ANALYSIS OF BORHYTHM ATHLETES IN BADMINTON AT THE 2021 YUZU ISOTONIC AKMIL OPEN CHAMPIONSHIP

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Abstract : Biorhythms are a human biological cycle consisting of primary rhythms, secondary rhythms and extra rhythms. This biological cycle is very important in performance or sports, because it includes physical and psychological aspects. Badminton as a sport requires good physical and psychological abilities to make fast and precise movements. Badminton is a sport that demands excellent physical condition. The aim of this research is to find out 1) whether there are differences in the primary rhythm aspects of the 1st place and 2nd place badminton athletes participating in the 2021 Yuzu Isotonic Akmil Open championship?, 2) whether there are differences in the secondary rhythm aspects of the 1st place and 2nd place badminton athletes participating in the Yuzu Isotonic Akmil championship Open 2021?, 3) is there a difference in the extra rhythm aspect of the 1st place and 2nd place badminton athletes participating in the 2021 Yuzu Isotonic Akmil Open championship?, and 4) is there a difference in the biorhythm aspect of the 1st place and 2nd place badminton athletes participating in the 2021 Yuzu Isotonic Akmil Open championship?

This research is experimental research with a one shot study approach. The instrument used in this research is natural biological software. Biorhythm software can calculate and predict an individual's energy levels, physical strength, emotions, and intellect. The population is badminton players participating in the Yuzu Isotonic Akmil Open 2021 championship, the sampling technique uses purposive. Data analysis used the t test with a significance level of 5%.

The results of the research show that: 1) there is a significant difference in the primary rhythm aspect of the 1st place and 2nd place badminton athletes, 2) there is a significant difference in the secondary rhythm aspect of the 1st place and 2nd place badminton athlete, 3) there is a significant difference in the rhythm aspect extra 1st place and 2nd place badminton athletes, and 4) there are significant differences in the biorhythmic aspects of the 1st place and 2nd place badminton athletes participating in the 2021 Yuzu Isotonic Akmil Open Championship.

Based on the research results are advised: 1) badminton coaches to deepen and understand aspects of athletes' biorhythms in training and competitions, 2) The other researchers use natural biorhythm software in other sports, both individual and team sports.
Keywords: Primary Rhythm, Secondary Rhythm, Extra Rhythm, and Biorhythm.

INTRODUCTION

Life experiences consistent changes and is governed by a series of regular cycles influenced by the sun, moon, day, night, spring, summer, autumn, winter. The sinusoidal cycles of biorhythms can be calculated, interpreted and the moments of daily life can be predicted. Some changes here and there do happen in life. But the purpose of following biorhythm cycles is to experience our daily mood swings and the constant cycles we go through. Biorhythms can be categorized based on their relationship to the 24-hour cycle and can be circadian, ultradian, and infradian (Nihra, 2020, p: 227).

A rhythm is something that repeats itself over a fixed and measurable period of time. Biological rhythms are cycles in the human body which are divided into exogenous rhythms and indigenous rhythms. Every function of the human body has its own rhythm, such as circadian rhythm, heart rhythm, breathing rhythm, biorhythm and menstrual cycle. Each existing rhythm has a different cycle. Circadian rhythm is a rhythm that has a 24 hour cycle that regulates physical and mental changes. Apart from circadian rhythms, there are rhythms that have longer cycles, namely biorhythms. Biorhythms have several cycles, namely physical, intellectual and emotional. Each cycle has its own period, namely, physical (23 days), intellectual (33 days), emotional (28 days) and has phases, namely, positive, negative and critical. Biorhythm cycles have many influences on human performance (Salmah et al., 2019, p: 80).

Biorhythms represent genetically determined biological parameters and with the help of which we can determine the general constitutional type and also on the basis of which we can establish the characteristics of the elements for individual training, as well as the use of certain recovery, psychological or other methods. By knowing the negative phases, especially the critical ones, athletes can overcome these weaknesses with adequate physiological training (Maura, 2009, p: 1). The purpose of studying biorhythm cycles or identifying and calculating the rhythmic cycles of people is to determine the impact of these rhythms on the individual's condition, calculate

optimal and critical days, perform activities optimally, predict weakness and strength times and not perform some activities on critical days (Dehghan, 2008, p: 60).

Biorhythms are one of the important and basic physiological topics unfamiliar to some trainers, which can be used in organizing the training process and their daily life and investing effort and time in obtaining continued results in learning and performance, by organizing training and increasing and decreasing its intensity remembering positive and negative stages negatif (Al-Musawi & Mohammed, 2021, pp: 14703–14704).

