



Analysis of Forward Roll Movement Performance among Grade XI Students in Floor Gymnastics Learning

Achdan Ahmad Naufal 1*

Sekolah Tinggi Olahraga dan Kesehatan Bina Guna, Medan,
Indonesia

Hafiz Yazid Lubis 2

Sekolah Tinggi Olahraga dan Kesehatan Bina Guna, Medan,
Indonesia

Abstract.

Background

A forward roll is a movement that begins with a series of forward rolls from the shoulders or nape of the neck, back, waist, and back of the pelvis, followed by landing in a squatting and standing position.

Objectives

This study aims to identify student errors in forward rolls and the factors that contribute to these errors.

Methods

This research method used a quantitative approach, with data collection using video as the analysis data for these errors.

Results

The results found that the majority of students fell into the "Poor" (46.7%) category in forward roll skills. The factors contributing to errors in forward rolls were identified as a lack of understanding of the technique, limited practice frequency, student fear, limited resources such as mats, and a lack of demonstrations or feedback from teachers.

Conclusion

Based on research results, the ability of eleventh-grade students at SMA Negeri 1 Hamparan Perak to perform forward rolls is still low. Many students have not mastered the basic techniques correctly, particularly head position, hand placement, leg push, and body coordination. This is influenced by a lack of technical understanding, minimal practice, fear, limited resources, and a lack of demonstrations and feedback from teachers.

Keywords: Front Roll Motion, Floor Gymnastics, Hamparan Perak High School.

Received: April 30, 2026. Accepted: May 17, 2026

*Correspondence: achdan@email.com

Correspondence author Achdan Ahmad Naufal

Correspondence Author Sekolah Tinggi Olahraga dan Kesehatan Bina Guna, Medan, Indonesia

Copyright: © 2025 by the authors. Published by KHATEC, Pontianak, Indonesia. This is an Open Access article distributed under the terms of the Creative Commons Attribution License ([Creative Commons Attribution-ShareAlike 4.0 International License](https://creativecommons.org/licenses/by-sa/4.0/)), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.



How to Cite: Naufal, A. A., & Lubis, H. Y. (2026). Analysis of forward roll movement performance among grade XI students in floor gymnastics learning. *International Journal of Emerging Sport Science*, 2(2), 199–204.

INTRODUCTION

Physical education is an integral part of the curriculum at the secondary school level that aims to develop motor skills, physical fitness, movement skills, and sportsmanship values. One of the important materials in physical education is floor gymnastics, which functions to train coordination, flexibility, balance, and physical strength of students. This material is taught systematically so that students have good mastery of techniques in performing various basic movements.

One of the movements in floor gymnastics that is often taught to eleventh-grade students is the forward roll movement. This movement involves vertical body rotation with support on the hands or back. Biomechanically, the forward roll requires body coordination, flexibility, core muscle strength, and optimal balance. Success in performing this movement becomes the foundation for mastering more complex gymnastics techniques at the next level.

In reality, many students experience difficulties in performing the forward roll movement. These difficulties may arise from various factors such as lack of understanding of the technique, unoptimal muscle coordination, fear of falling, and anxiety that hinders physical performance. According to Rahmawati (2018), approximately 40% of students experience difficulty maintaining balance while performing a forward roll, which often results in an incorrect final position. According to Kumala (2020), many students face difficulties in performing the forward roll movement due to several factors, including anxiety, lack of technical understanding, and lack of self-confidence in performing the movement. Kumala (2020) also stated that student anxiety can hinder their learning outcomes.

This situation indicates that success in learning the forward roll movement does not only depend on students' physical abilities but also on the teaching approach applied. Some teachers still use conventional approaches that are less effective in guiding students to understand and practice the movement correctly. According to Sudiana (2023), cooperative learning patterns can improve student learning outcomes.

Therefore, innovation in learning strategies is greatly needed so that students can understand and master the forward roll movement optimally.

Based on observations conducted at SMA Negeri 1 Hamparan Perak, the researcher found that many students experienced technical errors in performing the forward roll movement. This indicates a gap in the learning process that needs to be analyzed further, both from technical, psychological, and pedagogical approach aspects.

Therefore, it is necessary to conduct an in-depth analysis of the implementation of the forward roll movement among eleventh-grade students to evaluate the level of technical mastery, identify common errors that occur, and provide recommendations for improvement based on biomechanical principles and effective learning strategies. The goal is to improve the quality of floor gymnastics learning, minimize movement errors, and help students perform the forward roll efficiently, safely, and optimally.

METHOD

Research Design

The research design serves as a framework that helps researchers formulate research questions and select appropriate methods to answer them. This study uses a descriptive quantitative approach, which aims to describe and analyze students' forward roll abilities in floor gymnastics lessons. This type of research was chosen because the researchers wanted to objectively describe students' skill levels based on numerically calculated observational scores.

