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# Training Curriculum According to the Pulse Indicator and its Impact on Some Physical and Worn-Out Variables among Basketball Players

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*Abstract: The legalized training programs that are implemented regularly bring about rapid and regular developments in the physical and skilled competence of the athlete, and reach the goals of the training process, and the success of the program is measured by the progress achieved by the player in the type of activity practice and lies the importance of research through the experimentation of a training curriculum at different times through which the best times are revealed that work to develop the elements of fitness special and skilled. Through the experience of the researcher in the field of basketball being a follower, interested and coach in it noted the lack of interest of coaches in the use of time-based training programs by the coaches, hence the problem of the researcher, as the researcher aims to answer the question that follows: i.e. times from the area of effort work to influencesome physical and mahariya variables, and the research aims to detect following the training curriculum using different times on some physical and care variables in basketball players, The researcher used the experimental method to suit the nature and problem of research and the researcher conducted the reconnaissance experiment and pre tests and applied the main experiment and then the post tests in the same conditions of pre tests and the researcher used the statistical bag spss to extract the results and through this the researcher concluded that the training curriculum at different times has a positive impact in the development of some physical and mahariyah variables for the players of the specialized school basketball.*

## 1. INTRODUCTION:

Sports training is a science that derives a large part of its theories, foundations and principles in the implementation of its operations from other sciences such as physiology, life chemistry and nutrition, which blend with each other to raise the training status of the athlete, through which the levels of players are affected towards positive and achieve advanced and distinguished results.

The legalized training programs that are implemented regularly occur rapid and regular developments in the functional, physical and skilled competence of the athlete, and reach the goals of the training process, and the success of the program is measured by the progress achieved by the player in the type of activity practiced, and for the purpose of developing training programs for various sports events, the coach must rely on the principle of privacy in training first i.e. privacy according to the system of work, and (cat) refers to that "training programs must be built from In order to achieve the development of the special physical and physical variables required to



perform the sports activity practiced by the individual and this is called the principle of privacy" (Cat: 1999, 12).

Basketball is a team game that requires special physical preparation in order to increase the efficiency and ability of the player in the practice of this game, as the player must high speed in transition, explosive power in jumping and accuracy in scoring, handling and smoothness in evasiveness.

The trainers have used different methods to bring the player to the highest levels, and the fitri training method is one of the main training methods that works to raise the physical, physical and skilled efficiency of the athlete based on the principle of adjustment between working periods and rest between repetitions and totals.

The importance of research lies through the experimentation of a training curriculum at different times, through which the best times are revealed that work to develop the physical and laboratory variables of basketball players, but the problem of research through the news of the researcher in the field of basketball being a coach in it noted the lack of interest of coaches in the use of a training curriculum based on time by the coaches, and hence the problem of the researcher, as he aims to answer the following question: Which times in the voltage zone affect some physical and maharia variables? The research aims to detect following training using the first, second- third and fourth times on some physical variables in basketball players. Basketball players in the distance tests between the two research groups and in favor of the second group.

## **2.1 Research approach**

The researcher used the experimental method to suit the nature of the research

## **2.2 The research community and its sample**

The research community was chosen in the deliberate manner of the players of the specialized basketball school, and the number of (20) players, divided into two experimental groups in the manner of similar pairs, as each group consists of (10) players, and the two programs were distributed in the manner of lottery, and the area was adopted The effort of fox & mathews' training manual table as shown in table 1, as the first group used the first and second time (10.15) seconds and the second group time third and fourth (20.25) Again, the implementation of the two programs (48) took days and actually (24) training units i.e. the first day of the first group and the day after that of the second group and so on.

The two players in each group were excluded, bringing the number of players in each group to 8.

### **2.2.1 Homogeneity and parity of the two research groups**

"The researcher should form at least equal groups with regard to the variables related to the research" (Van Dallin: 1984,398).

In order to achieve this, the researcher conducted parity between the two research groups to adjust the following variables:

- Age by year.
- Length measured in centimeters.
- Weight measured in kilograms.
- Pulse rest time measured by (pulse/minute).



