

**Descriptive Analysis of Training Scores in Early Childhood Archery
Development Management**Made Diah Karisma Utami^{1*}, Kadek Yogi Parta Lesmana^{2*}, I Made Satyawan^{3*}¹²³Universitas Pendidikan Ganesha, Singaraja, Indonesia**Keywords**Archery; Sports
Management;**Abstract**

Early childhood sports coaching management requires a structured and data-driven evaluation system to support the optimal sustainability of athletes' achievements. Periodic evaluations can help coaches and club managers in identifying the development of athletes' abilities, determining training needs, and developing more effective coaching strategies. This study aims to descriptively analyze the training scores of early age archery athletes as part of the control function in sports management. The research method used was quantitative descriptive with a sample of athletes at the Zen Archery Club. Data was obtained through the results of athletes' training scores which were then analyzed using descriptive statistics in the form of averages, standard deviations, and groupings of athlete ability categories. The results showed that the average score of athletes was 234.2 with a standard deviation of 54.2 which indicates a fairly high variation in ability between athletes. Athletes in the Recurve division obtained the highest score of 315, while beginners in the Barebow division showed a relatively lower score achievement. In addition, the percentage of athletes who are in the "medium" category reaches 44%, thus showing great potential in the development of long-term athletes. This research confirms the importance of managing performance data as a decision-making basis for coaches and club managers in designing more targeted, effective, and sustainable training programs.

✉ Corresponding author :

E-mail: diahku07@gmail.com, yogi.parta@undiksha.ac.id,
made.satyawan@undiksha.ac.id

p-ISSN 2460-724X

e-ISSN 2252-6773

INTRODUCTION

Exercise is an activity chosen by the community to maintain body fitness and maintain health (Indriani Putri et al., 2022). More than just physical health, sports achievements are now an indicator of the success of a nation's development in the eyes of the world (Vanagosi & Dewi, 2019). One of the sports that demands a perfect blend of physical and mental is archery. Archery is not just an accuracy sport, but an art that requires patience, tenacity, and high mental endurance (Saparuddin, n.d.). The definition of archery itself is a sport that is done by releasing arrows at the target as precisely as possible (Fahrizqi et al., 2021). In the context of coaching, archery makes a great contribution to the formation of sportsmanship, discipline, and concentration (ARISMAN & Okilanda, 2020). However, to achieve stable achievements in multi-event events such as the Sea Games or the Olympics (Suhartini & Pratama, 2024), professional coaching management is needed from an early age. Sports management is present as a combination of knowledge that includes planning, organizing, leadership, and control and evaluation skills (Indriani Putri et al., 2022). One of the vital instruments in the controlling function is data-based evaluation of training score results. Scores in archery are the most objective indicators for measuring the effectiveness of training programs and mapping athletes' potential. Without a descriptive analysis of scores, club management will have difficulty in determining an athlete's development strategy, whether an athlete should be directed to the Recurve division or stay in the basic division like Barebow. The Zen Archery Club, as an archery coaching institution, needs an ongoing data archiving and analysis system to monitor the progress of its athletes. On-field phenomena show that there is a significant variation in abilities between early age athletes, which if not managed properly through adjustment of training intensity, can hinder the achievement of collective achievement. Therefore, this study aims to describe the score of training results as a managerial database in determining athlete coaching policies in the future.

METHODS

This study is a quantitative descriptive study that aims to analyze the results of early age archery athletes' training scores at the Zen Archery Club. The quantitative approach is used because the research focuses on measuring numerical data in the form of athletes' training scores that are analyzed using descriptive statistics. The research subjects consisted of 9 Zen Archery Club athletes from several bow divisions, namely Recurve and Barebow. In addition, athlete characteristics such as age, training experience, and bow type were recorded as supporting data for the study to provide a more comprehensive picture of the scores obtained by athletes. Data collection is carried out through observation and recording the results of athletes' training scores at the Sangsit Field at a predetermined time. The data obtained was then analyzed using descriptive statistics including mean values, standard deviations, maximum scores, and minimum scores. Before the analysis is carried out, the data is tested for normality to determine the distribution of athlete score data. In addition, the categorization of athletes' score results into categories of excellent, good, moderate, poor, and very poor was compiled based on the assessment interval that had been adjusted for the distribution of research data. To maintain data consistency, the reliability of scoring is carried out through repeated observations by trainers and researchers. The results of the analysis are then classified as materials for evaluation and archiving of athlete data on an ongoing basis to assist Zen Archery Club coaches in compiling training programs and coaching athletes at the next stage.