The word "Biorhythm" comes from two Greek words bios meaning life and rhythmus meaning regular or thought out movement. In the Oxford dictionary, Biorhythms are defined as repetitive physical, emotional, and intellectual patterns. Activities that some people believe to influence human behavior (Zarena et al., 2014, p: 12). Biorhythm is one of the newest topics in this field. Identify the ergonomics of the mind, which can be very effective in reducing work-related accidents and errors for no apparent reason through identifying a person's intellectual, physical and emotional aspects (Shahram et al., 2016, p: 58).

Biological rhythms are one of the basic characteristics given to life through natural evolution. Humans and all living creatures must be controlled and influenced by biological rhythms. Human biological rhythm refers to physical rhythm, emotional rhythm, and intellectual rhythm (Su, 2021, p: 1). Biorhythms represent changes that occur regularly in the short term for individuals and through which they show effects on physical, mental and emotional activity, and these changes are related to genetic aspects on the one hand and the external environment on the other (Farhood & Nasser, 2020, p: 4370).

Biorhythms are periodic changes in biological processes that can change, adapting to external influences such as time of day, room lighting. Daily biorhythms are one of the basics of the human body. It is characterized by natural changes in such human functional states, such as sleep and wakefulness, physical activity and calmness. As well as all body functions (respiration, digestion, circulation) in accordance with this functional state naturally change their activities (Siegel, 2009, p: 18). Biorhythms are a collection of intellectual, emotional and physical curves that show different moods in humans from birth to death (Roodposhti et al., 2012, p: 78).

Biorhythm Cycles

Biorhythm cycles are a theory that proposes that human life is influenced by biological cycles that repeat at certain intervals. There are three main cycles in biorhythm theory, namely: physical, emotional, and intellectual. Each cycle has a

specific period, and it is believed that a person's physical, emotional, and intellectual state fluctuates according to these cycles.

The biorhythm cycle starts from the day of birth and starts from the beginning or starting line, so it increases gradually until it reaches the peak of activity, then they return to the starting line and decrease until they reach the minimum activity when they reach the bottom point (Khaled et al., 2017, pp: 376–377).

Studies show that there are four main cycles that influence human activity, because human activity is subject to three cycles, the frequency of which ranges as follows: 1) 23 days for the physical cycle, 2) 28 days for the emotional cycle, 3) 33 days for the mental cycle, and 4) 38 days for the intuitive course (Zareian et al., 2014, p: 12). The four cycles (physical, emotional, mental, and intuitive) include two zoons, ascending and descending, and there is a critical zoon and a zero point. In the 23 day physical cycle, it is divided into (11.5) days for positive zoons and (11.5) for negative zoons, because it affects general health. In addition to muscle strength and general endurance, the individual is prepared for hard work and for relatively long periods of time. As for the negative stage, it represents what resembles hospitalization, and the individual is in a state of physical decline (Farhood & Nasser, 2020, p: 4371).

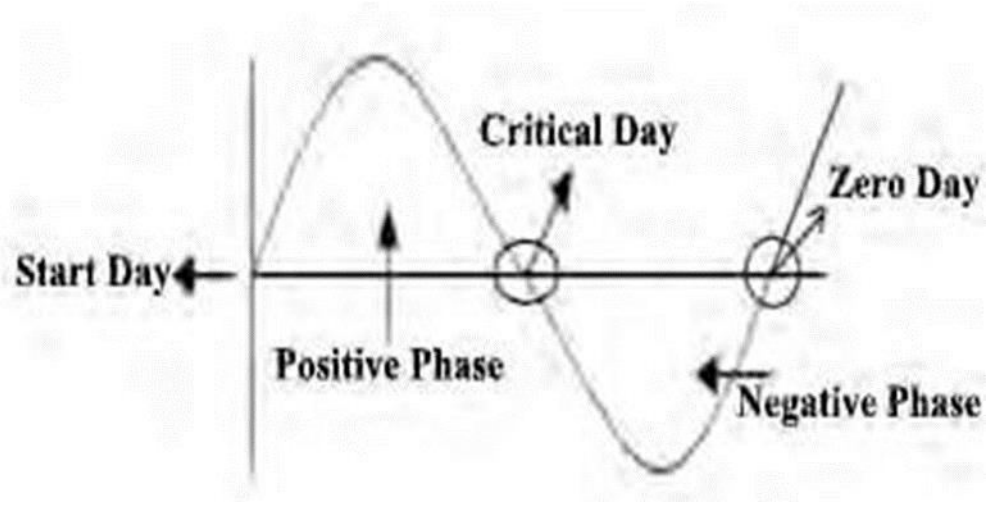

Figure 1 Part of the biorhythm cycle

As seen in figure 1 part of the biorhythm cycle, the top of the curve shows the positive phase. The positive phase includes days when the body releases its energy and is likely to be at its peak. The lower part of the curve indicates the negative phase where the body returns the energy released in the positive phase and tends to perform below normal. A critical point is an almost neutral point belonging to one of

the positive or negative cycles or not belonging to one of them at all (Shahram et al., 2016, p: 59).