Table 1 shows this:

Table (1)

Statistical features and the value of (t) for a number of research variables for the two experimental groups for the parity of the two research groups

Variables	First Experimental Group		Experimental Group II		Calculated value (t)
	Q-	Mean	Q-	Mean	
Age/year	18.74	0.464	18.376	0.518	1.432
Length/cm	176	6.886	176.125	6.289	0.035
Weight/kg	63.76	5.366	63.26	6.319	0.158
Pulse rest time/(n/d)	71	1.851	72.5	2.563	1.256
Transitional speed/tha	2.895	0.185	2.997	0.302	0.766
Agility/Tha	25.633	0.853	25.075	0.316	1.626
* Power at speed	11.456	0.306	11.562	0.671	0.381
Plump/Tha	8.662	0.431	8.831	0.645	0.576
Handling speed/repetition	13.75	0.886	14.125	0.640	0.907
Shooting/Score	12.5	1.195	11.5	2.563	0.936

The table value (t) at error ratio (0.05) and the degree of freedom (14) is  $(2.14) \geq$  Through table (1) it is found that there are no morally significant differences in the variables researched, as the calculated T values were smaller than the table value (T) at the line ratio (0.05) and the degree of freedom (14), indicating the parity of the two groups.  $\geq$

## 2.4 Devices and tools used in the research:

### 2.3.1 Data collection methods

- Scientific sources.
- Questionnaire.
- Interview.
- Tests and measurements.

### 2.3.2 Tools used in research:

- Measuring bar.
- Medical balance.
- Adanac timer measures time for approximately 1/100 seconds number (8).
- Basketball.
- Number (18).
- Whistle number (2).

### 2.3.3 Measurements:

- Body length/cm.
- Body weight/kg.
- Heart rate / (n/d).



The heart rate was measured indirectly from the carotid artery of the neck and as follows:

- "Gently pressing the area between the left side of the air cane (parallel to the throat), and what appears in front of the myeloid sternum muscle, with the three fingers - pinky – middle and index finger - moving fingers fully feeling the pulse of the cervical carotid artery" (Saad eddin and Mohammed Samir: 276,2000).
- The pulse speed was measured immediately after the effort and in the recovery period from sitting on the chair.
- To calculate the heart rate per minute, a stopwatch was used, calculating the number of heartbeats within (15 seconds) and then hitting the output  $\times 4$ .
- The heart rate was measured (four times) after each of the following physical tests, and measurement times were determined by the interview with a number of experienced and competent people.
- Immediately after the effort.
- At the end of the minute (1).
- At the end of the minute (3).
- At the end of the minute (5).
- Testing the enemy 20 m and starting from 30 m, (Abdul Jabbar and Ahmed, 1987,363).
- Power-style winding running test (Hamoudat and Jassim, 1987,169-170).
- Test the distinctive power of speed.

### **Field search procedures:**

#### **2.4.1 Physical and maharia tests**

"Tests and measurements are one of the most important means of evaluating the level of players in general, whether to determine the level of their general and private physical abilities and their skill level for their personal activities or for the level of their technical performance (technical) for those activities" (Bastosi Ahmed: 126,1983).

In order to access the tests on which the researcher relies in his research, the method of analyzing content for scientific sources has been used to identify the most important physical and mahariya variables in the effectiveness of basketball and in order to prepare a set of tests, and to put these tests in a questionnaire that includes:

- Physical tests. Skill tests.

These questionnaires were presented to a number of experts and specialists in the field of measurement, evaluation, training, and basketball, to choose the most suitable tests for research and after collecting and unloading the data, the physical and maharia tests signed by the selection were arranged, which is more than 75% agreement rate, as (Bloom and Others) point out that "the researchers must obtain the approval rate of 75% and more opinions of the arbitrators" (Bloom Benjamin: 126, 1983).

##### **2.4.1.1 Physical tests used**

- The name of the first test: test enemy 20 m and start from 30 m (Qais Naji and Bastosi:363, 1987)
- Name of the second test: testing the winding run in a barrow way
- Third Test Name: Test three arguments for the largest distance

##### **2.4.1.2 Skill tests used:**

First Test: Tabtaba Skill (Mufti of Ibrahim: 222,1994) Second Test: Handling Skill Test (Thamer Mohsen: 77,1991) Third test: shooting skill test.



