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The Dynamic Rhythm Pattern of the Emotional Cycle and its Relationship with Health Efficiency in Youth Handball Players.

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ABSTRACT

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Keywords:
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The importance of the research lies in identifying the relationship between the health efficiency of the players and the levels of their cycles in the vital rhythm of the emotional cycle in order to take into account this in terms of timing in training and training load scores and their selection at the ideal time in competitions. The research aims to identify the pattern of the biological rhythm in the emotional cycle and its relationship with health efficiency in youth handball players. It assumes that there is a significant correlation between the positive state of health competence when the circadian rhythm cycles are at their best for young handball players. The researcher used the descriptive method of relational study for its suitability and the nature of the research, as the research population represented the 42 first-class handball players in Dhi Qar, and the research sample was selected in the deliberate way, and the research sample included all the vocabulary of the research community, where the sample represented (100%) of the research population.

The researcher concluded

1- There is a significant correlation between health competence and the dynamic rhythm pattern of youth handball players.

2- The level of health efficiency of the players was within normal limits in measurements related to body mass index, resting pulse rate, resting blood pressure, diastolic blood pressure, and systolic blood pressure.

3- Players are characterized by a greater desire to exercise in the evenings.

The researcher recommends

1- Coaches should pay attention to determining the rhythm pattern of the players to take advantage of the optimal timing in releasing the energy needed to achieve the best results.

2- Using the results of this study within the basic criteria for coaches and evaluators on sports activities in clubs and schools.

3- Paying attention to the timely implementation of training programs for the vital rhythm of the players to ensure the increase in the effectiveness of the training process which affects the level of the players.

1-1 Introduction and Importance of the Research:

1- Introduction:

Handball is a very beneficial sport for physical and mental health, due to its dynamic nature that requires constant movement and high physical and mental interaction. Practicing handball contributes significantly to improving overall fitness, strengthening muscles, and enhancing mental abilities, along with its social and psychological benefits. This requires coaches and players to prepare for all the circumstances that occur within the match to ensure the readiness of the player, and this does not come in a vacuum, but comes through good preparation at all levels of cognitive, psychological, physical and health in line with the development of the modern game in football, which was characterized by speed in building attacks and investing the time of the match to its maximum degree, and then speed in making the right decisions and not hesitating to respond to the stimuli facing the player, concentration and accuracy of follow-up in a way that contributes to achieving better He must be aware of all these things in order to be able to influence them and control their course physically and mentally.

The health competence of the players is a prerequisite for their adherence in training and competition, and in the event of any symptom or dysfunction, those in charge of the training process must stop the player and not involve him in training or matches until the condition that the player is going through is identified by presenting it to the specialized doctors and obtaining a detailed report on his condition and the extent of his ability and readiness to practice sports activity, even if it is a moderate activity, so it is necessary to pay attention to this matter and make the players aware of its danger and the player should listen to his body and be In order for the athlete to adapt to the activity, it is necessary to understand the functions of the organs and the processes carried out by the body's systems in order to improve the athletic level. (يوسف ذهب علي، 1994)

The biorhythm is the ripples that occur at the level of the state of the body's various systems between rise and fall, where the human body cannot continue to work at all the energy of its organs and with a high level of physiological efficiency for long periods of time, where the situation changes between the rise and fall in all body functions as a result of the level of the biological rhythm cycle, and that each human being from birth to death has three cycles of vital rhythm, which are:

1- Physical Rhythm Course – 23 days.

2- Emotional Cycle – 28 days.

3- Mental cycle – 33 days. (عيسى، 2013)

The importance of the research lies in identifying the relationship between the health efficiency of the players and the levels of their courses in the vital rhythm of the emotional cycle, in order to take this into account in terms of timing in training, training load scores, and their selection at the ideal time in competitions.

1-2 Research Problem:

One of the conditions for achieving the sports form and integration in sports performance and achieving achievement is to ensure the readiness of the player in terms of health efficiency, physical, skillful, planning, psychological abilities and even the consequent mental abilities, so the rationale of these requirements must be taken into account and observed and the player must undergo a health and training system that is compatible with his preparations and abilities to work on the comprehensive development and development of all tactical and technique skills that need special physical qualities on which the sports result is built during competition, and studies have proven that The best results were recorded when the dates of the competitions coincided with the dates of the positive results of the vital rhythm, so it is necessary to pay attention to these timings and take advantage of them.

1-3 Research Objective:

1- Identifying the Dynamic Rhythm Pattern in the Emotional Cycle and its Relationship to Health Efficiency in Youth Handball Players.

1-4 Imposing the Research:

The researcher assumes:

1- There is a significant correlation between the positive state of health efficiency when the dynamic rhythm cycles and the emotional cycle are at their best for young handball players.