Critical days are days when one of the three curves crosses the zero line. In other words, it is the point where the rhythm curve goes from the high phase to the low phase, or vice versa. The transformation from high to low or from positive to negative is very tiring. Therefore, it can cause stress and pressure. Accidents, illnesses or things that are less serious but unpleasant tend to happen a lot on critical days (Al-Khallil & Qader, 2015, p: 15).

Biorhythm theory suggests that people's behavior is influenced by three biological cycles that begin at birth and continue through life. Biorhythmic cycles are believed to originate from the day of birth and from the baseline begin their cyclical variations with an initial upward swing (Sharma & Singh, 2011, p: 236).

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Physical Cycles

This cycle is related to physical energy levels, strength, endurance, and coordination. Positive days in the physical cycle are considered days when a person feels stronger and more energetic, whereas negative days in the physical cycle are considered days when a person feels weak and not energetic.

This cycle refers to masculinity affecting their physical condition. It is believed that there is a concurrency between the adrenal glands and physical cycles in the body. This cycle continues for 23 days and associates with strength, mobility, determination, resilience and innovation (Shahram et al., 2016, p: 59)

Steps to Calculate Physical Cycles. Calculate the number of days from January 1, 2000 to June 12, 2024. Calculate the physical cycle value using the number of days that have been calculated with a physical cycle period of 23 days.

Emotional Cycle

This cycle influences mood, creativity, sensitivity, and emotional well-being. Positive days in the emotional cycle are when a person feels happier and more emotionally stable.

This cycle dominates in the nervous system. It is more related to a person's femininity and affects feelings. It is a 28-day cycle that controls sensitivity, emotional problems, temperament, mood, nervous system and creativity (Shahram et al., 2016, p: 59).

Steps to Calculate the Emotional Cycle, Calculate the number of days from January 1 2000 to June 12 2024. Calculate the emotional cycle value using the number of days that have been calculated with an emotional cycle period of 28 days.

Intellectual cycle

This cycle is related to mental ability, intelligence, alertness, and concentration. Positive days in the intellectual cycle are when a person feels sharper and more able to think logically.

This cycle lasts for 33 days and affects individuals in their learning abilities, analytical thinking, reasoning, judgment and decision making (Shahram et al., 2016, p: 59).

Steps to Calculate the Intellectual Cycle, Calculate the number of days from January 1 2000 to June 12 2024. Calculate the intellectual cycle value using the number of days that have been calculated with an intellectual cycle period of 33 days.

Intuition cycle

The intuition cycle is an addition often discussed in the context of biorhythms, although it is not included in the three main cycles (physical, emotional, and intellectual). This cycle is associated with a person's ability to make decisions based on intuition or gut feeling.

This cycle affects a person's ability to make intuitive decisions and perceive things that may not be logically realized. Positive days in this cycle are considered periods in which a person's intuition is sharper and more trustworthy.

The 38-day intuitive rhythm was discovered in recent years and is considered less important. The intuition cycle influences subconscious perceptions, hunches, instincts and the 'sixth sense'. On low and especially critical days it may be difficult to do art-related work or other tasks that require a lot of creativity and intuition (Al-Khalil & Qader, 2015, p: 15).

Just like other major cycles, the intuition cycle can be calculated using the sine formula. Here are the steps to calculate the intuition cycle value: Count the number of days from your date of birth to the desired date. Use the following formula: Intuition Cycle Value = sin (2π- number of days / 38).

Biorhythm theory suggests that by understanding and monitoring these cycles, a person can plan daily activities to maximize potential and avoid periods when low performance is likely.

Biorhythms are a concept that argues that human life is influenced by biological cycles that repeat at certain intervals. Understanding biorhythms is considered important for several reasons, although these are based more on theory than solid

scientific evidence. Following are some of the important meanings of biorhythms according to this theory:

1. Planning and Decision Making

Planning and decision making are important aspects of human life. This is reflected in: 1) Optimizing Performance: By knowing when the physical, emotional and intellectual cycles are at their peak, we can plan activities that require high energy, emotional stability or sharp mental abilities on those days, 2) Avoid Risk: On days when the cycle is in a negative phase, you may want to avoid important decisions or risky activities.

