics contributing to the level of performance of the passing skill from the pivot N= 15

tests		Source of variance	Total no. of squares	degrees of freedom	Average of squares	Variance ratio	Indication level
contributing physical traits	Passing and receiving on a wall (10 balls) (speed performance of the shooting arm)	Between groups	40.000	2	20,000	36.019	0.000
		Inside groups	31.650	57	0.555		
		total	71.650	59	—		
	Throwing and receiving of balls (harmony)	Between groups	189.433	2	94.717	211.720	0.000
		Inside groups	25.500	57	0.447		
		total	214.933	59	—		
	shot on overlapping rectangles (accuracy)	Between groups	721.033	2	360.517	367.282	0.000
		Inside groups	55.950	57	0.982		
		total	776.983	59	—		
	(fist strength) muscular strength	Between groups	1953.700	2	976.850	3490.957	0.00
		Inside groups	15.950	57	0.280		
		Total	1969.650	59	—		
SKILL	Pass and receive on a wall for 30 seconds	Between groups	348.133	2	174.067	686.630	0.00
		Inside groups	14.450	57	0.254		
		Total	362.585	59	—		

Table (5)

Analysis of the variance between the averages of the research measurements (pre - intersectional - post) In the physical characteristics contributing to the level of performance of the pass from the pivot skill N=15

Tests		measurements	SMA	Differences between averages		
				pre	inter	post
Physical contributing traits	Passing and receiving on a wall (10 balls) (Speed performance of the shooting arm)	Pre	13,41		*1,301-	*2,930-
		Intersectional	12,11	0,00		*1,628
		Post	10,48	0,00	0,00	
	Throwing and receiving of balls (harmony)	Pre	11,60		*2,150	5,500
		Intersectional	13,75	0,008		*3,350
		Post	127,10	0,00	0,00	
	Fist strength (muscular strength)	Pre	47,29		*4,342	*13,309
		Intersectional	51,63	0,041		*8,967
		Post	60,60	0,00	0,00	
Skill	Pass from pivot	Pre	21,75		*1,600	*4,800
		Intersectional	23,35	0,002		*3,200
		Post	26,55	0,00	0,00	

Table (6)

Analysis of the variance between the averages of the research measurements (pre - intersectional - post) In the physical characteristics contributing to the level of performance of the passing skill from the pivot N=15

Tests		Source of variance	Total no. of squares	degrees of freedom	Average of squares	Variance ratio	Indication level
physical contributing traits	Nelson response (response speed)	Between groups	5474,206	2	2737,103	*72,911	0.000
		Inside groups	2139,811	57	37,541		
		total	7614,017	59	—		
	Bend the torso forward from standing (flexibility)	Between groups	489,100	2	244,550	*39,855	0.000
		Inside groups	349,750	57	6,136		
		total	838,850	59	—		

Table (6)

Analysis of the variance between the averages of the research measurements (pre - intersectional - post) In the physical characteristics contributing to the level of performance of the passing skill from the pivot N=15

Tests		Source of variance	Total no. of squares	degrees of freedom	Average of squares	Variance ratio	Indication level
SKILL	Throwing and receiving of balls (harmony)	Between groups	307,300	2	153,650	*24,856	0.00
		Inside groups	352,350	57	6,182		
		total	659,650	59	—		
	Zigzag running in Barrow style (agility)	Between groups	498,487	2	249,244	*145,554	0.00
		Inside groups	97,606	57	1,712		
		total	596,093	59	—		
	Catch from movement	Between groups	272,233	2	136,117	*68,966	0.00
		Inside groups	112,500	57	1,974		
		total	384,733	59	—		

Table (7)

Analysis of the variance between the averages of the research measurements (pre - intersectional - post) In the physical characteristics contributing to the level of performance of the passing skill from the pivot N=15

Tests		measurements	SMA	Differences between averages		
				Pre	inter	post
Physical contributing	Nelson response (response speed)	pre	112,62		*10,552-	*23,360-
		intersectional	102,06	0,00		*12,808
		Post	89,25	0,00	0,00	
	Bend the torso forward from standing (flexibility)	pre	9,80		*2,800	6,950
		intersectional	12,60	0,001		*4,150
		Post	16,75	0,00	0,00	
	Throwing and receiving of balls (harmony)	pre	11,60		*2,150	*5,500
		intersectional	13,75	0,008		*3,350
		Post	17,10	0,00	0,00	

Follow Table (7)

Analysis of the variance between the averages of the research measurements (pre - intersectional - post) In the physical characteristics contributing to the level of performance of the passing skill from the pivot N=15