RESULTS AND DISCUSSION

The results of the analysis of training scores from two training sessions at Zen Archery Club showed differences in athlete performance levels. Based on the descriptive statistics, the average score of athletes increased from 231.2 in Session I to 237.2 in Session II, with a combined average score of 234.2. This increase indicates a positive trend in athlete performance after repeated training sessions. However, the standard deviation value remained relatively high (54.2), indicating considerable variation in performance among athletes. These findings suggest that the athletes are still in different stages of skill development and require individualized training programs.

From the perspective of Long-Term Athlete Development (LTAD), the variation in athlete scores reflects the developmental characteristics of early-age athletes, where technical mastery and performance consistency are still developing gradually. Athletes in the “high” category, such as Aswin and Kenzie, demonstrated better adaptation to training loads and technical execution, indicating their readiness to progress toward the next development stage. In contrast, athletes in the “low” category still require emphasis on fundamental movement skills, shooting consistency, and psychological readiness. This finding aligns with the LTAD framework, which emphasizes age-appropriate and progressive athlete development rather than focusing solely on short-term achievement.

The comparison between Session I and Session II also demonstrates a simple pre-post training effect. Several athletes experienced score improvements, such as Kenzie Kayana Adiatama (259 to 282), Marky Mahardika (233 to 256), Messi Acintya (250 to 275), and Desta Yoga (170 to 188). These improvements indicate that repeated training sessions contributed positively to athlete adaptation and performance enhancement. However, some athletes showed score decreases, such as Bagus Teja Saputra and Kassapa, indicating that training responses among young athletes are not always linear and may be influenced by concentration, fatigue, psychological conditions, or technical consistency during shooting practice.

From the perspective of performance analytics in sports science, the use of descriptive statistical analysis provides important information for coaches in monitoring athlete progress and evaluating training effectiveness. The mean score provides an overview of overall team performance, while the standard deviation identifies disparities in athlete abilities. This analytical approach supports evidence-based coaching decisions, particularly in determining athlete grouping, training intensity adjustments, and individualized coaching strategies. Continuous monitoring of athlete performance data can also improve training efficiency and reduce the risk of inappropriate training loads for young athletes.

Furthermore, the categorization results can be interpreted within the framework of talent identification in sports. The “high” category athletes (22%) can be considered superior talent prospects due to their stable and high scores during both sessions. Meanwhile, athletes in the “medium” category (44%) represent a large pool of potential athletes who can still be developed through systematic and long-term coaching programs. The existence of this category is important because talent identification should not only focus on current performance but also on athlete growth potential. Athletes in the “low” category should not be excluded from development programs, as early-age athlete performance is highly dynamic and influenced by growth, learning adaptation, and training experience.

Overall, these findings emphasize that performance monitoring through statistical analysis can support sports management functions, especially in evaluation and athlete development planning. The integration of LTAD principles, performance analytics, and talent identification frameworks allows coaches and club managers to design more objective, systematic, and sustainable training programs for early-age archery athletes.

Table 1 Statistics of Zen Archery Club Athletes' Training Results

Statistics	Sesi I	Sesi II	Combined (average individual)
Average (Mean)	231,2	237,2	234,2
Standard Deviation (SD)	53,8	56,1	54,2
Maximum Value	310	315	312,5
Value Minimum	155	155	162,5

Table 2 Categorization of Athlete Performance Percentage

Categories	Score Range	Number of Athletes	Percentage
High (Superior Prospect)	>270	2	22%
Medium (Potential Prospect)	200-269	4	44%
Low (Basic/Beginner)	<199	3	34%

The results of the description analysis showed that the average score was 234.2. The standard deviation value is quite high (54.2) where the athlete is declared to be an athlete in the Recurve division because of his great and superior ability by having a score of 315, and beginner athletes or we often refer to as the Barebow division have a score below 215-250. From the management side, the percentage of athletes in the "medium" category which reached 44% shows that the coaching program has a large stock of potential athletes to be developed into the "high" category through adjustment of training intensity.

CONCLUSION

This study concludes that the descriptive analysis of training scores at Zen Archery Club provides important information for evaluating and managing the development of early-age archery athletes. The results showed an increase in the average athlete score from Session I (231.2) to Session II (237.2), indicating a positive effect of repeated training sessions on athlete performance. However, the relatively high standard deviation (54.2) demonstrates that there are still considerable differences in athlete abilities, indicating the need for individualized and progressive coaching programs.

Based on the Long-Term Athlete Development (LTAD) perspective, athletes at Zen Archery Club are in different stages of technical and psychological development. Athletes in the "high" category showed greater readiness for advanced training stages, while athletes in the "medium" and "low" categories still require improvement in basic technical skills, consistency, and concentration. The categorization results also support the concept of talent identification, where the "medium" category athletes represent a significant pool of potential talent that can be developed through systematic long-term training programs.

