

The Role of Using the RPE Self-Perception Scale as a Tool to Evaluate Sports Training Load and Predict the Occurrence of Sports Injuries among Football Players

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Abstract:

This study aimed to know the role of using the Self-Perception of Effort (RPE) scale from the direction of football coaches in evaluating the training load and predicting the sports response. The researcher used the descriptive approach in collecting data from the research technician (30 football coaches in the U19 Setif State Association coaches 2023/2024). In addition to the extensional statistical analysis (deviation, Pearson correlation coefficient, and the spssol statistical package program), one of the most prominent results reached is that the use of the self-perception of effort (RPE) measure by soccer coaches has a positive role in evaluating the extent of training and athletes' expectations.

Keywords: Self-Perception of Effort Scale, Evaluation of Training Load, Sports Injuries.

Introduction:

The sporting achievements that have been achieved at the present time and the rise in the sporting level in general did not come by chance or speculation, but rather the result of high planning for sports training that was based mainly on research, expertise and scientific experiments, and at an early time, as the training process aims to achieve achievement for the sake of sporting excellence. The world has witnessed a rapid development in sports training after advanced countries have put all their capabilities to raise the sporting level through advanced scientific methods that can be used to invest the technical and physical capabilities of all athletes through sports exercises by stimulating a certain nerve that affects the player's vital systems. The various nerve stimuli work to develop the player's motor ability, and when these stimuli are organized and placed as a specific dose, they affect the development of the players' training status and develop it. This dose is called the training load. The training load is one of the main means of influencing the athlete as it leads to raising the functional level of the individual's body systems and organs, meaning that if the athlete performs an exercise, whether physical or skill-based, this performance will affect the various functional systems in his body to a certain degree. Therefore, when practicing sports training, it must be proficient in terms of the content of the elements of the load intensity. Exercises and their volume with recommended rest periods for that exercise, through which sports conditions that may encounter the athlete during the training process can be avoided, such as sports injuries, and how to avoid them as much as possible by predicting them before they occur, in order to maintain the player or athletes readiness throughout the football season, but this problem related to sports injuries always worries coaches and those interested in this sport

1. The problem:

Reaching the highest levels in any sporting activity is closely linked to maintaining the players body and protecting it from injuries that stand as a barrier to any sporting development. Sports injury science is concerned with studying sports movement at different times, conditions, and fixed and moving positions, individual and collective, to reach the ability to anticipate injury before it occurs and to determine its forms, types, and patterns of injuries related to the sporting activity practiced. Therefore, it is necessary to focus on preventive methods and procedures so that the player does not fall prey to injuries, as this saves effort, time, and money (Ghabash. Adel, www.psychologyandeducation.net

2009, p. 39)

Football is considered one of the most watched sports in the world, making competition in it at its peak through the use of all scientific techniques and means that enable coaches and all organizational frameworks to increase the value of the sports return provided by the players in this sport from recovery methods and means to measure the load and regulate and control the intensity with the aim of building diverse training programs that benefit the goal to be achieved during the sports season or through sports cases that may encounter the athlete during the training process, such as sports injuries, and how to avoid them as much as possible by predicting them before they occur, in order to maintain the readiness of the player or athlete throughout the football season (Dennis Muhammad, 2024, p. 113). This is what prompted us to study the topic of "The role of using the self-perception of effort scale (RPE) as a tool to evaluate the load of sports training and predict the occurrence of sports injuries among football players." The problem of the study was represented in what is the role of using the self-perception of effort scale (RPE) as a tool to evaluate the load of sports training and predict the occurrence of sports injuries among players.

1.2.Partial questions:

- Does the coach use the self-perceived exertion scale (RPE) to evaluate the training load of football players in the under-19 age group?

Does the coach use the self-perceived exertion (RPE) scale to predict sports injuries in soccer players in the under-19 age group?

1.3- Study hypotheses:

In order to achieve the research objectives and answer the problem raised, flags

We can formulate the hypotheses as follows:

- Main hypothesis

The use of the self-perceived exertion (RPE) scale as a tool for assessing training load and predicting the occurrence of sports injury in soccer players

For U19 category

- Partial hypotheses:

The coach uses the Self-Perceived Exertion (RPE) scale to assess the training load of soccer players under 19 years of age.