Tests		measurements	SMA	Differences between averages		
				Pre	inter	Post
Skill	Zigzag running in Barrow style (agility)	Pre	26,36		*2,924-	*7,0270-
		intersectional	23,44	0,00		*4,103-
		Post	19,34	0,00	0,00	
	Pass from pivot	Pre	14,10		*1,850	*5,150
		intersectional	15,95	0,00		*3,300
		Post	19,25	0,00	0,00	

Table (8)

Analysis of the variance between the averages of the research measurements (pre - intersectional - post) In the physical characteristics contributing to the level of performance of defensive motion skill Defensive motion and 22m curve fast break N=15

Tests		Source of variance	Total no. of squares	degrees of freedom	Average of squares	Variance ratio	Indication level
contributing physical traits	22m sprint in a curve (transitional velocity)	Between groups	3,520	2	1,760	*79,894	0.000
		Inside groups	1,256	57	0,022		
		total	4,776	59	—		
	Nelson response (response speed)	Between groups	5474,06	2	2737,103	*72,911	0.000
		Inside groups	2139,811	57	2139,811		
		total	7614,017	59	—		
	Run 252m in front and back (speed endurance)	Between groups	342,408	2	268,441	*44,687	0.000
		Inside groups	342,408	57	6,007		
		total	879,291	59	—		
SKILL	Zigzag running in Barrow style (agility)	Between groups	498,487	2	304,558	*253,287	0.00
		Inside groups	97,606	57	1,712		
		total	596,093	59	—		
	Defensive motion and fast break launch in curve 22m	Between groups	609,115	2	304,558	*253,287	0.00
		Inside groups	68,538	57	1,202		
		total	677,653	59	—		

F-table value at a significant level of 0.05 and a degree of freedom (57,2) = 3,17

Table (9)

**The significance of the differences between the averages of the research measurements in the physical attributes contributing to the level of performance of the defensive move skill and the launch of the fast break in the 22 m curve
N=20**

Tests		Measurements	SMA	Differences between averages		
				Pre	inter	post
Physical contributing	Traits	Running 22m in a curve (transitive speed)	Pre	6,6000	.85000*	1.30000*
			Intersectional	2.7500	0,00	.45000
			Post	2.3000	0,00	
	Physical contributing	Nelson response (response speed)	Pre	11,60	*2,150	5,500
			Intersectional	110.3000	0.000	12.000*
			Post	86.85000	0,00	
	Run 252m in front and back (endurance)		Pre	77.2000	1.70000	6.75000
			Intersectional	75.5000	.000	5.0500*
			Post	70.45000	0,00	
Skill	Zigzag running in Barrow style (agility)		Pre	27.8000	2.25000	6.25000
			Intersectional	24.85000	0.000	
			Post	20.8500	0.000	
	Skill	Defensive motion and fast break launch in curve 22m	Pre	27.8000	3.05000	8.1000
			Intersectional	24.7500	0,00	5.05000
			Post	19.7000	0,00	

Table (10)

Percentage of improvement in the averages of the research measurements Physical characteristics contribute to the level of performance of the basic skills under study

tests		Average Pre-Measure	Average inter. Measur	% Improve rate	Average Inter Measur	Average post-Measur	% Improve rate	Average Pre-Measur.	Average post-Measure	% Improve rate
physical contributing traits	Passing and receiving on a wall (10 balls) (speed performance of the shooting arm)	13,41	12,11	9,69	12,11	10,48	13,45	13,41	10,48	21,84

Follow Table (10)
Percentage of improvement in the averages of the research measurements
Physical characteristics contribute to the level of performance of the basic skills
under study

tests		Average Pre-Measure	Average inter. Measur	% Improve rate	Average Inter Measur	Average post-Measur	% Improve rate	Average Pre-Measur.	Average post-Measure	% Improve rate
	Throw and receive balls (harmony)	11,60	13,75	18,53	13,75	17,10	24,36	11,60	17,10	47,41
	Shot at intersection rectangles (accuracy)	14,90	18,25	22,48	18,25	23,10	26,57	14,90	23,10	55,03
	Fist strength (muscular strength)	47,29	51,63	9,17	51,63	60,60	17,37	47,29	60,60	28,14
	Wall pass and receive for 30 seconds (pass from pivot)	21,75	23,35	7,35	23,35	26,55	13,70	21,75	26,55	22,06
physical contributing traits	Nelson response \ (response speed)	112,62	102,06	9,37	102,06	89,25	12,55	112,62	89,25	20,75
	Bend the torso forward, down from standing (flexibility)	9,80	12,60	28,57	12,60	16,75	32,93	9,80	16,75	70,91
	Throw and receive balls (harmony)	11,60	13,75	18,53	13,75	17,10	24,36	11,60	17,10	47,41
	Zigzag running in Barrow style (agility)	26,36	23,44	11,07	23,44	19,34	17,49	26,36	19,34	26,63
Catch from movement		14,10	15,95	13,12	15,95	19,25	20,68	14,10	19,25	36,52
physical contributing traits	22m sprint in a curve (transitional velocity)	4,02	3,75	6,71	3,75	3,42	8,80	4,02	3,42	14,92
	Nelson response (response speed)	112,62	102,06	9,37	102,06	89,25	12,55	112,62	89,25	20,75
	Run 252m in front and back (endurance)	76,46	73,14	4,34	73,14	69,14	5,46	76,46	69,14	9,57
	Zigzag running in Barrow style (agility)	26,36	23,44	11,07	23,44	19,34	17,49	26,36	19,34	26,63
Defensive motion and fast break launch in curve 22m		26,15	23,19	11,31	23,19	18,42	20,56	26,15	18,42	29,56