Furthermore, the implementation of performance analytics through descriptive statistical analysis helps coaches and club managers make evidence-based decisions regarding athlete grouping, training intensity, and future development strategies. Therefore, continuous monitoring and archiving of athlete performance data are essential to support sustainable athlete coaching and improve the effectiveness of sports management in archery development programs.

REFERENCES

- Agung Hendrayana, R., Komarudin, K., & Yudiana, Y. (2020). Analisis deskriptif aspek psikologis atlet panahan PELATDA PON Jawa Barat XX 2021-Papua. *Jurnal Ilmu Keolahragaan*, 19(2), 213–222.
- Arisman, A., & Okilanda, A. (2020). Pengembangan diri melalui olahraga panahan. *Jurnal MensSana*, 5(1). <https://doi.org/10.24036/jm.v5i1.138>
- Bramantha, H., & Setiawan, G. A. (2022). Pengembangan bakat dan minat mahasiswa dalam bidang olahraga melalui pengenalan dan pendampingan olahraga panahan. *Jurnal Abdi Panca Marga*, 3(1). <https://doi.org/10.51747/abdipancamarga.v3i1.874>
- Dwi Oktafiranda, N., Fakultas, Y., & Kegiatan, A. (2021). Pengenalan dan pemahaman cabang olahraga panahan pada anggota Karang Taruna Japos, Tangerang Selatan. *Prosiding Seminar Nasional Pengabdian kepada Masyarakat*. <http://journal.uni.ac.id/uni/index.php/snppm>
- Fahrizqi, E. B., Gumantan, A., & Yuliandra, R. (2021). Pengaruh latihan sirkuit terhadap kekuatan tubuh bagian atas unit kegiatan mahasiswa olahraga panahan. *Jurnal Pendidikan Jasmani Dan Olahraga*, 20(1), 43–54. <https://doi.org/10.20527/multilateral.v20i1.9207>
- Hardi, V. J., & Faturrohmah, M. R. (2022). Pengaruh latihan menggunakan karet ban sepeda terhadap penguasaan teknik dasar panahan pada atlet panahan tingkat pemula. *Jurnal Master Penjas & Olahraga*, 3(2), 232–239. <https://doi.org/10.37742/impo.v3i2.66>
- Indriani Putri, N., & Hidayah, T. (2022). Manajemen organisasi cabang olahraga bola tangan ABTI Kota Semarang tahun 2021. *JSSF*, 7(2). <http://journal.unnes.ac.id/siu/index.php/issf>
- Khamdi, N. (2022). Aplikasi joystick sebagai pengendali pada rancang bangun robot panahan berbasis Arduino Mega. *CYCLOTRON*, 5(1). <https://doi.org/10.30651/cl.v5i1.8836>

- Kuswahyudi, K., Dlis, F., & Tangkudung, J. (2020). Pengetahuan doping pelatih panahan DKI Jakarta. *JURNAL SEGAR*, 8(2). <https://doi.org/10.21009/segar/0802.05>
- Ratu Perwiranegara Paksi B., & Sukendro. (2021). Analisis kebugaran jasmani atlet panahan. *Jurnal Olahraga & Kesehatan Indonesia*, 2, 46–51. <https://jurnal.stokbinaguna.ac.id/index.php/iok>
- Saparuddin, S. (n.d.). Pengaruh latihan push-up dan pull-up terhadap kekuatan otot lengan pada atlet panahan PERPANI Kabupaten Banjar. *UPT Publikasi Dan Pengelolaan Jurnal Universitas Islam Kalimantan Muhammad Arsyad Al-Banjari Banjarmasin*, 36–43.
- Suhartini, S., & Pratama, M. (2024). Analisis manajemen pelatihan olahraga panahan di klub Kobar Archery Jambi. *Score*, 4(1), 55–71. <https://doi.org/10.22437/sc.v4i1.23418>
- Teofa, B., Wibafiet, P., Yachsie, B., & Suhasto, S. (2021). Memahami karakter atlet pelajar melalui olahraga panahan. *Jurnal Penjakora*, 8(2), 141–150.
- Vanagosi, K. D., & Dewi, P. C. P. (2019). Evaluasi program pembinaan prestasi cabang olahraga panahan di Bali. *JURNAL PENJAKORA*, 6(1). <https://doi.org/10.23887/penjakora.v6i1.17353>
- Zulaika, S., & Kurnia Sofiani, I. (2023). Penanaman nilai-nilai pendidikan karakter dalam ekstrakurikuler olah raga panahan. *JLEB: Journal of Law Education and Business*, 1(2), 731–737.