The coach uses the self-perceived exertion (RPE) scale to predict injuries.

Sports for football players under 19 years old

1.4.Study objectives:

To know the role of using the self-perception of effort scale as an assessment tool

Sports training load from the point of view of football coaches.

Highlighting the importance of using the Self-Perception of Effort Scale as a predictive tool

The occurrence of sports injuries from the point of view of football coaches.

1.5.The importance of the study:

This study derives its importance from the fact that it sheds light on one aspect of the sports training process and highlights the impact of the self-perception of effort (RPE) scale and its positive role in evaluating the sports training load for handball players in the age group (17-19) years. The study also gains its importance through its interest in the role of using the self-perception of effort (RPE) scale as a tool to predict the occurrence of sports injuries among football players, as well as considering that this topic has not been addressed previously, whether in the Arab environment in general or the Algerian environment in particular, according to my knowledge as a researcher. Therefore, it constitutes a new reference for the sports library in Algeria and a reference for specialists and professionals in the sports field. In addition, this study will open the way for conducting similar studies and research that will benefit the process of Education and training in the field of sports.

1.6.Study terms and concepts:

- The method of self-perception of effort:

- Technically: The RPE method takes into account the intensity and duration of the training session and competition to calculate TL. The duration of the session refers to the length of the session expressed in minutes. The nominal score is given by the athlete to describe his/her average training intensity during that training session or competition. Basically, the athlete must answer the question:

Simple: "How was your workout?"

Procedurally: It is one of the methods to determine the training load, which depends on the players describing the difficulty of each session by answering the question How was your training? 30 minutes after the end of the session or competition.

- **Sports training load:**

Technically: It is the physical, nervous or psychological effort that occurs on the players various systems and results in changes in these systems as responses or reactions to this effort.

Procedurally:

The amount of training work that affects the player's equipment and results in a change in the vital systems

- Sports injuries:

Technically:

Any physical complaint suffered by a player as a result of participating in a football match or training, regardless of the need for medical care or inability to participate in the game (Dennis Muhammad and Haj Ahmad, 2024, p. 115)

- Procedurally:

It is the set of interruptions and damages that occur at the level of the body's tissues as a result of a certain internal or external effort, which leads to the disruption of work.

Integrated functional body.

1.7.Previous and similar studies:

- The study of the reality of using the self-perception of effort scale (RPE) in monitoring training load and predicting sports injuries from the point of view of football coaches for youth categories "The study aimed to know the reality of using the self-perception of effort scale (RPE) by football coaches in monitoring training load and predicting injuries and determining the degree of importance of this indicator for the coach in setting the training load balance for the team Research sample (30) football coaches in the coaches of the following youth categories: Mashaal Malako, Tiaret Youth, Amal Youth, Zaaroura Youth, Ain Kermes Union, Ferenda Youth, Takhmart For the following categories: Less than (14) years old 15 years old, 17 years old 18 years old 19 years old (21 years old) for the sports season 2023/2022 The descriptive approach was relied upon in addition to the statistical analysis methods represented in (standard deviation, Pearson Cronbach correlation coefficient α and the statistical package program | SPSS The results also showed that the degree of interest in the scale and the percentage of

First: Study by Dennis Muhammad and Ahmed Murad 2024, entitled

It is moderately reliable for the research sample.

- The second study:

Study of Haj Ahmed Murad and others 2022 entitled "Evaluation of training load using the self-
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perception of effort scale RPE and its relationship to the occurrence of sports injuries among senior football players" The study aimed to measure the monthly training load and evaluate it using the RPE scale and determine the degree of differences between the two research sample teams (20) players from the youth of Burj Menaiel JSBM and 20 players from the Ittihad Al-Akhdaria I BL team for the sports season 2021/2022. The descriptive approach was relied upon using the SRPE scale, on a sample consisting of 20 players from the JSBM team and 20 players from the IBL team. The results showed the possibility of measuring the training load quantitatively, as it was average for the two research sample teams with no statistically significant differences between the players of the two teams, but the largest values were recorded by the JSBM player, and it also showed the impossibility of predicting the occurrence of injuries using training loads due to the multiple factors that cause it.