Table (11)
The significance of the differences between the pre- and post-measurement in the tests Physiological variables under investigation N=15

Physiological variable	unit	Pre- test		Post-test		Differences between averages	T value And its significance
		S-	$\bar{x} \pm D$	S-	$\bar{x} \pm D$		
Maximum oxygen consumption	L/M	2,27	0,120	3,02	0,240	0,75-	*13,46
Heart rate	At rest	P/M	71,50	0,923	69,50	0,922	2,00
	At maximum	P/M	189,75	4,494	180,06	5,824	9,68
Lactic concentration in the blood	At rest	mmol	0,97	0,21	0,89	0,037	0,08
	After endurance of a speed of 252m	mmol	4,38	0,520	4,11	0,532	0,275

F-table value at a significant level of 0.05 and a degree of freedom ($57,2 = 1,73$

Table (12)
Percentage of improvement rates between the mean of the post-measurement and the pre-measurement in the physiological variables under study

Physiological variable	unit	Pre- test		Post-test		improvement percentage %
		S-	\bar{x}	S-	\bar{x}	
Maximum oxygen consumption	L/M	3,02	2,27	2,27	2,27	33,03
Heart rate	At rest	P/M	69,50	71,50	71,50	2,79
	At maximum	P/M	180,06	189,75	189,75	5,105
Lactic concentration in the blood	At rest	mmol	0,89	0,97	0,97	8,24
	After endurance of a speed of 252m	mmol	4,38	4,26	4,26	4,26

Discuss and interpret the results.

The first hypothesis:

There are statistically significant differences between the averages of the three measurements (pre-, inter- and post) in the contributing physical traits and the level of performance of the

basic skills under discussion in favor of the post-measurement.

It is clear from table (4) of the analysis of variance between the averages of the different search measurements for the physical attributes contributing to the

level of performance of the pass skill from the pivot, which showed that there are significant differences between the three research measurements (pre-inter-post) in the contributing physical attributes and the level of performance of the pass skill from the pivot. Where the calculated F value was between (36.019- 686,630), and its value was greater than the tabular value at a significant level (0.05), as shown by Table (5) Statistically significant at the level (0.05) between the averages of the tribal, inter-and post measurements in the physical traits that contribute to the level of performance of the passing skill from the pivot.

Table (6) shows the analysis of variance between the averages of the different research measurements for the contributing physical attributes to the level of performance of catching while moving skill inefficient differences between the three research measurements (pre-inter-post) in the contributing physical attributes and the level of performance of the catch from movement skill F value ranged between (36.019- 145,554), and its value was greater than the tabular value at a significant level (0.05).

It is evident from Table (7) statically significant differences at the level (0.05) between the mean of the pre, inter- and post measurements in the physical characteristics contributing to the level of performance of the skill of receiving from the movement for the fever of the inter- measurement in all

tests and in favor of the average post-measurement , the average of the post-measurement in all the tests and in favor of the average of the post-measurement, the average of the pre-measurement and the average of the post-measurement in all the tests and in favor of the average of the post-measurement)

As shown in Table (8) analysis of the variance between the averages of the different research measurements of the physical attributes contributing to the level of performance of the defensive move skill and the launch of a fast break in the 22 m curve, which showed that there are significant differences between the three research measurements (pre - inter - post) in the contributing physical attributes and the level of contribution The performance of the defensive move skill and the launch of the fast break in the 22 m curve, where the calculated F value was between (44,687 - 253,287), And its value was greater than the value of the tabular value at a significant level (0.05), as shown by Table (9) and Figure No. () that there are statistically significant differences at the level (0.05) between the averages of the pre, inter-and post measurements in the physical attributes contributing to the level of The performance of the defensive move skill and the launch of the fast break in the 22 m curve in all tests and in favor of the average post measurement.

