

Creative Training Program and Environmental Factors That Affect the Korfball Student Athletes in Qingdao, Shandong Province, China

Qingxin Qi

Graduate School, Emilio Aguinaldo College, Manila, Philippines

ABSTRACT:

This study investigates the relationship between a creative training program and environmental factors affecting the performance of Korfball student-athletes at Qingdao HuangHai University in China. The research employs a descriptive-comparative-correlational design to assess how innovative training methods and external conditions influence athletic outcomes.

Findings reveal that athletes rated the creative training program positively overall (composite mean = 3.04/4.00), with strong recognition of its innovativeness, effectiveness, and engagement value. Similarly, environmental factors—such as comfort, temperature regulation, respiratory ease, sleep quality, and motivation—were also viewed favorably (composite mean = 3.03/4.00), indicating their significant role in performance.

Statistical analysis showed no significant differences in these assessments based on age, sex, or years of athletic experience. However, two notable correlations emerged: a positive link between training adaptability and temperature regulation, and a negative relationship between engagement and environmental comfort.

The study concludes that while the creative training program is well-received, its interaction with environmental factors is limited. It recommends a more integrated approach to athlete development—one that simultaneously enhances training creativity and optimizes environmental conditions—to better support the performance and well-being of Korfball student-athletes in China.

KEYWORDS: Creative Training Program; Environmental Factors; Sports Commitment ;Self-Determination Theory (SDT);Korfball Development (China)

I. INTRODUCTION

Korfball in China has gained official recognition and growing support in recent years. In 2020, the China Korfball Association (CKA) registered korfball with the General Administration of Sport of China (GASC), securing its status as an official sport in the national system. Chinese authorities and institutions have been actively involved: for example, the inaugural International Korfball Research

Center at Zhengzhou University (Henan) was opened in 2017 with the Chinese Sports Ministry and the Chinese Korfball Association in attendance. Moreover, national bodies sponsor competitions – the China Student Sports Federation organizes the All-China University Korfball Championship, described as “the highest-level university korfball competition in China,” attracting teams from mainland China and Macao. The International Korfball Federation (IKF) has noted China’s improvements in governance and participation: in January 2025, the IKF Council awarded China a wildcard for The World Games 2025, explicitly citing the CKA’s strengthened structures, increased international engagement, and the fact that China is the host nation. Together, these developments – official recognition by GASC, national sports bodies’ involvement, and international endorsements – indicate strong institutional backing for korfball in China.

The Chinese government’s sports education initiatives have fostered korfball at the school level: “students at more than 200 schools in China study korfball in physical education, and almost 60 schools have their own korfball team,” according to the IKF. To cultivate talent, the CKA runs multiple national tournaments. For example, President Guo Qilin of the CKA reports that China holds three regular national tournaments – the Senior National Championship, a National University Students Championship, and a National Youth Championship – aimed at maintaining a development pipeline. Participation is expanding beyond major hubs; initially, korfball promotion spanned over 30 cities, but the CKA has since prioritized development in key regions. Under a recent strategy, the CKA focuses on 6–8 large cities to develop high school and university teams, with targeted youth training and coach/referee courses in schools and campuses. The fruits of these efforts are visible: in 2025, the 14th All-China University Korfball Championship featured 16 teams (230+ athletes) from Macao and across the Chinese mainland, with the University of Macau (a Chinese region) winning silver. These activities demonstrate a growing grassroots base: korfball is integrated into school curricula in many places, and young athletes compete in organized leagues and festivals across China.

II. RESEARCH METHODOLOGY

The research adopts a descriptive, comparative, and correlational methodology, distinguished by its clear definitions, comprehensive documentation, thorough analysis, and a nuanced understanding of contextual interactions. According to Rachmat and Kusuma (2023), descriptive research is designed to systematically identify and analyze the key characteristics, behaviors, and attributes of phenomena in their natural settings. The primary objective is to create detailed profiles of specific entities or gain a deeper understanding of the current situation, thus establishing a solid foundation for future studies.

Expanding on the work of Rachmat and Kusuma (2023), descriptive research is essential in the social sciences and psychology, as it provides a rich understanding of natural patterns and behaviors. This approach allows for the collection of precise, unbiased data on the beliefs, actions, and traits of target populations, offering valuable insights into societal trends.

Furthermore, Suharto and Wijaya (2024) stress the significance of comparative methods in pinpointing the crucial variables that influence outcomes across different groups or contexts. They argue

that correlational analysis is vital for revealing potential causal connections between variables, thus strengthening the explanatory power of research designs. In this study, correlational analysis will be used to explore the relationships, contributing to the development of theoretical frameworks and practical intervention strategies.