1-5 Research Areas:

1.5.1 Human Field: First Division Clubs in Dhi Qar 2024-2025.

1.5.2 Spatial Field: Handball Stadiums and Halls – Dhi Qar.

1.5.3 Temporal Domain: The period from 7-8-2024 to 4-2-2025.

1-6 Definition of the terms contained in the research:

1.6.1 Health Efficiency: Health competence is defined as the state of reaching the maximum of an individual's abilities to enjoy and perform a role, and it is also defined as a state of complete physical and mental integrity, and not just an absence and imbalance, and doctors and governments may see their health services as services for patients and work on their recovery

only, but the definitions of health indicate that it is more than just the absence of disease. (محيسن حسن عداي، 1987)

1.6.2 Dynamic rhythm pattern: The study of biorhythmology gives a perception of the natural cycle processes, as its appearance is related to the rotation of the earth around its axis, its rotation around the sun, and the rotation of the moon around the earth, and adds to the existence of a biological rhythm that controls the behavior of the individual, as he is exposed during his daily life to three cycles that affect him, namely physical, emotional, and mental. (محمد بريقع، 1995)

1.6.3 The emotional cycle: It includes the rise and fall in mood, creativity, emotions and optimism, through the positive or negative emotional rhythm, where its duration is (28) days, and the first half of it (the positive phase) is (14) days, which are the days of rising to its rhythm, in which the individual is inclined to joy, optimism, psychological balance, creative ability, cooperation, and all matters of coordination related to the nervous system and there is control, while in the second half of the cycle, the negative emotional rhythm (14) The second day is the decline and fall in the level of emotional aspects and the lack of control over them.

1.6.4 Handball: Handball is one of the exciting team sports that combines skill, speed and tactics, and it has become widely popular all over the world. However, what distinguishes this sport is not only its competitive nature, but also its profound positive impact on human health. Regular play of handball contributes to enhancing physical fitness, strengthening muscles, and stimulating the heart, in addition to its great psychological benefits such as reducing stress and increasing concentration. Through teamwork and discipline on the field, ball contributes It also has a hand in building a balanced personality and a healthy sports community.

3- Research methodology and field procedures:

3-1 Research Methodology:

The researcher used the descriptive method of relational study for its suitability and the nature of the research, and Mohamed Othman points out that the circadian rhythm represents the main pillar when discussing the biorhythm systems and their relationship to the health and sports field, as it has been proven that the level of performance fluctuates between high, medium and low according to the daily time. (عثمان، 1994)

Since there are differences between the indicators of vital rhythm and health efficiency between morning and evening, the researcher was keen to conduct the tests at the same time and conditions, as some individuals are characterized by the morning pattern, and this pattern is

characterized by early waking up and early activity, as we find that the peak physical, mental and emotional performance of individuals of this pattern is in the morning period, and then their activity gradually decreases with the arrival of the second half of the day. They are also characterized by their quick adaptation to external conditions, discover new ideas, love work and effort, face disease cases quickly and strongly, and their temperature rises quickly and then decreases rapidly, and they respond quickly to all stimuli, and they have a high speed of recovery and achieve maximum productivity in the morning, which is more sensitive to weather changes, and their behavioral habit is to sleep at night and work during the day.

As for those with the evening style, the members of this style are characterized by sleeping late or waking up late with difficulty, and their physical, mental and emotional activity gradually increases and reaches the peak of performance in the evening period (i.e. the second half of the day) and they prefer to perform and work in the evening period.

There is a type that is known as irregular, where members of this pattern are characterized by an increase in active waves throughout the day without being restricted to the morning and evening patterns, and they are characterized by waking up relatively early compared to members of the morning pattern, we find that the peak of their physical, emotional and mental performance is in the daytime period during the morning or evening.

3-2 Research Population and Sample:

The research population of handball players represented the 42 first-class clubs in Dhi Qar, and the research sample was selected by the deliberate method, and the research sample included all the vocabulary of the research community, where the sample represented (100%) of the research population, and for the purpose of achieving homogeneity between the players, the following variables were adjusted in Table (1).

Table (1)

Shows the arithmetic media, standard deviations, and torsion coefficients of the research sample

Torsion coefficient	Standard deviation	Arithmetic mean	Variables
0.457	3.668	20.500	Age (year)
0.896	5.113	187.234	Length (cm)
0.326	2.175	74.201	Mass (kg)

3-3 Research Tools:

1- Tests and measurement.

2- Scientific sources and references.

3- The Internet.

4- A laptop type calculator.

3-4 Devices and Tools Used in the Research:

1- Medical scale.