Participant

This research was conducted at SMA Negeri 1 Hamparan Perak, Jl. Titi Payung Jl. Bulu Cina, Klmabir Lima Kb., Hamparan Perak District, Deli Serdang Regency, North Sumatra. The sample was determined as many as 30 grade XI students using purposive sampling technique, namely sample selection based on certain criteria. Certain criteria include students who actively participate in floor gymnastics learning.

Data Analysis

The data analysis in this study used quantitative descriptive analysis. According to Hardani et al. (2020), this analytical method is used to obtain a clear description related to the main problems being studied.

The data obtained were analyzed through the following stages:

- 1) Calculating the Total Score
Each student was analyzed based on the research results, which included three aspects: the initial attitude, implementation, and final attitude.
- 2) Converting the Score
After the scores were obtained, they were categorized according to the predetermined assessment standards.
- 3) Presenting the Data
The data were presented in table form to make them easier to understand.

RESULTS AND DISCUSSION

Results

The data description in this study aims to describe the results of observations of the forward roll movement performed by eleventh-grade students at SMA Negeri 1 Hamparan Perak during floor gymnastics lessons. Data were collected through a forward roll skill observation sheet, which included several movement assessment indicators, including:

1. Initial Position
2. Execution
3. Final Position.

The maximum total score was 45. Each student's results were then categorized into six criteria: very good, good, sufficient, poor, very poor, and not performed.

Based on the observations, the following data were obtained:

Table 1. Data from Eleventh-Grade Students in Floor Gymnastics Forward Roll Movements

No	Name	Initial Attitude	Implementation Attitude	Final Attitude	Total	Category
1	Moza	10	12	2	24	Sufficient
2	Shera	10	8	2	20	Poor
3	Airin	12	6	2	20	Poor
4	Nabila	7	4	2	13	Very Poor
5	Byanca	11	10	2	23	Poor
6	Zahratusifa	9	11	2	22	Poor
7	Riza	14	18	10	42	Very Good
8	Cindy	10	8	2	20	Poor
9	M. Satrio	10	11	4	25	Poor
10	Zahra	9	10	2	21	Good
11	Chery	14	15	4	33	Poor
12	Aulia	10	12	3	25	Very Good
13	Fahmi	14	17	9	40	Poor
14	Sinta	12	18	10	40	Very Good
15	Rava	9	13	9	31	Poor
16	Aidil	10	16	4	30	Very Good
17	Yaser	13	18	10	41	Poor
18	Nazwa	11	6	2	19	Poor
19	Fiqih	9	6	2	17	Very Good
20	Soviya	9	6	2	17	Poor
21	Maya	8	12	4	24	Poor
22	Salwa	8	11	2	21	Poor
23	Rizki	10	8	2	20	Very Good
24	Septia	8	7	2	17	Poor
25	Rehan	11	15	6	32	Poor
26	Zhila	7	8	2	17	Poor
27	Wildan	9	14	2	25	Poor
28	Nurul	7	4	2	13	Poor
29	Bella	8	8	2	18	Poor
30	Raisa	6	5	2	13	Poor

Of all the students observed, the distribution of forward roll skill categories was as follows:

- a) Very Good (39 - 45): 4 students (13.3%)
- b) Good (32 - 38): 2 students (6.7%)
- c) Fair (24 - 31): 7 students (23.3%)
- d) Poor (16 - 23): 14 students (46.7%)
- e) Very Poor (8 - 15): 3 students (10%)
- f) Not Performed (0 - 7): 0 students.

In general, the data shows that the majority of students fall into the "Poor (46.7%)" category in performing forward rolls. Only a small number of students were able to perform them "very well" (13.3%), while several students still needed guidance because their skills were in the "fair (23.3%)" category.

Discussion

Based on the observation results of 30 eleventh-grade students at SMA Negeri 1 Hamparan Perak in performing the forward roll movement, it was found that the majority of students were not yet able to

perform all components of the movement technique correctly. Of the three basic technical components of the forward roll (initial position, execution, and final position), only about 20% of students were able to perform the technique correctly as a whole.

The most dominant error found was the position of the head and neck, which were not properly tucked in during the roll, causing the head and neck to directly hit the mat. Some students also failed to push with their legs maximally, resulting in incomplete rolling movements or movements that stopped midway. Hand placement was also often too wide or not aligned with the shoulders, which reduced stability during the push-off phase.

Meanwhile, only about 23.3% of students were able to perform the leg push and rolling movement properly in sequence and under control. This indicates that many students still need further guidance in understanding and practicing the correct sequence of techniques.

Several factors that may have influenced these results include:

1. Lack of regular practice in floor gymnastics
2. Fear or lack of self-confidence when performing the movement
3. Insufficient use of supporting equipment or proper mats
4. Instructions that may not have been clear enough or lack of technical demonstrations from the teacher

Overall, the results of this analysis indicate that students' abilities in performing forward rolls still need improvement through more effective learning approaches, such as the use of video media, direct demonstrations, and repeated practice accompanied by teacher feedback.