-The third study:

Study by Nour Eldin Ghanem and Zain Eldin Toumi 2020 entitled "The importance of adopting the Foster (RPE) method in quantifying and monitoring the training load

The actual accomplishment of the amateur football player under 20 years old during the pre-competition phase "The study aims to highlight the importance of the Foster method (RPE session) in monitoring and quantifying the training load actually applied to the players through the points of the evaluations obtained according to the Foster scale from the degree (0) to the highest degree (10) by the player's answer to the question How did you feel the difficulty of the training session? For this purpose, we used the descriptive analytical method on a sample of 20 players for the middle category (20) for the amateur team (JSBO) for the sports season 2015 2016 during the preparatory phase before the competition to collect data, we used the player's self-assessment tool (Foster scale), after collecting the results and processing them statistically, it became clear the extent of the effectiveness of the Foster method in quantifying the monitoring and adjusting the training load according to the responses of the individual and group players for this age group. On this basis, the study recommended using the Foster method in monitoring the training load due to its advantages of high scientific credibility.

2- Scientific research procedures and methodology:

2-1- The exploratory study

It is the study that aims to explore the circumstances surrounding the phenomenon that the researcher wishes to study and to identify the most important hypotheses that can be put forward

and subjected to scientific research. (Abdul Majeed, 2000, p. (36)

Through this, the exploratory study is an initial and preliminary stage for the main study. The exploratory study was conducted on a sample that includes 10 football coaches, such that this sample was outside the research sample and matched the age conditions of the research sample, which was later excluded from the original experiment. The aim of the exploratory study was: Identifying the suitability of the proposed tests to the study sample. Identifying the validity of the place and tools used in the experiment.

Home. Identify the various obstacles facing the researcher during the conduct of Experience.

Verify the psychometric conditions and properties of the study tools. Identify the efficiency of the support team and train them to use the Tools and equipment.

2-2- Study method:

The method is tested according to the nature of the research. The study method has a direct relationship with the subject of the study, as the nature of the subject determines the choice of the method used. According to the subject, the researcher used the descriptive method.

2.3. Study community and sample:

2.3.1. Study community:

He defined it as all individuals, persons or things that are the subject of the research problem. (Dhuqan 2013, p. 96), and through the nature of the subject, this study includes football coaches for the age group 19 affiliated to the Setif State League for the 2023-2024 sports season

2.3.2. Study sample

The process of selecting a sample is a crucial and fundamental process in scientific research, as it determines and affects all steps of the research. The sample is a distinct subset selected from the study community. It is distinct in that it has the same characteristics as the community, and it is selected from the study community according to specific procedures and methods (Saad Al-Tal, 2007, pp. 96-97). It is also defined as selecting a group of individuals for a specific study that makes them representatives of the study community. Good sample selection makes the results generalizable to the community, as its results are true for it. (Ikhlal, Bahi, 2000, p. 129)

- Given the nature of the research, the sample will be selected from 30 football coaches for the age group 19 affiliated with the Setif State League for the season 2023/2024 sports in selecting the study individuals, I relied on the intentional non-random method, which is the sample in

which the researcher intentionally consists of specific units, believing that they best represent the original society. (Awad, Khafaja 2002, p.196)

2.4. Data collection methods (data collection tools)

Research tools mean the methods through which the quality of the research can be verified. Therefore, the researcher relied on a questionnaire form divided into:

3 axes, each axis related to a hypothesis of the study hypotheses, measuring the extent of

Answer from (1 - 3)

--- Psychometric properties of the study tools (validity, reliability, Objectivity):

2.4.1. Honesty

Validity is an important characteristic that must be taken into account when conducting research.

A research instrument is considered valid when it measures what it is supposed to measure.