2. Self-Awareness

Self-awareness is a person's ability to understand and recognize themselves, including feelings, thoughts and behavior. This includes an understanding of personal strengths and weaknesses, values, beliefs, motivations, and emotions. Self-awareness is an important component of emotional intelligence and can contribute to personal and professional development. Reflection on self-awareness, based on: 1) Understanding of Self: By monitoring biorhythms, we can better understand how cyclical changes affect mood, energy, and mental abilities. This can help recognize patterns in behavior and performance, 2) Improved Well-Being: Knowing that your feelings or performance are influenced by biological cycles can help you be more accepting of these fluctuations and less hard on yourself when you are in a negative phase.

3. Stress Management

Stress management is an important skill that helps a person maintain mental and physical well-being. This can be done by: 1) Emotional Management: Understanding emotional cycles can help you manage stress and emotions better, as you can anticipate when you may feel more sensitive or vulnerable, 2) Life Balance: By understanding biorhythms, you can better good at maintaining a balance between work, rest and other activities, thereby reducing the risk of fatigue.

4. Improved Interpersonal Relations

Improved interpersonal relationships are an important aspect of life that can bring happiness, support, and more meaning to our lives. Implementation in life can be done by: 1) Effective Communication: Knowing your and other people's emotional cycles can help you communicate and interact more effectively, especially in situations that require empathy and understanding, 2) Managing Conflict: Understanding that differences in mood and the energy perhaps caused by biorhythms can help reduce conflict and increase tolerance in relationships.

5. Application in the world of work or sports

Applying the concept of biorhythms to the world of work or sport can help individuals optimize performance, reduce stress, and improve overall well-being. By applying the concept of biorhythms to the world of work and sport, individuals and teams can optimize their performance, improve well-being and achieve their goals more effectively. Its application in the world of work and sports is oriented towards: 1) Productivity: In the work environment, biorhythms can be used to organize work tasks and schedules according to cycles that influence maximum performance, 2) Team Management: An understanding of biorhythms can help managers better organize teams , placing people on tasks that match their optimal cycles, 3) Awareness Education: Hold training on biorhythms for employees or athletes to increase awareness and application of this concept, and socialize the importance of biorhythms in maintaining health and performance.

In the field of sports, interest in the subject of biorhythms and their influence on athlete performance has become apparent, and this issue has become serious, especially when preparing training programs for athletes. The recent period has witnessed an increase in the use of software for the identification of biorhythm cycles for individual athletes, and then the distribution and intensity of training according to each athlete's training sessions. Points out that athletes compete on different days and these days are not in the same state of health, physical, mental, or emotional, and this situation can directly or indirectly affect the athlete's performance (Farhood & Nasser, 2020, p: 4371).

Each athlete needs to have a specific training method that suits his individual abilities and his four rhythm curves (physical, emotional, intellectual, intuitive). Many scientists carry out research related to the study of sports records and their relationship with the months of the year. In 1959 Matveev directed the gaze of athlete experts to the unequal standing of the results of athletes with different months, and then it became known that the level of sports results depends on external natural factors, so there was a necessity to develop sports training methods and plans to allow sports levels increases from year to year (Khaled et al., 2017, p: 381).

Oriented to the importance of the biorhythm approach in sports activities, badminton is a sport that has long been known and has positive value for Indonesia, because this sport is able to make achievements and bring a good name to Indonesia on the international stage. As one of the sports achievements in Indonesia, badminton's development always receives special attention from talent scouts in this sport, especially regarding athlete achievement and athlete regeneration (Aprilia et al., 2020, p: 56).

Badminton is a sport that uses a lot of physical abilities with fast movements and hard blows made within a few seconds between long rallies (Subarjah, 2010). In a badminton match, the duration of 1 match (from the start of the game to the end) can last 30-90 minutes, depending on the potential of each player. If the potential of the players is balanced, then the match can be tight, so it requires excellent physical condition, because the match time is very long with high intensity and little rest istirahat (Efendi & Rochmania, 2020, p: 140). To become a reliable badminton player requires various requirements, including physical aspects, technical aspects including mastery of basic techniques, intermediate techniques and advanced techniques, tactical and strategic aspects, as well as mental maturity aspects of competing in badminton (Yuliawan & Sugiyanto, 2014, p: 146). The sport of badminton has several basic hitting techniques that are important to be able to play well and achieve high playing skills in badminton, including service, clear or lob, smash, net drop and dropshot (Pranata et al., 2019, p: 21).

Along with and in line with efforts to develop achievements in the sport of badminton, apart from being carried out through continuous and sustainable training in coaching clubs, to see the results of coaching, it is carried out by holding matches in championships, both at district/city (branch) level, regional level. (provincial) and national level (national championship).