2- Paceometer.

3- Blood sphygmomanometer.

4- Stopwatch.

5- A phone app to measure your circadian rhythm levels.

6- Tape measure.

3-5 Research Procedures:

3.5.1 Preparation of measurements:

After reviewing the scientific references and reference studies, the researcher identified the research variables and their measurement methods, which included the vital rhythm, and the variables of health efficiency, which were represented in the measurement of height, weight, pulse at rest, pulse after exertion, blood pressure at rest, blood pressure at exertion, and body mass index.

3-6 Exploratory Experience:

The researcher conducted the exploratory experiment on Sunday, Monday 6-7/10/2024 on (8) members of the research community who are outside the sample, in order to ensure the extent of the team's understanding of the nature of the test, how to perform it, the difficulties facing the test and the possibility of avoiding it, the suitability of the equipment and tools necessary to perform the test, and knowing the time taken to perform the test.

3.7 Main Experience:

After the researcher was able to identify the appropriate tests to measure them and adapt to the various performance modes and requirements, he conducted tests and measurement for the research variables on 15/10/2024 and the statistical treatments were performed.

3.8 Statistical Methods:

The researcher used the Statistical Package Program (SPSS) to process the data obtained from the results of the tests for the research variables, as it included the following statistical processes that are appropriate in their processing of the research data:

- Arithmetic mean.
- Standard deviation.
- The calculated value of (t).
- Torsion coefficient.
- Percentage.

4. Present, analyze, and discuss the results

4.1 Presentation and analysis of results

4.1.1 Presentation of the results of the level of health efficiency indicators:

Table (2)

Shows the arithmetic averages and standard deviations of the football players in the Dhi Qar University national team

Deviation Standard	Arithmetic mean	Unit of Measurement	Treatments Variable
2,17	19,23	kg/m2	Body Mass Index
5,68	72,75	Beats/min	Resting pulse rate
13,87	115,17	Beats/min	Pulse rate after exertion
3,16	76,12	Millimeters/Hg	Resting Blood Pressure
12,47	87,38	Millimeters/Hg	Blood pressure at an exertional effort
14,02	141,02	Millimeters/Hg	Blood pressure at systolic effort

* The value of the tabular correlation coefficient (0.468) is below the significance level (0.05) and the degree of freedom (16)

Table (2) shows that the mean value of BMI (19.23) and standard deviation (2.17), the mean value of resting pulse rate (72.75) with a standard deviation (5.68), while the mean value of pulse rate after exertion was (115.17) and standard deviation (13.87), the mean value of resting blood pressure was (76.12) and standard deviation (3.16), the mean value of blood pressure at diastolic effort was (87.38) and standard deviation (12.47), and the value of the mean of blood pressure at

exertion was (12.47) Contractile was (141.02) and standard deviation (14.02). These indicators indicate the homogeneity of the sample members in the variables of health efficiency.

4.1.2 Presentation of the results of the relationship between the level of health efficiency and the level of biorhythm:

Table (3)

Shows the results of the relationship between the level of health efficiency and the vital rhythm of football players in the Dhi Qar University national team.

Correlation Rate	Vital rhythm / Health Efficiency
0,115-	Body Mass Index
0,005	Resting pulse rate
0,165	Pulse rate after exertion
0,150	Resting Blood Pressure
0,015	Blood pressure at an exertional effort
0,088	Blood pressure at systolic effort

The tabular value of (t) at the level of significance (0.05) is (0.231), and it is shown through the value of the simple correlation coefficient that there is a strong correlation ratio, and this indicates that there is a significant correlation between the level of vital rhythm and the health efficiency of handball for young people.

4.2 Discussion of the results

Through the presentation and analysis of the results in tables (3,2), it was shown that there is a significant correlation between the level of vital rhythm and the health efficiency of handball for young people, and the researcher attributes this significant correlation to the fact that the biopatterns of the circadian rhythm greatly affect the levels of health efficiency, especially in the morning period, where the circulatory respiratory system, the nervous system, and health efficiency in general are at their highest levels, which leads to achieving better results in health, physical and functional indicators. (نبيل، 1997)

"The nervous and hormonal system regulates the chemical activity of various cells and tissues of the body, and the hormonal system consists of endocrine glands that secrete hormones directly into the blood, which are of great importance for metabolism and the completion of other functional processes, as well as adaptation before, during and after the processes of physical activity," Al-Beik and Omar point out.. (يوسف ذهب علي، 1994)