## **2.5 Experimental design:**

The process of selecting the experimental design of the research is necessary in each experimental research, a part that provides the researcher with ways to reach the required results. The researcher therefore used the experimental design, called "The design of random equal groups of choice with pre and post tests" (Abdul Jalil Ibrahim and Mohammed Ahmed: 112,1981).

## **Field procedures for research:**

### **2.6.1 Reconnaissance experiment for physical and laboratory tests and measurement of pulse speed after effort and in hospitalization**

The researcher conducted a survey experiment with (4) players from the research community who were excluded when implementing the basic research procedures, and the purpose of the experiment was to:

- Identify errors and obstacles that may accompany the experience.
- Learn how viable the tools used are.
- Learn about the efficiency of the auxiliary team and their understanding of the implementation of measurements and tests.

### **2.6.2 The reconnaissance experience of the two training programmes:**

The researcher conducted two reconnaissance training units on the sample members, and the purpose of the experiment was to:

- Make sure the training unit time is executed on time.
- Make sure your workout is intense.
- Determine the rest time from one group to another by measuring the pulse and returning it to (110-120) pulse/minute.
- Find out what obstacles the coach may encounter in the training unit and avoid mistakes.

## **2.7 The main experience:**

For the purpose of determining the level of the research sample in physical and laboratory tests as well as the rate of pulse speed after effort and in the period of hospitalization, the researcher performed tests and different timings on the research sample as follows:

### **2.7.1 Pre tests:**

Pre tests were conducted on the members of the research sample before the start of the implementation of the two training programs in order to determine the level of physical and skill variables and the rate of pulse speed in the rest period and after effort and in the period of hospitalization in the research sample before the implementation of the two programs and for four days (on the first day and at 10 a.m. on the day Monday, January 17, 2022, the physical tests were conducted for the first experimental group and the day after that for the second group, 18 January 2022, and the third day, 19 January 2022, the skill tests were conducted. For the first test group and the day after that, 20 January 2022 for the second group.

### **2.7.2 Training curriculum:**

The two training programs are designed, one using the first and second time of the first voltage area (ATP-PC) from the Fox & Mathews training manual table, and the other using the third and fourth time from the same area and actually (24) training units for each group and for a period (4) 8) Days and for the period from Sunday, January 23, 2022 until Tuesday, March 13, 2022, which contained



the exercises prepared by the researcher with the coach of the specialized school Basket, i.e. the first day of the training unit of the first group and the day after the second group and so on. The two programs included the physical preparation period of the specialized basketball school, which is suitable for the sample in terms of the type of exercise, based on the training manual schedule and schedule 2.

Table (2)  
Represents the first area of the training manual table

a	in	C	D	h	and	G	Going to
Work area	Power system	Training time	Number of iterations	Number of totals	Number of iterations per group	Work-to-comfort ratio	Comfort type
			Training unit				
1	ATP-PC	10	50	5	10	1 : 3	Walking and rubber
		15	45	5	9		
		20	40	4	10		
		25	32	4	8		

The researcher used the ratios for repeaters from the table above: -

- A. Time (10) seconds 40% down to 68%.
- B. Time (15) seconds 40% down to 68.8%.
- C. Time (20) seconds 40% to 67.5%.
- D. Time (25) seconds 43.75 down to 68.75%.

**2.7.3 Post tests**

The post tests were conducted on the members of the research sample after the completion of the implementation of the two training programs in order to determine the level of physical and mahariyah variables and the rate of pulse speed after effort and in the period of hospitalization, which reached the members of the research sample for four days from 16/17/18/19/3/2022, and in the same context used in the pre test.

**2.8 Statistical means**

The researcher used the statistical bag spss to extract the results.

**Presentation and discussion of the results:**

After the data obtained by the researcher were emptied, and to verify the validity of the research objectives and objectives, the data were statistically analyzed using appropriate statistical means.