The National Championship (Kejurnas) entitled Yuzu Isotonic Akmil Open 2021 is a new tournament held by the private sector. This National Championship (Kejurnas) was initiated by PT Djarum Kudus, to reopen the badminton coaching process in Indonesia. Since the Covid-19 pandemic occurred, various badminton championships cannot be held. This championship will be held from Thursday (28/10/2021) to Sunday (7/11/2021). This badminton national championship was held in two places, namely at GOR Soeroto Akmil Magelang and GOR Djarum Magelang.

This badminton championship will be held on a national scale, and is intended for athletes from various age groups, namely from the U13, U15, U17, U19, adults and veterans age groups. There are five events contested in this championship, including men's singles, women's singles, men's doubles, women's doubles and mixed doubles. Specifically, mixed doubles matches are only held in the U15, U17, U19, adult and veteran groups.

Based on the description of the background and in line with this reality, researchers as practitioners and academics feel interested in taking an active role in building better badminton sports achievements. There is a need for research regarding the overall picture of the importance of knowing the biorhythmic aspects of badminton athletes in the Yuzu Isotonic championship. Akmil Open 2021. Therefore,

researchers are interested in conducting research on "***Analysis of Biorhythm Aspects of Badminton Athletes at the 2021 Yuzu Isotonic Akmil Open Championship Using the Natural Biorhythm Application***".

METHOD

Research Types and Designs

This type or research design is Quantitative Descriptive research which can be interpreted as a research method based on the philosophy of positivism, used to research certain populations or samples, data analysis is quantitative because research data is in the form of numbers and analysis uses statistics (Sugiyono, 2015, p: 13). The type of data collected in this research is quantitative data. The research subjects were badminton athletes at the 2021 Yuzu Isotonic Akmil Open Championship.

Research design is a research design that is structured in such a way that it can guide researchers to obtain answers to research questions (Sastroasmoro & Ismael, 2014, p: 104). In this research, the "One Shot Study" comparative study method was used. Comparative study is a method of comparing individuals that is carried out in an integrative and comprehensive manner in order to obtain a deep understanding of the individual and the problems they face with the aim of solving the problem and achieving good personal development (Rahardjo & Gudnanto, 2011, p: 250). The research design can be described as follows:

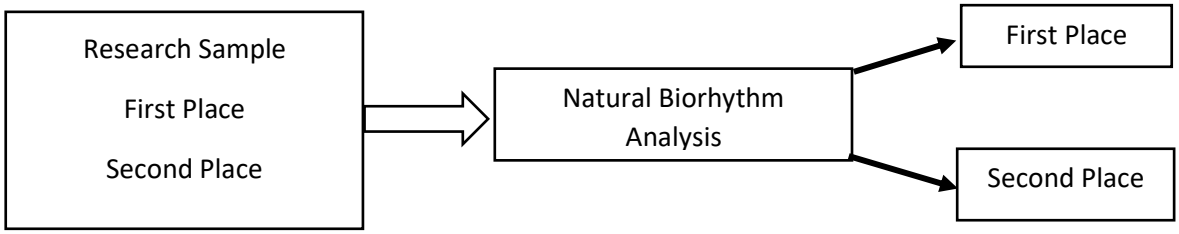

Figure 2. Research Design

Research variable

Variables are research objects or what is the focus of research (Arikunto, 2006, p: 118). Research variables are anything in any form that is determined by the researcher to be studied so that information about it is obtained and drawn (Sugiyono, 2016, p: 60). In this study only used a single variable. This variable is the biorhythm aspect of badminton athletes in the 2021 Yuzu Isotonic Akmil Open Championship.

Population, Sample, and Sampling Techniques

According to (Arikunto, 2006, p: 130) the population is all individuals who are research subjects. According to (Sugiyono, 2015, p: 117) population is not only people, but also objects and other natural objects. Population is also not just the number of objects studied, but includes all the characteristics or traits possessed by the subjects or objects studied. The population in this study were badminton athletes in the 2021 Yuzu Isotonic Akmil Open Championship.

The sample is part of the number and characteristics of the population. If the population is large, and it is impossible for researchers to study everything in the population, for example due to limited funds, energy and time, then researchers can use samples taken from that population (Sugiyono, 2015, p: 118). Sampling in this study used a purposive sampling technique, namely a sampling technique based on the author's criteria or objectives (Sugiyono, 2015, p: 84). The sample for this research was 24 badminton athletes in the Yuzu Isotonic Akmil Open 2021 Championship.

Research Instrument

A research instrument is a tool used to measure observed natural and social phenomena. Because in principle research is taking measurements, there must be good measuring instruments. When collecting or measuring data, we always use measuring instruments which are commonly called research instruments (Sugiyono, 2015, p: 148).

