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Utilization of Rhythmic Gymnastics to Enhance Physical Fitness among Students of SMP Negeri 56 Palembang

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Abstrak

Penelitian ini bertujuan untuk mengevaluasi dampak senam ritmik terhadap kebugaran fisik siswa di SMP Negeri 56 Palembang. Penelitian ini menggunakan desain eksperimental kuantitatif dengan metode pretest-posttest dalam satu kelompok. Populasi penelitian terdiri dari seluruh siswa kelas VIII di SMP Negeri 56 Palembang, dengan sampel 33 individu yang dipilih dari kelas VIII.I. Alat yang digunakan untuk mengukur kebugaran fisik adalah Tes Kebugaran Fisik Indonesia (TKJI) Fase D, yang terdiri dari lima komponen: lari 40 meter, menggantung dengan lengan bengkok, sit-up selama 30 detik, lompatan vertikal, dan lari 600 meter. Metodologi penelitian meliputi pemberian tes pra-intervensi, pelaksanaan enam sesi senam ritmik, dan kemudian melakukan tes pasca-intervensi. Hasil menunjukkan peningkatan yang signifikan dalam kebugaran fisik siswa setelah intervensi, dengan peningkatan dalam kecepatan, kekuatan, daya tahan, dan kelincahan teridentifikasi. Senam ritmik secara signifikan meningkatkan kesehatan fisik siswa.

Kata kunci: *Senam Ritmik, Kebugaran Fisik, TKJI, Siswa SMP*

Abstract

This study seeks to evaluate the impact of rhythmic gymnastics on the physical fitness of students at SMP Negeri 56 Palembang. The research employed a quantitative experimental design with a pretest-posttest methodology within a single group. The study population comprised all eighth-grade students at SMP Negeri 56 Palembang, with a sample of 33 individuals selected from class VIII.I. The apparatus employed to assess physical fitness is the Indonesian Physical Fitness Test (TKJI) Phase D, with five components: a 40-meter sprint, a bent-arm hang, a 30-second sit-up, a vertical leap, and a 600-meter run. The research methodology entails administering a pretest, implementing six sessions of rhythmic gymnastics, and subsequently performing a posttest. The results indicated a notable enhancement in students' physical fitness post-intervention, with gains in speed, strength, endurance, and agility identified. Rhythmic gymnastics significantly enhances the physical health of students.

Keywords: Rhythmic Gymnastics, Physical Fitness, TKJI, Junior High School Students

1. INTRODUCTION

Physical Education, Sports, and Health (PJOK) plays a crucial part in developing students' character, fitness, and motor skills. PJOK education aims to cultivate students' physical, mental, and social capabilities in a balanced manner through a variety of organized and systematic physical activities (Kurniawan & Dewi, 2022). This aligns with the perspective that physical education enhances health while also fostering social discipline and collaboration among pupils (Susanto, 2023; Wulandari, 2021). The primary objective of PJOK education is to impart sports abilities while also fostering the virtues of discipline, teamwork, sportsmanship, and responsibility in pupils (Susanto, 2023).

Rhythmic gymnastics is a commonly employed activity in PJOK education to enhance physical health and movement expression. Rhythmic gymnastics integrates bodily

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movements with musical rhythm, executed in a rhythmic and continuous manner, necessitating coordination among limbs, auditory perception, and sensitivity to the beat of the music (Rahmawati, 2022). Rhythmic gymnastics, as a systematic rhythmic endeavor, combines physical training and coordination exercises that are especially appropriate for adolescents in educational environments (Rahmawati, 2022; Tarigan, 2021). This activity aids kids in expressing creativity while enhancing coordination, flexibility, and body balance (Sari & Nugroho, 2023).

Within the realm of education, rhythmic gymnastics functions not only as a form of physical exercise but also as a method for cultivating a balanced personality. Students acquire discipline, cooperation, and timeliness in executing movements in accordance with music through rhythmic gymnastics practices (Wulandari, 2021). Group-based rhythmic gymnastics instruction can promote desirable social attitudes, including cooperation, respect, and responsibility, during physical education activities (Setyawan, 2021). Fitria and Rahman (2022) assert that rhythmic gymnastics conducted enjoyably might enhance students' enthusiasm for learning and alleviate the monotony sometimes associated with PJOK instruction. An enjoyable and stimulating approach is crucial for enhancing motivation in rhythmic activities (Fitria & Rahman, 2022; Wijayanti & Haris, 2022).