**3.1 View the results of physical and mahariyah variables and the pulse speed rate after voltage between the pre and post tests of the two research groups.**

**3.1.1 Presentation of the results of physical variables between the pre and post tests of the first experimental group.**

Table (3)

Shows T values between pre and post tests of physical variables For the first experimental group.

auditions	Pre test	Post test	Calculated
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	Q-	± on	Q-	± on	value (t)
Transitional speed	2.895	0.185	2.586	0.083	5.66
Agility	25.633	0.853	24.438	0.929	4.876
The power of speed	9.25	0.707	11.375	1.187	6.073

Table value (t) (2.36) at error ratio (0.05) and freedom score (7) ≥

**3.1.2 Presentation of the results of physical variables between the pre and post tests of the second experimental group**

Table (4)

Shows the values of (t) between the pre and post tests of the physical variables of the second experimental group

Statistical milestones auditions	Pre test		Post test		Calculated value (t)
	Q-	± on	Q-	± on	
Transitional speed	2.997	0.302	2.686	0.193	4.779
Agility	25.075	0.316	23.782	0.592	5.008
The power of speed for the two men.	11.562	0.671	12.368	0.841	3.366

Table value (t) (2.36) at error ratio (0.05) and freedom score (7) ≥

**3.1.3 Presentation of the results of skill variables between the pre and post tests of the first experimental group**

Table (5)

Shows the values of (t) between the pre and post tests of the skill variables of the first experimental group

auditions	Pre test		Post test		Calculated value (t)
	Q-	± on	Q-	± on	
Tabtaba	8.662	0.431	7.282	0.312	12.897
Handling	13.75	0.886	16.25	0.707	5.411
Correction	12.5	1.195	15	1.069	5.411

Table value (t) (2.36) at error ratio (0.05) and freedom score (7) ≥

**3.1.4 Presentation of the results of skill variables between the pre and post tests of the second experimental group**

Table (6)

Shows the values of (t) between the pre and post tests of the skill variables of the second experimental group

auditions	Pre test		Post test		Calculated value (t)
	Q-	± on	Q-	± on	
Tabtaba	8.831	0.645	7.807	0.551	6.481
Handling	14.125	0.640	14.875	0.834	3.058
Scoring	11.5	2.563	16.25	0.707	4.290

Table value (t) (2.36) at error ratio (0.05) and freedom score (7) ≥



**3.1.5 Presentation of the results of pre and post measurements of pulse speed after voltage and in the hospitalization period for the physical variable tests of the first experimental group**

Table (7)

Represents statistical milestones and (t) values between pre and distance measurements, for pulse speed after voltage and in the hospitalization period for the physical variable tests of the first experimental group

auditions	Pre test		Post test		Calculated value (t)
	Q-	ƒ on	Q-	ƒ on	
1. Transitional speed test					
A- After the effort					
B- At the end of the minute (1)	149.25	3.845	158	4.780	4.943
C- At the end of the minute (3)	129	5.126	120	3.323	3.813
D- At the end of the minute (5)	122	3.703	107	5.554	6.708
	111	3.545	96	5.237	5.167
1. Fitness Test					
A- After the effort					
B- At the end of the minute (1)	148	3.023	158	3.703	4.445
C- At the end of the minute (3)	133	4.65	121	3.545	6.480
D. At the end of the minute (5)	113	4.659	105	3.546	4.733
	109	4.659	96	3.223	5.664
1. Speed Power Test					
A. After effort					
B. At the end of the minute (1)	131	4.659	140.5	5.318	4.039
A. At the end of the minute (3)	117.5	2.070	113	0.851	2.824
D. At the end of the minute (5)	108.5	4.985	102	2.138	3.530
	97	3.545	92	4.276	3.389

Table value (t) (2.36) at error ratio (0.05) and freedom score (7) ≥

**3.1.6 Presentation of the results of pre and distance measurements of pulse speed after voltage and in the hospitalization period for physical variable tests of the second experimental group**



Table (8)

Represents statistical parameters and (t) values between pre and distance measurements, for pulse speed after voltage and in the hospitalization period for physical variable tests of the second experimental group

auditions	Pre test		Post test		Calculated value (t)
	Q-	ƒ on	Q-	ƒ on	
1. Transitional speed test					
A. After the effort					
B. At the end of the minute					
(1)	150	2.138	156	3.023	4.583
A. At the end of the minute	132	4.062	112	3.023	7.517
(3)	118	2.138	99	3.545	9.396
D. At the end of the minute	113	5.554	86	4.276	9
(5)					
1. Fitness Test					
A. After the effort					
B. At the end of the minute					
(1)	149	4.659	159	2.828	5
A. At the end of the minute	126	4.140	110	3.023	8.643
(3)	120	3.703	98	4.276	7.910
D. At the end of the minute	115	3.546	91.5	3.338	10.664
(5)					
1. Speed Power Test					
A. After effort					
B. At the end of the minute					
(1)	129.5	3.664	137	2.828	3.912
A. At the end of the minute	116	4.276	102.5	4.242	7.450
(3)	108	3.023	95.5	5.830	3.840
D. At the end of the minute	102	5.656	86	4.780	4.050
(5)					