It is evident from Table (10) that there are percentages of improvement between the averages of the pre and inter-measurement in favor of the inter-measurement, as well as between the averages of the inter-and post measurements in favor of the post-measurement, and inter- measurement the averages of the pre-and post-measurements in favor of the post-measurement, in all the physical attributes contributing to the level of performance of the basic skills under discussion.

The researcher attributes the improvement in the results to the effect of the training loads directed in terms of the proportions contributing to some physical attributes on the achievement level for the juniors in the performance of the passing skill from the pivot and the skill of receiving from the movement and the defensive move and the launch of the fast break in the 22 m curve, according to the percentage of the contribution of each physical component in the performance. The time allotted for the development of special physical characteristics (the experimental variable) and taking into account the training content of the specificity and nature of performance with a mixture of defensive work exercises and offensive work, in addition to the approach of the intensity of the loads used in performing the exercises to the level of competition.

The results of this study agree with the findings of **Ali , Sami, Mohamed (1995)** (8), **Mohamed, M, Refaat (2007)** (21), and **Senjab, M, Abdelmajeed (2010)** (27) **Osman, M , Abdelghani (1990)**(22) that the success of the passing skill depends on the development of the necessary physical attributes.

This agrees with what was stated by **Ali, Sami, Mohamed (1995)** (8), **Ghareeb, I, Mohamed (1996)** (15), **Seleem,H, Saad (2001)** (26), **Gorostiaga E.M.etal, (2006)** (16), **Fahmy, Ali Albeak, Abo Zead, E, Abas (2009)** (14) that the improvement in the level of players' performance in each From defense to attack, as well as the speed of reaction in the transition from defense to fast break as a result of the application of programs that are characterized by directed loads that contain exercises similar to the players' performance and different playing situations during the match, such as exercises that depend on speed for different distances.

Second hypothesis

There are statistically significant differences between the pre and post measurements in the physiological variables in favor of the post measurement

Table (11) shows the significance of the differences between the pre and post measurements in the tests of the physiological variables under study, as it is clear from the table that the calculated t value was confined

between (6.25- 13.97), which is greater than the tabular t value at a significant level (0.05), which indicates the existence of statistically significant differences between the pre-and post-measurement in the physiological variables under study and in favor of the post-measurement.

Table (12) shows the percentage of improvement of the average post-measurement over the mean of the pre-measurement in the physiological variables under discussion, as the table shows the presence of an improvement ratio between the post-measurement and the pre-measurement in all the physiological variables under study. (maximum oxygen consumption - heart rate- the percentage of lactic acid concentration in the blood).

The researcher believes that as a result of the training loads directed in terms of the proportions of the contribution of the changing physical attributes to their intensity and degrees, they play an important role in influencing the functional body systems, causing responses and changes in the various body systems.

This agrees with **Bojadziev, N.** (2004) (10), **Deabis, A, Bahi- eldin** (2003) (12) **DOBSON, G.A.** (1990) (11) **Ramadan , W, Awad,** (2007)(24) that to increase and change training loads, several changes occur in response rates. Various body functions as a result of the body's adaptation to those loads.

Bompa To (1999) (9), **Paradisis cooke, C B** (2006) (24) indicates that any physical activity leads to functional and vital responses based on the components of the training load. The higher the training load (intensity - volume - intensity) leads to an increase in the resulting functional responses.

Elgohari, Y. (2003) (13) **Salim, G, Kamal** (2002) (25), **Lofitn, M.A., Anderson, P.Lytton, L.,Pittman , P.,Warren, B.** (1996) (18) indicates that the difference in the intensity of load makes the accumulation of lactic acid increase at a rate of 4:2 times its levels at rest, and it also reaches its maximum level at the end of the exercise until exhaustion .

These results are in agreement with what was stated by **Ramadan, W, Awad,** (2007) (24), **Abdelfatah, A, ahmed- Hasanen, M, Sobhi,** (1997) (2), **Abdelfatah, A, ahmed** (1998) (3), **Abdelmohsen, A, Fathi** (2002) (4) that training programs that use high intensity reduce the proportion of lactic acid in the blood and quickly get rid of it, as the functional efficiency of the body increases in converting it to protein or oxidizing it as well as converting it into urine and sweat. .

Results :

Within the limits of the research sample and the results that were reached, the following could be drawn: Training loads directed in terms of the proportions contributing to some physical attributes at the level of achievement for juniors have a positive

impact on the physical, skill and physiological variables of the research sample.

Recommendations :

- It is necessary for those in charge of the training process and the applied field to pay attention to knowing the percentages of the contribution of physical attributes in the planning process for the sports season.
- The necessity of identifying and measuring the training gains after the end of the training period to identify the manifestations of adaptation.
- It is preferable to use physiological measurements to indicate the processes of not losing the functional adaptations of the body systems, which show the coefficient of change in the functional state.

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