The descriptive-comparative-correlational methodology applied in this investigation offers a comprehensive framework for analyzing complex relationships between variables and their contexts. By integrating the insights of Suharto and Wijaya (2024) with the foundational principles proposed by Rachmat and Kusuma (2023), this approach enhances the depth and reliability of the findings, providing a strong basis for future research and practical applications in related fields.

III. RESULTS AND DISCUSSION

The core finding reveals a significant positive correlation ($r = 0.44$) between the fulfillment of basic psychological needs and overall sports commitment among the Korfball student-athletes. This indicates that athletes whose needs for competence, autonomy, and relatedness are better met demonstrate stronger dedication and resolve to continue in their sport.

1. Assessment of the Creative Training Program:

The athletes rated the program positively overall (Composite Mean = 3.04/4.00). The dimension of "Innovativeness and Variety" received the highest score (Mean = 3.13), indicating strong approval for the program's creative and diverse training methods. Conversely, "Adaptability and Personalization" scored the lowest (Mean = 3.00), suggesting that while the program is effective, tailoring it to individual athlete needs and preferences is an area for potential improvement.

2. Assessment of Environmental Factors:

Environmental factors were also viewed favorably (Composite Mean = 3.03/4.00). "Respiratory Comfort" (e.g., air quality) was the highest-rated factor (Mean = 3.06), underscoring its importance for performance. Meanwhile, "Comfort and Adaptation" to the training environment was rated slightly lower (Mean = 3.01), highlighting a minor challenge in adapting to varying conditions like different venues or weather.

3. Differences Based on Demographics:

A critical discussion point is that the study found no significant differences in the athletes' assessments when grouped by their age, sex, or number of years of experience. This suggests that the perceptions of both the training program's effectiveness and the impact of environmental factors are remarkably consistent across all demographic profiles within the sample.

4. Interrelationship Between Factors:

The discussion emphasizes that while the creative training program and environmental factors are both crucial, they largely function as independent determinants of performance. The significant correlation establishes that psychological need satisfaction is a key driver of commitment, but environmental and training aspects contribute to this in distinct ways.

In summary, the results and discussion conclude that a holistic approach—one that simultaneously advances creative training methodologies, optimizes the physical environment (especially air quality and comfort), and systematically addresses fundamental psychological needs—is essential for fostering long-term athletic commitment and enhancing performance among Korfball student-athletes.

IV. CONCLUSION

The study concludes that the creative training program for Korfball student-athletes at Qingdao HuangHai University is moderately to highly effective and well-received. Athletes reported strong satisfaction with the program's innovativeness, variety, and ability to engage and motivate them.

A central and critical finding is the significant positive correlation ($r = 0.44$) between the fulfillment of athletes' basic psychological needs (competence, autonomy, relatedness) and their overall sports commitment. This confirms the theoretical foundation of Self-Determination Theory (SDT), demonstrating that athletes whose psychological needs are met are more dedicated and resolved to continue in their sport.

Furthermore, environmental factors—such as respiratory comfort (air quality), temperature regulation, and sleep quality—were also identified as significant contributors to athletic performance. The study found that these factors operate largely independently of the training program itself, yet they play a crucial role in shaping the overall athlete experience and outcomes.

Demographic analysis revealed that age, sex, and years of athletic experience did not significantly influence how athletes assessed the training program or environmental factors. This indicates a consistent perception across all participant groups, suggesting the findings have broad applicability within the team.

In essence, the research argues that achieving optimal athletic development requires a dual-focused, holistic strategy. It is not sufficient to have an innovative training program alone; equal attention must be paid to cultivating a supportive environment that addresses both physical conditions and psychological well-being.

Therefore, the ultimate recommendation is for coaches and program designers to integrate creative, personalized training methods with proactive environmental management to foster long-term athlete commitment, enhance performance, and support the sustainable development of Korfball in China.