Table value (t) (2.36) at error ratio (0.05) and freedom score (7) ≥

### 3.2 Discuss the results of physical and maharian variables and pulse speed after voltage between the pre and distance tests of the two experimental groups

#### 3.2.1 Discussion of the results of physical and heritric variables between the pre and post tests of the two experimental groups

The researcher attributes this development to: the effectiveness of the exercises carried out by the two experimental groups during the (48) days and the reality of (24) training units for each group, and the method of training fitri and based on the times and frequencies of the first voltage area of the guide table Fox & Mathews training, which confirms the validity of the vocabulary of the two programs of repetitions, totals and comfort between totals as well as the type of exercises, in achieving the goals set for it, by applying the principles, foundations and theories of sports training.

The researcher believes that the development in the status of transitional speed, as the effectiveness of the use of exercises at a speed less than the maximum, and according to the times and repeats



specified for each group, the effect of this development, pointing out (Kharibat : 260,1988) that "the speed of transition is developed by training using the speed below the maximum", in addition to the effectiveness of the strength exercises used in the two programs, this is consistent with what (Abdel Fattah) referred to as "the speed is linked to the level of muscle strength and helps the strength In addition, it helps to overcome performance resistance, as it helps along the step" (Abdel Fattah, 1997, 188), as well as the development of neuromuscular compatibility through the effectiveness of agility exercises, and this is consistent with what Hamada said, "the more compatible the compatibility between muscle contraction and relaxation, the better rates of speed can be achieved."

As for the developments in skill variables, the researcher attributes the reason for the effectiveness of the fitri training and using the first voltage area, he explained (Fox & Mathews) that it is possible to develop skill variables within the training program and using voltage areas.

### 3.2.2 Discuss the results of the pulse speed rate after voltage and in the recovery period between the pre and distance measurements of the two experimental groups.

The researcher attributes this development to:

The effectiveness of the exercises carried out by the two experimental groups through regular intake of training doses, which in turn led to changes in the body's functional organs, especially the heart and circulation, by increasing the number of heartbeats after effort, and this is consistent with what Abdullah pointed out (Nassar and others) that "regularity in sports training causes functional changes in all functions of the human body, especially heart and circulatory functions, people Well-trained people can adapt to the functional changes that occur in the body's organs due to muscle effort and continue to perform this effort, and from these changes the number of heartbeats," he explained (Abdel Fattah and Hassanin) that "the extent to which the heart adapts to physical pregnancy can be judged by the study and evaluation of pulse rate changes immediately after performance" (Abdel Fattah and Hassanin, 1997,79), and these changes have been accompanied by a development in (time, distance or number of performance repetitions), this is consistent with "Training adapts the heart and circulation and the player becomes able to increase his heart rate as his athletic level improves," he said.

The increase in pulse speed is the result of oxygen deficits during physical exertion, Tawfiq said, quoting Fox & Mathews. During exercise, this means that short-term and high-intensity exercises are oxygen deficits during the exercise period and meet the need from the main source of energy (ATP) through anaerobic systems."

### 3.3 Presentation of the results of the post test of physical and mahar variables and the rate of pulse speed after voltage and in the hospitalization period between the two experimental groups.