Physical health is a crucial attribute that every student must possess to engage successfully in learning activities. Students with superior physical fitness exhibit greater resistance to tiredness, enhanced attentiveness, and improved readiness to absorb lessons (Handayani, 2021). Physical fitness is acknowledged as a fundamental basis for academic success, indicating that pupils with robust physical endurance generally excel academically (Handayani, 2021; Pasaribu & Mashuri, 2019).

Rhythmic gymnastics significantly enhances physical fitness by engaging nearly all muscle groups and promoting cardiovascular health and circulation (Nuraeni, 2022). Prior research corroborates that rhythmic gymnastics markedly enhances physical strength and endurance in junior high pupils, establishing its significance as a school-based fitness initiative (Adam & Resita, 2020; Siregar et al., 2024). Besides enhancing fitness, rhythmic gymnastics is proficient in cultivating movement coordination — the body's capacity to effectively manage and control movements in accordance with the needs of the activity (Yuliani, 2023; Putra & Lestari, 2022).

Rhythmic gymnastics, through the integration of movement and music, enhances pupils' motor and sensory systems, facilitating improved movement control (Putra & Lestari, 2022). This discovery corresponds with motor learning theory, which underscores that feedback and repetition in rhythm-based workouts enhance movement consistency (Magill & Anderson, 2021). Learning rhythmic activities enhances self-confidence and physiological awareness in students (Febrianta, 2019).

Initial observations at SMP Negeri 56 Palembang indicated that the majority of students exhibited a lack of enthusiasm in PJOK learning, particularly in individual activities devoid of musical accompaniment. Ma'arif and Prasetiyo (2021) revealed analogous data, indicating that student fitness during the COVID-19 pandemic predominantly fell within the intermediate to low range. Students often perceive activities like running and fitness workouts as tedious, resulting in diminished enthusiasm. Consequently, novel strategies are required to stimulate interest and enhance motivation.

The utilization of rhythmic gymnastics, grounded in contemporary music and uncomplicated movements, is seen as an effective method to address these issues. Music possesses emotional potency that can invigorate pupils' excitement and foster good energy during movement (Suryani, 2023; Ikhsan et al., 2020). Integrating music with enjoyable movements enhances students' motivation to engage actively. Consequently, rhythmic gymnastics may serve as an efficient method for enhancing the quality of PJOK education (Wijayanti & Haris, 2022; Pradipta et al., 2024).

Prior studies additionally corroborate its efficacy. Rahayu and Sitorus (2023) discovered that game-based rhythmic gymnastics enhances pupils' motor skills and self-confidence. Dewantara et al. (2022) demonstrated that rhythmic gymnastics enhances endurance and flexibility, whilst Putra (2021) highlighted its advantages for cardiorespiratory function. Research by Oktariyana et al. (2020) and Nuraeni (2022) demonstrated beneficial effects on muscle endurance and flexibility, while community-based initiatives such as aerobic exercise also contributed positively to fitness enhancement (Nurcahyo et al., 2023).

Historical assessments emphasize rhythmic gymnastics as a culturally ingrained educational exercise that fosters balanced motor skills and character development (Prasetyo et al., 2024). The use of project-based learning enhances student accountability in these programs (Ramadhan & Hindun, 2023). Rhythmic gymnastics promotes physical fitness and character development in alignment with national educational objectives.

The implementation of rhythmic gymnastics at SMP Negeri 56 Palembang is anticipated to serve as an innovation that boosts physical health, movement coordination, and learning motivation (Hardovi et al., 2020; Yamin, 2024).

2. METHOD

This study uses a quantitative approach with an experimental method following the framework of Sugiyono (2022). According to Sugiyono (2022) and Arikunto (2020), the experimental research method is used to determine the effect of certain treatments under controlled conditions. The design adopted is a One Group Pretest-Posttest Design, as recommended for evaluating educational interventions in physical studies (Arikunto, 2020; Siregar et al., 2024).

Table 1. *Research Design*

Group	Pretest	Treatment	Posttest
Eksperimen	O1	X	O2

Information:
O1: Initial test (pretest) of students' physical fitness before rhythmic gymnastics treatment.
X: Treatment in the form of rhythmic gymnastics activities.
O2: Final test (posttest) of the student's physical fitness after treatment.