Validity is one of the important factors that the researcher must be sure of when making his choices. (Abdul Majeed, 2000, p. (43), and it also means that the tool actually measures what it was designed to measure and does not measure something instead of it or in addition to it. For example, when designing a test to measure strength, it must measure the strength of the sample in which this characteristic is to be determined and not measure endurance, for example, instead of it or in addition to it. (Boudaoud, Ataa Allah, 2009, p 105.)

The researcher relied on calculating the validity of the study tools to find the content validity of the paragraphs by presenting them in their initial form to a group of professors specialized in the sciences and techniques of physical and sports activities, where he asked them to express their opinion on the extent of linguistic integrity and the extent of the suitability of the tools for the fields in which they were included, and the extent of their ability to achieve the desired study objectives. The arbitrators suggestions were taken into account, and thus the study tools that were used in their final form were established, in addition to the researchers reliance on self-validity, which was calculated through the self-root of stability.

2.4.2. Stability

It means that the stability of the test is that it gives the same results continuously if the test is used more than once under similar conditions (the same conditions). The researcher gives the same test to the same subjects twice in a row. The difference (Awad, Khafajah, 2002, p. 165.) The researcher relied on the method of applying the test-re-application in calculating reliability, which is known as applying the test again.

There is no less than a week between them and no more than a month, so that the application is under the same conditions as much as possible, then there is a correlation coefficient between the results. Application. (Awad, Khafajah, 2002, p. 166), where I applied the test to the learners of the exploratory sample, and after a time interval of two weeks, I returned Apply the same test to the same sample under the same conditions and then calculate.

Pearson's correlation coefficient between the two applications.

2.4.3. Objectivity

It means freedom from bias and prejudice and not including personal factors in the researchers judgments, and that the researcher is not influenced by personal factors.

The tester has his own interests, whims, personal inclinations, and even bias or prejudice. Objectivity requires that you describe the individuals abilities as they actually exist, not as you want them to be. In the research topic, the test results were not acceptable.

For interpretation and away from self-evaluation.

2.5. Statistical processing

To answer the questions of this study, appropriate statistical processing was used after entering the data into the computer, to analyze it using the program (SPSS) and processed statistically by calculating:

Arithmetic mean and standard deviation.

Pearson's correlation coefficient

3.Presentation and analysis of the field study:

In order to verify the validity of the hypotheses, we calculated the degree of agreement on

The item and from it to the axis as a whole by placing estimates based on the limits of the categories and from it placing estimates high, medium, low

Based on the responses placed in the scale (yes, no, sometimes), these responses have two categories, the first category [1-2] and the second category from [32], we divide the number of categories by the number of responses ($0.66/3/2$), and from it 0.66 is the category length, then we create regular categories, the length of each category 0.66 From which we get the following estimates:

Degree of approval	Ceiling	minimum
Low	1.66	1.00
Medium	2.33	1.67
High	3.00	2.34

Table No. (01) shows the determination of the length of the categories for the scale.

3.1.Presentation and analysis of the results of the first hypothesis: 1- Text of the first hypothesis:

The trainer uses the self-perceived exertion (RPE) scale to assess the load.

"Sports training for football players".

Table No. (02) Shows the results of the trainers use of the self-perception of effort (RPE) scale to evaluate the training load of football players.

Results of the first axis	Duplicates and percentage	always	something		Arithmetic mean	Degree of approval
First phrase results	T	28	10	02	2.65	High
	%	70	25	5		
Second phrase results	T	20	18	2	2.45	High
	%	50	45	5		
Third phrase results	T	28	9	3	2.62	Hight
	%	70	22.5	7.5		
Fourth phrase results	T	6	21	13	2.17	Medium
	%	15	52.5	32.5		
Fifth phrase	T	30	7	3	1.92	Medium

results	%	75	17.5	7.5		
Sixth phrase results	T	32	6	2	2.75	high
	%	80	15	5		
Seven phrase results	T	29	10	9	2.9	high
	%	72.5	25	22.5		
Weighted arithmetic mean	2.49					High

- Analysis:

Table No. (02) shows the data of the first axis related to the use of the self-perception of effort scale (RPE) to evaluate the training load of football players. The results of the statistical analysis showed that using the arithmetic mean, we obtained the average of each statement separately and its acceptance degree. The highest acceptance degree was for the seventh statement with an arithmetic mean of 29 and a high acceptance degree, meaning that 72.5% of football coaches use the scale to evaluate the training load, while we obtained the smallest value in the fifth statement with an arithmetic mean of 1.92 and an average acceptance degree, meaning that football coaches have difficulty interpreting the results related to the monotony index to evaluate the training load, while we obtained a high acceptance degree in most of the remaining statements, while we obtained the results of the axis using the weighted arithmetic mean in the axis of ease of applying the scale and the degree of players ability to answer the scale with an acceptance degree High as 2.49.