#### 3.3.1 Presentation of the results of the distance test of physical variables between the two experimental groups:

Table (9)

Represents statistical parameters and (t) values for the post test of physical variables between the two experimental groups

auditions	First trial.		Second trial		Calculated value (t)
	Q-	± on	Q-	± on	
Transitional speed	2.586	0.083	2.686	0.193	** -1.265
Agility	24.438	0.929	23.782	0.592	1.576



The power of speed	11.375	1.187	10.25	0.462	*2.338
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Table value (t) (2.14) at error ratio (0.05) and freedom score (14) ≥

**3.3.2 Presentation of the results of the post test of skill variables between the two experimental groups**

Table (10)

Shows t values for the post test of skill variables between the two experimental groups

auditions	First trial.		Second trial		Calculated value (t)
	Q-	± on	Q-	± on	
Tabtaba	7.282	0.312	7.807	0.551	2.196
Handling	16.25	0.707	14.875	0.834	3.329
Correction	15	1.069	16.25	0.707	-2.582

Table value (t) (2.14) at error ratio (0.05) and freedom score (14) ≥

**3.3.3 Presentation of the results of the distance measurement of pulse speed after voltage and in the hospitalization period for physical variable tests between the two experimental groups**

Table (11)

Shows t values for the distance measurement of pulse speed after voltage and in the hospitalization period for physical variable tests between the two experimental groups

auditions	First trial.		Second trial		Calculated value (t)
	Q-	± on	Q-	± on	
1. Transitional speed test					
A. After the effort					
B. At the end of the minute(1)	158	4.780	156	3.023	0.935
A. At the end of the minute(3)	120	3.323	112	3.023	-4.714
D. At the end of the minute	107	5.554	99	3.545	*-3.212
(5)	96	5.237	86	4.276	*-3.913
1. Fitness Test					
A. After the effort					
B. At the end of the minute(1)	158	3.703	159	2.828	*-0.567
A. At the end of the minute(3)	121	3.545	110	3.023	*-6.25
D. At the end of the	105	3.546	98	4.276	*-3.334
minute (5)	96	3.223	91.5	3.338	*-2.567



1. Test the distinctive power of speed for the two men					
A. After effort					
B. At the end of the minute(1)	140.5	5.318	137	2.828	1.537
A. At the end of the minute(3)	113	0.851	102.5	4.242	*-6.003
D. At the end of the minute	102	2.138	95.5	5.830	*-2.769
(5)	92	4.276	86	4.780	*-2.475

Table value (t) (2.14) at error ratio (0.05) and freedom score (14) ≥

### **3.4 Discussion of the results of the post test of physical and mahariyah variables and the rate of pulse speed after voltage and in the hospitalization period between the two experimental groups**

#### **3.4.1 Discussion of the results of the distance test of physical and mahariyah variables between the two experimental groups**

The researcher attributes the reason to:

The principle of privacy in training, i.e. privacy according to the working energy system, has indicated (Mashhadani: 93,2002) quoting Mcardle,1981 and Davis&Kimmet,2001) that "the privacy of training occurs special adaptations generated by practical special effects, as it increases the efficiency of the work of the working system and shows the possibility of moving from one system to another.

The performance times of the first experimental group (10,15) seconds are also at the peak and perpetuation of the phosphagen system capacity, according to the Canadian Training Federation section of the three stages of work of energy production systems, and this study is consistent with what the tanner quoted edgerton & Edinglon as saying that "the fitness elements within this time stage of the system are the maximum strength (Strength) and high capacity (High Poweringlon) "While the performance times of the second experimental group are within the peak stage of the capacity of the lactating system, which led to its superiority in the variable (agility) that was the time of the test performance within this stage, but this superiority did not rise to morale because agility is a complex characteristic.

The researcher explains these findings to:

The positive relationship between physical and skill variables and the development of my qualities (transitional speed and distinctive strength of speed) and the superiority of these variables over the second group had a significant impact in the development of skill variables and their superiority over the second group, as well as the superiority of the second group in the test (correction) because the time of the performance of the test is (30)seconds and is located within the top of the capacity of the lactate system, which has had an impact in this superiority. Looking at the computational circles, the increase in the average pulse in my test (transitional speed, characteristic strength of speed) was in favor of the first experimental group, and in the agility test it was in favor of the second experimental group.

## **4. CONCLUSION:**

The training program increased the pulse rate after effort in the distance tests of physical tests when compared to pre tests, and led to a reduction in the pulse rate in the period of hospitalization in the



distance tests of physical tests when compared to pre tests and the biggest decrease was in favor of the second experimental group. It recommends that when building training programs, they rely on the principle of privacy in accordance with energy production systems. The use of the training program is the first time work area (first and second) to develop the elements of special fitness and professional basketball, and the use of pulse as an indicator of the player's training condition after effort and in the period of hospitalization.

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