Dhahab, et al., add that there is a dynamic of changing some of the physiological characteristics of an individual over the course of the) During the first half of the day, the adrenal gland achieves its highest level as it secretes corticosteroids, canolamine, adrenaline and noradrenaline in the blood, so the activity of the central nervous system, the speed of the heartbeat, and the effectiveness of muscle contractions increase, as well as the processes of representation and some indicators such as body temperature, arterial blood pressure, blood pressure dynamics, the maximum rate of oxygen consumption, the rate of breathing, and these indicators to reach their maximum value during the six o'clock in the evening. (عبدالله عبد الرحمن، 1998)

Also, the liver decreases its efficiency from one o'clock to three in the morning, while the kidneys decrease from five to seven in the evening, and this is due to the changes that occur inside our bodies as a result of the secretion of some hormones or the change in metabolic rates and energy production. (محمد بريقع، 1995)

Ahmed Adel points out that when studying the biotypical of the players, it was observed that the players with high functional efficiency in the sport of golf were among the owners of the morning vital rhythm, while the football players were the owners of the evening biorhythm, and sports teams are associated with traveling to different regions with different regional and geographical conditions, where sports teams are under multiple climatic influences and thus are exposed to the phenomenon of an imbalance in the daily vital rhythm of the regular functional activity of the body, which leads to fatigue and inability Sleep, mental and physical exhaustion, lack of alertness and attention, loss of neuromuscular compatibility, muscle cramps, feeling lethargic and lazy, and not wanting to exert physical effort, as well as the feeling of headache, and it is evident from the previous symptoms resulting from the difference in local time between the point of travel and the destination of arrival, and these symptoms can be described as negative changes that are not in the interest of the athlete, so he covets competition with his maximum physiological and psychological abilities in order to achieve the best results in the competition." (عادل، 1992)

Workers in the field of sports training should take into account the general and individual characteristics of the vital rhythm during planning, training and competitions, and it is also important to take into account the necessity of planning the daily training program during the preparation period for high-level competitions in accordance with their dates, start times, and time differences, if any. (محمد بريقع، 1995)

Ali Al-Beik and Sabri Omar explain that a change can be made in the vital rhythms of the player, but this is not an easy picture, as the bio-adaptation of the vital rhythm system needs between 15-25 days, and first the adaptation is done to the physiological aspects (breathing and blood circulation) and then the motor aspects (the strength and speed of muscle contraction). The

competitions are three or four weeks before the tournament through the daily work system for the athletes (effort – rest) and the performance of intense training and experimental competitions on weekdays and times that match the programs of the competitions, and thus it is clear that rebuilding the vital rhythm in a way that corresponds to the timing of the competitions ensures full preparation at the required time while ensuring complete rest, and from here it is necessary to take into account the appropriate times for training, during which the player can exert a lot of effort, taking into account that the human being is more vulnerable Between (2-5) a.m. and (2-4) p.m., or more lively during the daily timings of (10-12) a.m. and (4-7) p.m., the coach must take into account during the planning and direction of the training programs and the loads they contain, whether distributed or intense, to correspond to the player's dynamic rhythm pattern to ensure their increased effectiveness. (يوسف ذهب علي، 1994)

Through the above, coaches must take into account and study the phenomenon of the vital rhythm accurately as a physiological and psychological phenomenon when planning the annual, monthly and daily training program by determining the pattern of the vital rhythm, which shows the optimal timing from the day when the psychological and physical efficiency reaches its highest level to achieve the greatest benefit to bring out the highest possible abilities of the player during training or competition.

5 – Conclusions and Recommendations:

5.1 Conclusions:

1- There is a significant correlation between health competence and the dynamic rhythm pattern of youth handball players.

2- The level of health efficiency of the players was within normal limits in measurements related to body mass index, resting pulse rate, resting blood pressure, diastolic blood pressure, and systolic blood pressure.

3- Players are characterized by a greater desire to exercise in the evenings.

4- There are players who are in better health in the morning and others who are in better health in the evening, and this is due to the quality of the rhythm pattern, as there are individuals whose rhythm pattern is morning and others are in the evening.

5- There is a group of individuals who are asymmetrically irregular, making their pattern data fluctuate between morning and evening.

5.2 Recommendations:

1- Coaches should pay attention to determining the rhythm pattern of the players to take advantage of the optimal timing in releasing the energy needed to achieve the best results.

2- Using the results of this study within the basic criteria for coaches and evaluators on sports activities in clubs and schools.

3- Paying attention to the timely implementation of training programs for the players' vital rhythm to ensure that the effectiveness of the training process is increased, which affects the level of the players.

4- The need to invest in the dynamic rhythm mode in determining the ideal time to test for players.

5- The need to match the training times with the times of the competitions to benefit from the principle of the vital rhythm and its impact on the level of results.

6- Conducting similar studies on different samples.

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