- Conclusion:

By analyzing the results obtained, we conclude that the 19th grade football coaches use the RPE scale to evaluate the load.

Sports training for football players

3.2.Presentation and analysis of the results of the second hypothesis:

- The text of the second hypothesis:

The coach uses the self-perceived exertion scale (RPE) to predict sports injuries in U19 age group soccer players.

Table No. (03) shows the results related to the use of the trainers scale of self-perception of effort (RPE) to predict sports injuries among football players.

Foot for age group U19

Results of the first axis	Duplicates and percentage	always	something		Arithmetic mean	Degree of approval
First phrase results	T	29	10	01	2.7	High
	%	72.5	25	1.5		
Second phrase results	T	29	10	1	2.7	High
	%	72.5	25	2.5		
Third phrase results	T	23	15	2	2.52	Hight
	%	57.5	37.5	5		
Fourth phrase results	T	5	31	4	2.02	Medium
	%	12.5	77.5	10		
Fifth phrase results	T	3	34	3	2	Medium
	%	7.5	85	7.5		
Sixth phrase results	T	4	34	2	2.05	high
	%	10	85	5		
Seven phrase results	T	9	34	2	2.42	high
	%	22.4	85	5		

Weighted arithmetic mean	2.34	High
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Related analysis: Table No. (03) shows the data of the second axis using the trainer's scale of self-perception of effort (RPE) to predict sports injuries among football players in the age group U19. The results of the statistical analysis showed that using the arithmetic mean, we obtained the average of each statement separately and its acceptance degree. The highest acceptance degree was for the first statement with an arithmetic mean of 2.7 and a high acceptance degree, as well as the second statement with an arithmetic mean of 2.7, meaning that 72.5% of football coaches use the self-perception of effort scale to predict sports injuries, while we obtained the smallest value in the fifth statement with an arithmetic mean of 02 and an average acceptance degree, while we obtained a high acceptance degree in most of the remaining statements, the third statement with an arithmetic mean of 2.52, the fourth statement with an arithmetic mean of 2.02, the sixth statement with an arithmetic mean of 2.05, and the seventh statement with an arithmetic mean of 2.42, while we obtained the results of the axis using the weighted arithmetic mean in the axis of using the training stress index associated with negative adaptations to the training load of the bodies. On a degree High acceptance rate of -2.34. Conclusion: By analyzing the results obtained, we conclude that the coach uses the self-perceived effort scale (RPE) to predict sports injuries.U19 footballers have

4. Sources and references:

Abu Al-Ala Abdel Fattah Ibrahim Shaalan: Physiology of training in football Foot Dar Al Fikr Al Arabi 1994.

Ibrahim Shaalan: Football between theory, practice and physical preparation in Football, Dar Al Fikr Al Arabi, Cairo 1989

Ahmed Mohamed Khater Ali Fahmy Al-Bayek: Measurement in the field Sports 4, Modern Book House, 1996

- Osama Riad: Sports Medicine and Sports Injuries, Dar Al Fikr Al Arabi, Cairo, Egypt 1998 -

Amr Allah Al Basati: Functional Physical Preparation in Football Dar Al-Jamiah Al-Jadida

Publishing House 2001 - Abdul Rahman Abdul Hamid Zaher: Encyclopedia of Sports Injuries and First Aid Book Cente For publication, 1st ed., Cairo, Egypt, 2004. Laila Al-Sayed Farahat: Measurement and Testing in Physical Education, Kitab Publishing Center, Cairo, Egypt, 2001.