The instrument used in this research is Natural Biorhythm software, biorhythm software which can calculate individual energy levels, physical strength, emotions and thinking power every day. Thus, different energy levels of a person are calculated according to his date of birth and he can see the report. Physical, emotional and intellectual energy from the day of birth to today and even the days to come. An overview of the performance results of the Natural Biorhtyms software can be seen in the following image.

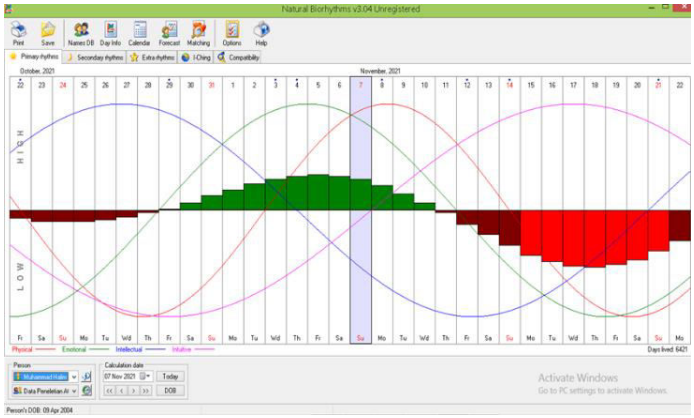

Figure 3. Softwares Natural Biorhtyms V3.04

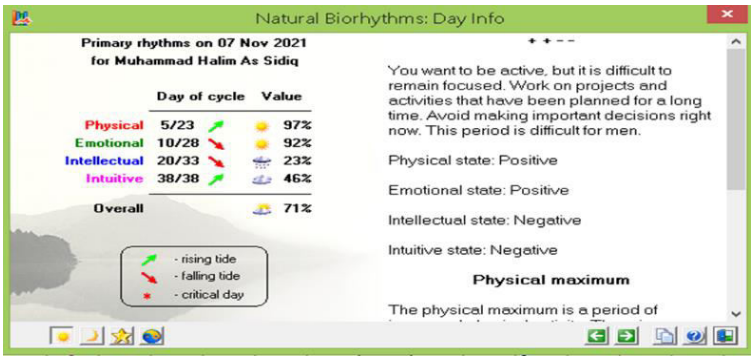

Figure 4. Hasil Analisis Softwares Natural Biorhtyms V3.04

RESULTS

Measurement of biorhythm aspects consists of primary aspects, secondary aspects, extra aspects and biorhythm aspects. Primary aspects consist of the physical cycle (physical), emotional cycle (emotion), intellectual cycle (Intellectual), intuitive cycle (intuitive). Secondary aspects consist of wisdom, mastery, passion. The extra aspect consists of perception, psychic, success, and the biorhythm aspect is the overall aspect.

The results of this research will be described based on variable data that has been processed with the help of Natural Biorhythms V3.04 Software to determine the value of each aspect of the athletes' biorhythms in the 2021 Yuzu Isotonic Akmil Open championship.

Data Description

Data description is an important step in data analysis that involves examining and summarizing the main characteristics of the dataset. This helps in understanding the structure, patterns, and potential issues in the data before proceeding to further analysis. Complete data descriptions provide a strong foundation for further analysis and assist in identifying areas that require special attention or further data cleaning. The description of the research data is presented in table 1 below:

Table 1. Description of Research Data

	N	Minimum	Maximum	Mean	Std. Deviation
Primary Rhythm _ Place 1	8	29,00	87,00	59,81	18,59
Primary Rhythm _ Place 2	8	24,50	46,25	36,94	7,688
Scunder Rhythm _ Place 1	8	41,67	96,67	64,50	19,319
Scunder Rhythm _ Place 2	8	26,67	57,33	40,38	11,510
Exstra Rhythm _ Place 1	8	27,33	75,00	60,29	15,102
Exstra Rhythm _ Place 2	8	9,00	53,67	37,08	14,579

Bioritmic_Place 1	8	36,33	77,58	61,53	14,857
Bioritmic_ Place 2	8	22,97	52,00	38,13	10,137

Prerequisite Test

The normality test for this research data used the Kolmogorov-Smirnov normality test. The test criteria are if the significance is ≥ 0.05 the data is declared normal, conversely if the significance is ≤ 0.05 the data is declared abnormal.