The results of this study indicate that most eleventh-grade students at SMA Negeri 1 Hamparan Perak still experience errors in performing the forward roll technique, particularly in aspects of head position, leg push-off, and overall movement coordination. This finding is in line with the theory proposed by Sujono (2014), which states that the success of the forward roll movement is influenced by several technical factors such as the initial body position, hand placement, head posture, push strength, and students' confidence.

This study is also supported by research conducted by Putra (2018), which stated that only around 40% of students were able to correctly perform the forward roll movement, while the rest made common mistakes such as failing to tuck the head and not using the hands effectively to support body weight. Therefore, the findings of this study reinforce that mastering basic floor gymnastics techniques, especially the forward roll, remains a challenge in the physical education learning process at the senior high school level.

In addition, the motor learning theory proposed by Gallahue and Ozmun (2006) explains that movement mastery requires habituation, repetition, and feedback from teachers. In this context, the lack of practice time and minimal direct correction from teachers may be reasons for the low mastery of the movement.

Several factors causing errors in the forward roll movement are as follows:

1. Lack of Understanding of Movement Theory

Many students do not fully understand the sequence of the forward roll movement, causing them to perform the movement carelessly without paying attention to the correct technique.

2. Lack of Practical Training

Minimal practice frequency causes muscle coordination to not develop optimally for the forward roll movement. Infrequent practice makes students easily forget or lose confidence during practice.

3. Fear or Anxiety

Some students appeared hesitant or even afraid to throw their bodies forward. This causes them to hold back the movement or change their body position, resulting in incorrect execution.

4. Poor Motor Coordination

Coordination between the head, hands, and feet is very important in the forward roll. Students who are not accustomed to coordinating their bodies in one continuous sequence tend to fail in performing smooth rolls.

5. Lack of Demonstration or Teacher Guidance

In some cases, teachers did not provide clear demonstrations or specific feedback regarding students' mistakes. As a result, students repeated the same errors.

6. Inadequate Facilities and Infrastructure

The lack of supporting equipment such as mats can increase students' fear and make them less confident in performing the roll optimally. Safety is an important factor in floor gymnastics.

CONCLUSION

Based on the research results and data analysis, it can be concluded that the ability of eleventh-grade students at SMA Negeri 1 Hamparan Perak to perform forward rolls is still relatively low. Most students have not mastered the basic forward roll technique correctly, particularly in the following areas:

- 1) The head position is not lowered enough during the roll.
- 2) Hands are not aligned or too wide.
- 3) Suboptimal leg push-off strength.
- 4) Inadequate coordination between body parts.

These errors are influenced by various factors, including a lack of understanding of movement techniques, limited practice frequency, student fear, limited resources such as mats, and a lack of demonstrations or feedback from teachers.

ACKNOWLEDGMENT

The author would like to thank SMA Negeri 1 Hamparan Perak and Bina Guna Sports and Health College, the researchers and authors who have participated and provided support for this research activity.

AUTHOR CONTRIBUTION STATEMENT

This research was conceptualized and designed by Achdan Ahmad Naufal, who developed the research objectives and methodology, managed data collection, coordinated with participants, and supervised fieldwork at STOK Bina Guna Medan. Hafiz Yazid Lubis performed data analysis, interpreted the findings, and contributed significantly to the drafting of the manuscript. All authors participated in the revision of the manuscript, approved the final version for submission, and take full responsibility for the integrity and accuracy of the work.

CONFLICT OF INTEREST AND FUNDING

The authors declare no conflict of interest related to the conduct, authorship, or publication of this study.