The population in this study includes all grade VIII students at SMP Negeri 56 Palembang for 2025/2026. The research sample consisted of 33 students from class VIII.1, selected based on

low initial fitness levels of physical fitness and enthusiasm for PJOK learning, which was still not optimal. This study has two variables:

1. Independent variable (X): Application of rhythmic gymnastics.
2. Bound variable (Y): Student's physical fitness.
3.

The application of rhythmic gymnastics in this study includes rhythmic gymnastics activities with moderate rhythmic music (tempo 100–120 bpm), which are carried out routinely during six meetings, each lasting 40 minutes (Putra & Lestari, 2022; Sari & Nugroho, 2023). The experimental design used is a One-Group Pretest-Posttest Design, with the following implementation procedures. The implementation of this research is carried out through four main stages, namely the preparation stage, the pretest implementation stage, the treatment stage, and the posttest implementation stage. This research follows four stages preparation, pretest (O1), treatment (X), and posttest (O2) consistent with educational experimental procedures (Arikunto, 2020). The TKJI Phase D from Kemenpora RI (2022) was used to assess physical fitness.

The first stage is the preparation stage, which is carried out to ensure that all aspects of the research are ready to be implemented. At this stage, the researcher prepares a Learning Implementation Plan (RPP) for Physical Education, Sports, and Health (PJOK), which focuses on rhythmic gymnastics activities. Furthermore, the researcher prepared a research instrument in the form of the Indonesian Physical Fitness Test (TKJI) Phase D, which was used to measure the level of physical fitness of students. In addition, the schedule for the implementation of the research and the selection of the research location were also carried out, namely at SMP Negeri 56 Palembang. This stage aims to ensure that the implementation of research can run systematically, be planned, and be in accordance with scientific procedures.

The second stage is the pretest stage, in which students completed the TKJI test (40 m sprint, bent-arm hang, sit-ups, vertical jump, and 600 m run). At the treatment stage, rhythmic gymnastics sessions were conducted with modern pop music, promoting enthusiasm and energy (Ikhsan et al., 2020; Wijayanti & Haris, 2022). The results of this pretest were used to determine the initial physical fitness condition of grade VIII students of SMP Negeri 56 Palembang before the intervention was given. The pretest data is a comparison to the results of the posttest after the treatment is carried out. The third stage is the treatment stage (X**).** This stage is the core of the research implementation, where students are given rhythmic gymnastics exercises in a structured manner during six meetings. Each meeting lasts about 45–60 minutes, which is divided into three parts, namely warm-up activities, core activities, and cooling activities. In the core part, students perform various rhythmic gymnastic movements that are arranged based on the elements of agility, strength, flexibility, and balance, accompanied by modern pop music with a medium rhythm to suit the students' rhythmic abilities. The goal of this treatment stage is to train and improve students' physical fitness abilities through fun, rhythmic, and systematic gymnastics activities.

The fourth stage is the posttest implementation stage (O2). After the sessions, the posttest (O2) was administered to measure improvements. Calculation and analysis used paired-sample t-tests, following the inferential statistics model recommended by Sugiyono (2022). The study was deemed successful if there was at least a 10% average TKJI improvement and a significant difference ($p < 0.05$). The purpose of this stage is to find out the extent to which there is an improvement in the physical fitness of students after being given rhythmic

gymnastics exercises. The test results at the posttest stage are then compared with the results of the pretest to determine the effectiveness of the treatment that has been given. Overall, this series of stages aims to obtain valid data on the effect of the application of rhythmic gymnastics on the physical fitness of students of SMP Negeri 56 Palembang. By following this procedure, it is hoped that the results of this study can illustrate the improvement of students' physical fitness after participating in rhythmic gymnastics exercises regularly and programmatically.

The main instrument used in this study is the Indonesian Physical Fitness Test (TKJI) Phase D, prepared by the Ministry of Youth and Sports of the Republic of Indonesia (Kemenpora, 2010). TKJI Phase D is intended for students aged 13–15 years and consists of five test items, namely:

Table 2. *TKJI Phase D*

Yes	Test Type	Measurement Objectives	Unit
1	40-meter dash	Measuring speed	Second
2	Hang Your Elbow	Measures the strength and endurance of arm and shoulder muscles	Second
3	Lie down for 30 seconds.	Measuring the endurance of the abdominal muscles	Frequency
4	Loncat tegak (vertical jump)	Measuring leg muscle power	Centimetre
5	Lari 600 meter	Measuring heart-lung endurance	Minutes/second

The values of the five items were converted to scores based on the TKJI Phase D norms on a scale of 1–5 (1 = very poor, 5 = very good). The total score determines the student's physical fitness category. The data obtained were analyzed using simple descriptive and inferential analysis**.**

In this study, two types of analyses were used to evaluate the effects of rhythmic gymnastics on the physical fitness of students: descriptive analysis and inferential analysis using a t-test.