REFERENCES

1. Delfin, D., Wallace, J., Baez, S., Karr, J. E., Terry, D. P., Hibbler, T., & Newman, S. (2023). Social support and the stress-buffering hypothesis: Effects on stress and mental health in adolescent football athletes. *Journal of Athletic Training*. <https://doi.org/10.4085/1062-6050-0324.23>
2. Derby, R., & deWeber, K. (2010). The athlete and high altitude. *Current Sports Medicine Reports*, 9(2). Retrieved from https://journals.lww.com/acsm-csmr/Fulltext/2010/03000/The_Athlete_and_High_Altitude.7.aspx

3. Dinas, P. C., Moe, R. H., Boström, C., Kostı, R. I., Kitas, G. D., & Metsios, G. S. (2023). Combined effects of diet and physical activity on inflammatory joint disease: A systematic review and meta-analysis. *Healthcare*, 11(10), 1427.
4. Donnan, K., Williams, E. L., & Stanger, N. (2020). The effects of heat exposure during intermittent exercise on physical and cognitive performance among team sport athletes. *Perceptual and Motor Skills*, 128(1), 439–466. <https://doi.org/10.1177/0031512520966522>
5. Dugas, J. P. (2010). How hot is too hot?: Some considerations regarding temperature and performance. *International Journal of Sports Physiology and Performance*, 5(4), 559–564. <https://doi.org/10.1123/ijsp.5.4.559>
6. El Helou, N., Tafflet, M., Berthelot, G., Tolaini, J., Marc, A., Guillaume, M., ... Toussaint, J.-F. (2012). Impact of environmental parameters on marathon running performance. *PLOS ONE*, 7(5), e37407. <https://doi.org/10.1371/journal.pone.0037407>
7. European Commission. (2022). *Korfbal 4 gender equality: Coaching and managing korfbal*[Illustrative projects report]. European Commission – Sport Unit. https://sport.ec.europa.eu/sites/default/files/2022-07/Illustrative%20projects_v1.pdf
8. Florida-James, G., Donaldson, K., & Stone, V. (2004). Athens 2004: the pollution climate and athletic performance. *Journal of Sports Sciences*, 22(10), 967–980. <https://doi.org/10.1080/02640410400000272>
9. Ford, K. (2023). *Exploring the relationships between year of eligibility, self-perceptions and training behaviour in varsity student-athletes*(Doctoral dissertation). Ontario Tech University. <https://ir.library.ontariotechu.ca/handle/10155/1639>
10. Fotoglou, A., Moraiti, I., Diamantis, A., Stergios, V., Gavriilidou, Z., & Drigas, A. (2022). Nutritious diet, physical activity and mobiles: The game changers of ADHD. *Technium BioChemMed*, 3(2), 87–106.
11. Frisco, J. (2018, December 21). The NFL's home-field advantage is real. But why? *FiveThirtyEight*. Retrieved from <https://fivethirtyeight.com/features/the-nfls-home-field-advantage-is-real-but-why/>
12. Gagnon, B. (2017, October 2). Planes, trains and automobiles: Truths about traveling in the NFL. *Bleacher Report*. Retrieved from <https://bleacherreport.com/articles/2666013-planes-trains-and-automobiles-truths-about-traveling-in-the-nfl>
13. Hamlin, M. J., Hopkins, W. G., & Hollings, S. C. (2015). Effects of altitude on performance of elite track-and-field athletes. *International Journal of Sports Physiology and Performance*, 10(7), 881–887. <https://doi.org/10.1123/ijsp.2014-0261>
14. Handelsman, D. J. (2020). Performance enhancing hormone doping in sport. In K. R. Feingold, B. Anawalt, A. Boyce, G. Chrousos, K. Dungan, A. Grossman, ... & D. P. Wilson (Eds.), *Endotext*[Internet]. MDText.com, Inc.

15. Henriksen, K., Stambulova, N., Storm, L. K., & Schinke, R. (2023). Towards an ecology of athletes' career transitions: Conceptualization and working models. *International Journal of Sport and Exercise Psychology*, 22(7), 1684–1697. <https://doi.org/10.1080/1612197X.2023.2213105>
16. Hinman, R. S., Hall, M., Comensoli, S., & Bennell, K. L. (2023). Exercise & Sports Science Australia (ESSA) updated position statement on exercise and physical activity for people with hip/knee osteoarthritis. *Journal of Science and Medicine in Sport*, 26(1), 37–45.
17. Hoffman, R. R., Ward, P., Feltovich, P. J., DiBello, L., Fiore, S. M., & Andrews, D. H. (2013). *Accelerated expertise: Training for high proficiency in a complex world*. Psychology Press.
18. Hollings, S. C., Hopkins, W. G., & Hume, P. A. (2012). Environmental and venue-related factors affecting the performance of elite male track athletes. *European Journal of Sport Science*, 12(3), 201–206. <https://doi.org/10.1080/17461391.2011.552640>
19. Huang, Z., Choi, D. H., Lai, B., Lu, Z., & Tian, H. (2022). Metaverse-based virtual reality experience and endurance performance in sports economy: Mediating role of mental health and performance anxiety. *Frontiers in Public Health*, 10, 991489. <https://doi.org/10.3389/fpubh.2022.991489>