Tabel 2. Data Normality Test Using *Kolmogorov-Smirnov*

		IP_J1	IP_J2	IS_J1	IS_J2	IE_J1	IE_J2	Bioritme_J1	Bioritme_J2
N		8	8	8	8	8	8	8	8
Normal Parametersa,b	Mean	59,813	36,938	64,500	40,375	60,292	37,083	61,533	38,131
	Std. Deviation	18,593	7,688	19,319	11,510	15,10223	14,579	14,857	10,137
Most Extreme Differences	Absolute	0,238	0,196	0,128	0,206	0,251	0,159	0,219	0,226
	Positive	0,126	0,184	0,128	0,206	0,165	0,128	0,140	0,115
	Negative	-0,238	-0,196	-0,119	-0,193	-0,251	-0,159	-0,219	-0,226
Test Statistic		0,238	0,196	0,128	0,206	0,251	0,159	0,219	0,226
Asymp. Sig. (2-tailed)		,200c,d	,200c,d	,200c,d	,200c,d	,147c	,200c,d	,200c,d	,200c,d

Information: IP = Primary Rhythm, IS = Secondary Rhythm, IE = Extra Rhythm, J1 = 1st Place, J2 = 2nd Place

Based on table 2, the results of the data normality test using Kolmogorov-Smirnov show that all variables in the biorhythm aspect have a significance value of ≥ 0.05, so it can be concluded that all variables in this study are normally distributed, so it can be continued for parametric analysis.

The homogeneity of variance test for this research data uses the Levene Statistics test. The test criteria is if the significance is ≥ 0.05 the data is declared homogeneous, conversely if the significance is ≤ 0.05 the data is declared inhomogeneous. The calculation results are presented in table 3.

Tabel 3. Data Variance Homogeneity Test Using *Levene Statistic*

		Levene Statistic	df1	df2	Sig.
Bioritme_J1	Based on Mean	0,044	1	6,000	0,840

	Based on Median	0,037	1	6,000	0,854
	Based on Median and with adjusted df	0,037	1	5,403	0,855
	Based on trimmed mean	0,042	1	6,000	0,845
Bioritme_J2	Based on Mean	0,09	1	6,000	0,774
	Based on Median	0,313	1	6,000	0,596
	Based on Median and with adjusted df	0,313	1	5,981	0,596
	Based on trimmed mean	0,110	1	6,000	0,751

Different Test Results

The difference test in this study used the t test. The test criteria are if the significance is ≤ 0.05, the data is declared to have a difference, whereas if the significance is ≥ 0.05, the data is declared to be no difference. The results of the different test calculations are presented in table 4.

Table 4. Results of data analysis using the t test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	IP_J1 - IP_J2	22,875	4,717	7	0,002	34,341	4,717	7	0,002
Pair 2	IS_J1 - IS_J2	24,125	5,477	7	0,001	34,541	5,477	7	0,001
Pair 3	IE_J1 - IE_J2	23,208	4,416	7	0,003	35,635	4,416	7	0,003
Pair 4	Bioritme_J1 - Bioritme_J2	23,401	8,060	7	0,000	30,267	8,060	7	0,000

Based on table 4, the results of different tests using the t test show that: 1) There is a significant difference in the 1st and 2nd place Primary Rhythm variables (sig = 0.002), 2) There is a significant difference in the 2021 Champion Secondary Rhythm variable. 1st and 2nd place (sig = 0.001), 3) There is a significant difference in the Extra Rhythm variable. 1st and 2nd place (sig = 0.003), and 4) There are significant differences means the biorhythm variable for 1st place and 2nd place (sig = 0.000) for participants in the Yuzu Isotonic Akmil Open 2021 Championship.

DISCUSSION

Based on the results of data analysis as presented, several things can be discussed as follows:

1. *Primary Rhythmic Aspects*

Biorhythms is a theory that claims that there are physical, emotional, and intellectual cyclical patterns in people's lives that influence their behavior and well-being. However, related to the "primary rhythmic aspects of biorhythms," it may refer to the concept of rhythm or rhythmic patterns in the context of human biorhythmic cycles.

Oriented to the context of human biorhythm cycles, we might consider how human biological rhythms or biorhythms influence their patterns of activity, energy, and focus over time. For example, there is the concept of the human sleep cycle, where our bodies experience a certain pattern from waking to sleeping and back again. This includes Rapid Eye Movement (REM) and Non-REM sleep cycles, which influence our sleep quality and needs.

Based on that context, "primary rhythmic aspects of biorhythms" might refer to how these patterns influence our creativity, productivity, or performance in various activities throughout the day. There may be a relationship between an individual's biorhythms and their tendency to engage in certain activities at certain times, based on energy, focus, and mood that vary throughout the cycle. However, it is important to note that the biorhythm theory is still controversial in science, and there is no consistent scientific evidence to support its claims. Most modern scientific research emphasizes factors such as sleep patterns, diet, physical activity and other environmental factors in influencing human well-being.