REFERENCES

- Dewi Irama, Nurulita, R. F., Arfanda, P. E., Hakim, H., Kasanrawali, A., & Hasanuddin, M. I. (2024). Analisis Hasil Belajar Guling (Roll) Depan Menggunakan Bantuan Bidang Miring Pada Siswa Smpn 2 Tamalatea. *Riyadhoh : Jurnal Pendidikan Olahraga*, 7(1), 144. <https://doi.org/10.31602/rjpo.v7i1.14736>
- Dr. Adi, S. (2018). Bentuk-bentuk Dasar Gerakan Senam. *Fakultas Ilmu Keolahragaan Universitas Negeri Malang*, 76(57), 66–74. <https://fik.um.ac.id/buku-bentuk-bentuk-dasar-gerakan-senam/>
- Hardani, Sukmana, D. J., & Andriani, H. (2020). *Metode Penelitian Kualitatif dan kuantitatif*. CV. Pustaka Ilmu.
- Harimurti, R. S. (2018). Peningkatan keyakinan diri dan hasil belajar guling depan melalui latihan imagery. *Jurnal Keolahragaan*, 6(1), 87–99. <https://doi.org/10.21831/jk.v6i1.10097>
- M. Chelvin, A., Mustamu, N. E., Hartati, S., & Saragih, Y. (2025). Growth Improvement Corn Plant (*Zea mays L.*) F1 Local Variety of North Sumatera which has under Light Irradiation Gamma using NPK Mutiara Fertilizer. 7(1).
- Mahendra, A. (2017). Pengembangan Manajemen Kelas Olahraga: Pokok-pokok Pikiran tentang Pengembangan Pembinaan Olahraga Bagi Pelajar. *Jurnal Terapan Ilmu Keolahragaan*, 2(2), 96. <https://doi.org/10.17509/jtikor.v2i2.7983>
- Mahmudah, I., Darmawan, A., & Aliriad, H. (2022). Faktor kesulitan siswa dalam pembelajaran senam lantai guling depan. *Citius: Jurnal Pendidikan Jasmani, Olahraga, dan Kesehatan*, 2(2), 94–101

- Muhajir. (2017). Buku Guru Pendidikan Jasmani, Olahraga, dan Kesehatan. In Penambahan Natrium Benzoat Dan Kalium Sorbat (Antiinversi) Dan Kecepatan Pengadukan Sebagai Upaya Penghambatan Reaksi Inversi Pada Nira Tebu.
- Mustafa, P. S., & Dwiwogo, W. D. (2020). Kurikulum Pendidikan Jasmani, Olahraga, dan Kesehatan di Indonesia Abad 21. *JARTIKA Jurnal Riset Teknologi Dan Inovasi Pendidikan*, 3(2), 422–438. <https://doi.org/10.36765/jartika.v3i2.268>
- Nugroho, W., & Dewi, R. (2023). Meningkatkan Hasil Belajar Senam Lantai dengan Metode Bermain untuk Siswa Kelas IV SDN 137698 Kota Tanjungbalai. *JSH: Journal of Sport and Health*, 4(1), 34–45. <https://doi.org/10.26486/jsh.v4i1.3096>
- Pratiwi, O. (2024). Pentingnya Pembelajaran Pendidikan Jasmani Olahraga dan Kesehatan bagi Anak Sekolah Dasar. *JETBUS: Journal of Education Transportation and Business*, 1(1), 26–33. <https://doi.org/10.57235/jetbus.v1i1.2722>
- Ruslan Huda, S. (2021). Pengaruh Model Pembelajaran Direct Instruction Terhadap Hasil Belajar Teknik Dasar Guling Depan Senam Lantai. *Physical Activity Journal*, 2(2), 193. <https://doi.org/10.20884/1.paju.2021.2.2.4014>
- Ruspriyanti, Hendra, J., & Oktavia, A. (2020). Peningkatan Kemampuan Senam Lantai Guling Belakang Dengan Pendekatan Bermain Kapal Goyang. *Pendidikan Tambusai*, 4, 3201–3213.
- Sari Riyadi, A. (2019). Identifikasi Faktor Penyebab Siswa Kurang Percaya Diri Di SD Negeri 2 Wates. *Basic Education*, 8(2), 176–188. <https://journal.student.uny.ac.id/index.php/pgsd/article/view/14730>
- Setiawan, D. (2019). Evaluasi Teknik Dasar Senam Lantai pada Siswa Kelas XI SMA Negeri 4 Bandung. *Jurnal Pendidikan Jasmani Indonesia*, 5(1), 21–30.
- Sudjana. (2020). Hakikat Belajar Dan Pembelajaran. *At-Thullab : Jurnal Pendidikan Guru Madrasah Ibtidaiyah*, 1(2), 175. <https://doi.org/10.30736/atl.v1i2.85>
- Sukadiyanto, S. (2010). Stress Dan Cara Mengurangnya. *Jurnal Cakrawala Pendidikan*, 1(1), 55–66. <https://doi.org/10.21831/cp.v1i1.218>
- Sunarya, E., & Rachmawati, I. (2021). Implementasi Kebijakan Tentang Pedoman Hidup Islami Warga Muhammadiyah. *Jurnal Governansi*, 7(2), 111–120. <https://doi.org/10.30997/jgs.v7i2.4593>
- Tsania, F., Nugraheni, W., & Bachtiar, B. (2023). Dampak Penghapusan Mata Pelajaran PJOK Kelas XII Terhadap Kebugaran Jasmani Siswa. *Jurnal Educatio FKIP UNMA*, 9(4), 1740–1745. <https://doi.org/10.31949/educatio.v9i4.6028>
- Yuliana, R. (2020). Analisis Keterampilan Guling Depan pada Siswa SMP Negeri 3 Tanjung. *Jurnal Olahraga dan Kesehatan*, 8(2), 55–60.