The descriptive analysis was employed to summarize the data by calculating the mean, highest, and lowest values, as well as categorizing the students' physical fitness scores (TKJI) both before and after the intervention. This allowed for an overview of how the students' fitness levels were distributed at both stages.

For the inferential analysis, a paired sample t-test was conducted to determine if there was a statistically significant difference between the pretest and posttest results. The formula for the t-test was applied, where the calculated t-value (t) was compared to the t-table value. The basic formula for the t-test is as follows:

$$t = d/S_D/\sqrt{n}$$

where:

- **t** = calculated t-value
- $\bar{\mathbf{d}}$ = average difference between pretest and posttest scores

- **S_D** = standard deviation of the differences
- **n** = number of samples.

The criterion for significance was that if the calculated t-value (t) exceeded the critical t-value (from the t-table), it would indicate a significant effect of rhythmic gymnastics on the students' physical fitness. If the calculated t-value was less than or equal to the t-table value, it would suggest no significant effect. To ensure accuracy, the data was analyzed using Microsoft Excel or SPSS version 26.

The success of the study was determined by a few key factors: an increase of at least 10% in the average TKJI score from pretest to posttest, with most students (≥75%) experiencing an improvement in their fitness category from "adequate" to "good" or better, and the t-test results showing a statistically significant difference ($p < 0.05$) between pretest and posttest scores. This combination of analyses provided a comprehensive assessment of how rhythmic gymnastics impacted student physical fitness.

3. RESULT AND DISCUSSION

This research was carried out at SMP Negeri 56 Palembang with 33 students of grade VIII.1. The TKJI Phase D instrument includes five tests measuring speed, strength, endurance, and agility.

1. 40-meter dash
2. Hang Your Elbow
3. Lie down for 30 seconds.
4. Loncat tegak (vertical jump)
5. Lari 600 meter

Before treatment is given, students undergo a pretest to determine their initial physical fitness condition. After six meetings of rhythmic gymnastics training, the final test (posttest) was carried out again using the same instrument to see changes or improvements in the students' physical fitness.

Table 3. *Results of Average Scores of Physical Fitness Test (TKJI) for Students of Class VIII.I SMP Negeri 56 Palembang*

No	Test Name	Pretest Average Score	Posttest Average Score	Selisih (Δ)	Information
1	Sprint 40 meters (s)	8,9	7,5	1,4	Faster time to decline
2	Hang up your elbow (second)	10,6	15,3	+4,7	Increase
3	Lie down for 30 seconds (total)	18,2	25,6	+7,4	Increase
4	Vertical jump (cm)	34,5	41,2	+6,7	Increase
5	Run 600 meters (sec)	190,8	174,2	16,6	Faster time to decline

	Total Average	—	—	Significant improvement	

Table 4. *Physical Fitness Category Based on TKJI Phase D Score*

Category	Score Range	Frequency (Pretest)	Percentage (%)	Frekuensi (Posttest)	Percentage (%)
Excellent	22–25	1	3,0	7	21,2
Good	18–21	7	21,2	15	45,5
Moderete	14–17	16	48,5	9	27,3
Less	10–13	6	18,2	2	6,0
Very Less	<10	3	9,1	0	0,0
Sum		33	100	33	100

Based on TKJI results, there was a*significant improvement*in students' physical fitness after rhythmic gymnastics training. Before the intervention, most students (48.5%) were in the "Moderate" category, but after treatment, 66.7% moved into "Good" and "Excellent" categories. This aligns with prior evidence showing rhythmic gymnastics can improve flexibility, strength, and endurance at the junior secondary level (Adam & Resita, 2020; Tarigan, 2021; Pasaribu & Mashuri, 2019). Thus, there is a shift in the distribution of results towards a better level of fitness. For more clarity, the results of the study can be seen in the following diagram:

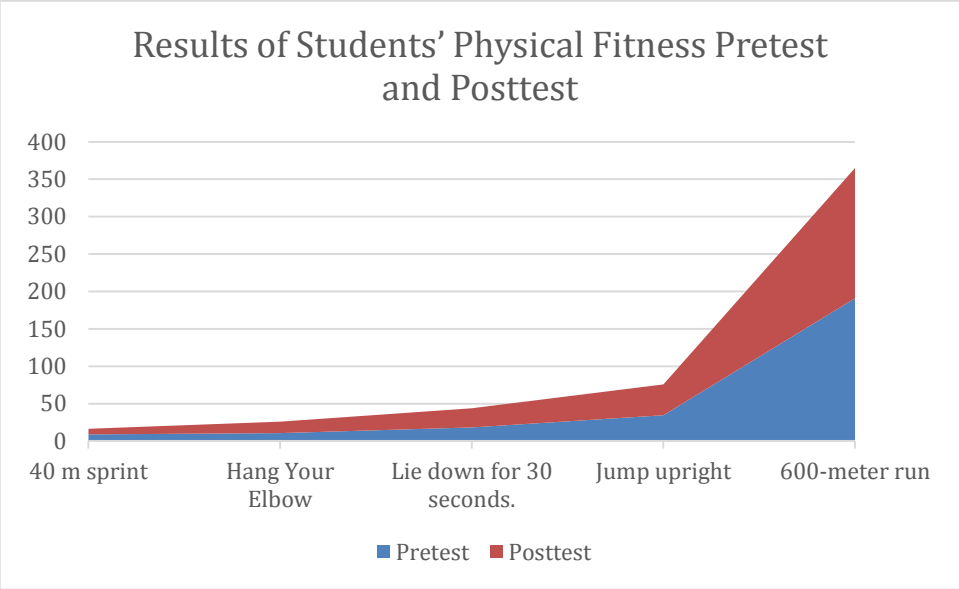

Figure 1. *Student Physical Fitness Pretest and Posttest Result Diagram*

The results of this study show that rhythmic gymnastics has a positive influence on improving the physical fitness of SMP Negeri 56 Palembang students. This is evident from the increase in TKJI test results after treatment. Rhythmic gymnastics that are performed regularly with dynamic, rhythmic, and fun movements can improve physical fitness elements such as muscle strength, agility, endurance, and body coordination.

The rhythmic gymnastics intervention enhanced overall fitness elements, including muscle endurance and coordination, supported by findings from Nuraeni (2022) and Dewantara et al. (2022). In addition, studies such as Oktariyana et al. (2020) and Putra (2021) also demonstrate significant cardiovascular improvement resulting from rhythmic-based physical programs. Regular rhythmic activities can meaningfully increase VO_2 max, confirming higher cardiorespiratory levels (Septian et al., 2025).

Moreover, rhythmic gymnastics increased students' enthusiasm for participating in PJOK lessons. The combination of music and movement contributed to heightened motivation and social cooperation (Yuliani, 2023; Suryani, 2023). Students displayed confidence and intrinsic motivation, echoing findings by Febrianta (2019) and Hardovi et al. (2020). Integrating project-based learning into rhythmic gymnastics activities (Ramadhan & Hindun, 2023) and group-based instruction both help sustain engagement (Setyawan, 2021).

These findings confirm that rhythmic gymnastics is an effective, empirical, and enjoyable strategy to improve both students' physical fitness and their psychosocial traits—discipline, teamwork, and motivation (Wulandari, 2021; Yamin, 2024; Prasetyo et al., 2024).

4. CONCLUSION

Based on the descriptive and inferential analysis conducted in this study, it can be concluded that rhythmic gymnastics has a significant impact on improving students' physical fitness. The descriptive analysis shows an increase in the average TKJI score from pretest to posttest, with the majority of students experiencing an improvement in their fitness category from "adequate" to "good" or higher.

Furthermore, the results of the paired sample t-test indicate a statistically significant difference between pretest and posttest scores ($p < 0.05$), suggesting that rhythmic gymnastics positively affects students' physical fitness. According to the established criteria, with at least a 10% improvement in the TKJI score and more than 75% of students experiencing a shift in fitness category, the study was considered successful.

Thus, rhythmic gymnastics has proven to be an effective method for enhancing students' physical fitness, and the findings of this research can serve as a basis for recommending rhythmic gymnastics as a beneficial training method for physical fitness development in schools.

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