2. *Secondary Rhythm Aspects*

The secondary rhythmic aspect of biorhythms is how human biological rhythms, such as sleep cycles or energy patterns during the day, can be seen as primary rhythms, while more subtle or less visible rhythms, such as changes in energy or mood during the day, can be thought of as secondary rhythms. In this context, we can reflect on several concepts:

1) Sleep Cycle: Humans' natural sleep patterns can be considered primary rhythms. However, changes in sleep quality or more subtle sleep patterns, such as transitions between REM and Non-REM sleep, can be considered secondary rhythms.
2) Energy Patterns: Humans tend to experience energy fluctuations during the day. Energy peaks may occur in the morning, while energy may dip in the afternoon or evening. These changes can be viewed as secondary rhythms operating within the context of primary rhythms of daily activity.

3) Hormone Cycles: Certain hormones, such as cortisol, can fluctuate throughout the day. These peaks and troughs in hormone levels can be considered primary rhythms, while small changes in hormone levels can be considered secondary rhythms.
4) Mood: Humans often experience mood swings throughout the day, which can affect productivity, focus, and social interactions. These changes can be considered as secondary rhythms that modulate the primary rhythm of daily activity.

Overall, the secondary rhythm aspect in the context of human biorhythms refers to subtle or less visible changes in human biological or behavioral patterns over time, which can influence their well-being and performance.

3. *Extra Rhythmic Aspects*

Extra rhythmic aspects refer to additional factors or variables that can influence human biological rhythm patterns. This could include factors such as:

1) Stress: Changing stress levels can affect biological rhythms, such as sleep patterns and hormone levels. Chronic stress can disrupt the body's natural rhythms.
2) Light Pollution: Exposure to bright light at night can affect human circadian rhythms and sleep, disrupting natural sleep patterns.
3) Noise Pollution: Constant noise or noise disturbances can disrupt sleep and rest, affecting a person's sleeping and waking rhythms.
4) Diet: Irregular eating patterns or unhealthy diets can affect energy levels and other metabolic factors, which in turn can affect biological rhythms.
5) Physical Activity: A person's level and pattern of physical activity can influence biological rhythms, such as fatigue levels and sleep patterns.
6) Social Interactions: Social relationships and social activities can also play a role in a person's biological rhythms, with positive or negative social interactions can influence overall well-being.

These factors, along with many other variables, can be considered “extra rhythmic aspects” in human biorhythms, as they are additional factors that can influence biological rhythm patterns and overall well-being.

4. *Aspects of biorhythms*

The overarching aspect of biorhythms includes various elements that influence human biological, psychological and behavioral rhythms. Some aspects that can be taken into account in understanding biorhythms as a whole include:

1) Circadian Rhythm: This is an internal biological cycle that regulates sleep and wake patterns, as well as physical activity, body temperature, and other body functions over a period of approximately 24 hours.

2) Sleep Rhythm: A regular and quality sleep pattern is an important component of human health and well-being. This includes sleep duration, sleep quality, and consistent sleep patterns.
3) Hormonal Rhythms: Hormones such as cortisol, melatonin, and sex hormones have release patterns that are regulated by internal biological rhythms. Hormonal fluctuations affect energy, mood, and other body functions.
4) Physical Activity Rhythm: Physical activity and rest patterns influence physical and mental health. Regular and balanced physical activity helps maintain balanced biorhythms.
5) Food Rhythm: A regular and healthy diet plays an important role in regulating metabolism, energy and overall health.
6) Emotional and Psychological Rhythms: Humans experience fluctuations in mood, stress, and concentration throughout the day, which affect their psychological well-being.
7) Social Interactions: Social relationships and interactions with others also influence a person's well-being and biological rhythms.

Understanding and managing these aspects wisely is important for maintaining overall health and well-being. Maintaining a balance between biological rhythms, sleep patterns, diet, physical activity and other factors can help humans feel better physically, mentally and emotionally.

CONCLUSION

Based on the results of research on the analysis of biorhythmic aspects of badminton athletes at the 2021 Yuzu Isotonic Akmil Open Championship, it can be concluded as follows:

1. There is a significant difference in the primary rhythm aspects of the 1st and 2nd place winners in the 2021 Yuzu Isotonic Akmil Open Championship participants.
2. There is a significant difference in the secondary rhythm aspects of the 1st and 2nd place winners in the 2021 Yuzu Isotonic Akmil Open Championship participants.
3. There is a significant difference in the extra rhythm aspect of the 1st and 2nd place winners in the 2021 Yuzu Isotonic Akmil Open Championship participants.
4. There is a significant difference in the biorhythm aspects of the 1st and 2nd place winners in the 2021 Yuzu Isotonic Akmil Open Championship participants.

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