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Assessment of and Intervention for The Running Endurance of Junior High School Students in Changchun City

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Abstract: In the current form, China's curriculum reform has developed with the development of the times, and the reform of physical education curriculum urgently needs the reform of teaching methods. Running endurance is a key aspect of physical fitness for middle school students, who are still in the development stage. This study aims to evaluate the running endurance level of junior high school students in Changchun City and provide an effective intervention method to improve the physical performance of students. The significance of this study is to provide information on the current situation of running endurance of junior high school students in Changchun City, as well as some suggested intervention strategies, which is expected to provide useful reference for physical education policymakers and teachers in the region.

Keywords: Running endurance, Junior high school students, Assessment and intervention.

1. Introduction

An individual's capacity to engage in a physical activity that involves running for a significant amount of time without becoming fatigued is referred to as running endurance (Ariani, 2021). It determines how long someone can keep up their jogging pace before beginning to feel tired or being forced to stop because they are too exhausted to continue (Luff, 2019). Running endurance is a crucial component of cardiovascular fitness and is required for various sports and activities, including long-distance running, soccer, basketball, and many others (Bangsbo et al, 2006).

Running endurance is a critical aspect of physical fitness for junior high school students, who are still developing their physical abilities. And in China, our high school entrance examination includes sports results, of which the 800-meter and 1000-meter tests belong to endurance running events. Therefore, it is very important for junior students to improve their endurance running level.

However, there are challenges that may be encountered in the process that may hinder the performance of junior students. This study will solve the problem through assessment and intervention that could be applied for junior high school students.

2. Literature review

Bramble and Lierbamann (2004) suggest that the capacity for long-distance running could be an example of a biological trait that contributes in some way to the survival of our species. Raichlen et al. (2012) discovered that the neurological mechanisms that encourage the search for habitual aerobic activity, particularly running, make our species one of the finest natural endurance athletes. In particular, running was revealed to have this reinforcing effect (Beall, 2023). It is easy to understand why millions of individuals compete every weekend in road endurance running competitions of varied distances, ranging from 5 kilometres up to marathons worldwide [Anderson, 2019]. Today, a sizeable percentage of casual runners participate in their sport regularly in various environments. According to Hespanhol et al. (2015), this form of recreation is so popular because it is not only uncomplicated and simple to take part in, but it also contributes to the improvement of one's overall health. In addition, it gives people of varying ages and degrees of expertise a chance to interact with one another and participate in fun activities.

Even though it is so frequently practiced, there is no universal consensus over the strategy that should be followed to get the maximum outcomes in terms of sustained or enhanced endurance running performance in recreational running while simultaneously maintaining or improving health status (Izquierdo et al., 2021). A few instances of anecdotal advice that lack considerable scientific basis include the use of nonvalidated algorithms (such as Training peaks TM) for training monitoring (Duncan et al., 2019), the "10% rule" for weekly training load increments (Buist et al., 2007), and the usage of different shoes to minimize injury rates. It is common to see recreational runners adopting training regimens analogous to those followed by professional athletes (Cumming & Hall, 2002). One of these behaviors is logging a high weekly mileage, defined as more than 70 kilometers (Hollander et al., 2018). This behavior has been linked to an increased risk of developing several health-related illnesses (Deeks et al., 2009). It is unclear how recreational runners can successfully apply all of the knowledge that is currently available because the existing scientific evidence on endurance running was created from studies that watched professional athletes and recreational athletes competing at widely different levels (ranging from untrained to elite). On top of that, the definition of a recreational runner is extremely open-ended because we could include any runner who trains and regularly competes during their spare time, regardless of their performance level (which can range from inexperienced to highly trained athletes) and specific objectives (such as enjoyment, health, competition, etc.). This makes the definition of a recreational runner an extremely inclusive term.

Recreational runners have far less time to devote to training than professional athletes (Feely et al., 2022). Their routines are subject to constant modification to accommodate the

myriad of other interests and duties of everyday living. It is not realistic to expect the vast majority of recreational runners to possess the same genetic advantages, physical, physiological, or psychological traits as elite endurance runners. This is correct, although it is important to note that the "recreational runners" group contains some athletes who have previously competed professionally.

Students can be placed under recreational runners, because they do not practice running time to time. Hence, the need for intervention of the institution. The current study seeks to find the methods of intervention of running endurance in the study travel market.

3. Theoretical and Conceptual framework

There are various theories that can be applied to provide data on the topic of study. For instance, Self Determination Theory (SDT), which can be used to increase motivation to participate in a sporting event (Tsai et al., 2021).

Secondly, the Social Cognitive Theory (SCT) can be used to emphasize the reciprocal relationship between an individual's behavior, personal factors, and the social environment. In the case of the current study, SCT can be used to evaluate the factors such as self-efficacy, i.e., the self-belief of students to improve running endurance.

4. Schematic Illustration of the Study

Table 1. Schematic Illustration

Input	Process	Output
(1) Assess the running endurance level of junior high school students. (2) Find the running endurance intervention techniques applicable in the school. (3) Identify the importance of intervening running endurance in junior high schools in Changchun city.	Interview	To improve the endurance level of junior high school students in Changchun City by adopting some methods.

5. Significance of the Study

The study on running endurance has two implications: practical and theoretical significance.

First, theoretical significance. The findings will be used as a point of references by other researchers seeking information on running endurance on junior high school students. Therefore, the study contributes to the available secondary resources on running endurance.

Secondly, practical significance. The findings of the study on how to intervene the challenges encountered in running endurance can be applied by educational institutions, parents, and students to ensure that they students counter the challenges such as muscle imbalance and lack motivation to train.

6. Research Objectives

The study aims to determine the running endurance of Junior high school students in Changchun City on the perspectives of the teachers and to come up with an intervention plan.

Specifically, it aims to:

1.assess the current endurance running level of junior high school students based on their physical education test standard performance

2.identify the positive implications of running endurance

3.improve the endurance level of junior high school students by adopting some methods.

7. Methodology

In the research process of this study, the first use of literature analysis, which is the basis for the smooth development of this research topic. In addition, combined with the research content of this study, the interview method is used, which is the premise of the empirical exploration of this research.

8. Research Design

The current study employed qualitative descriptive research design and used interviews to collect qualitative data. The researcher used structured interview questions that were based on the research objectives of the study.

9. Population and Locale

The present study involved ten (10) physical education teachers in Changchun City as the interviewees. Through purposive sampling, they were selected based on the following inclusion criteria: a) Teachers must have more than three years of teaching experience in the field of physical education. b) Teachers must be willing to share experiences and be good at reflective discussions. These teachers come from the following schools: Northeast Normal University, Jilin University, Jilin Experimental School, Northeast Normal University Affiliated Middle School, Jilin Water Conservancy and Electric Power Vocational College, Jilin Sports College, and Jilin Dawang Middle School.

10. Data Gathering Tool

In this study, multiple literature databases such as CNKI and Baidu were used to sort out domestic and foreign literatures on durable running, so as to gain a more comprehensive understanding of the theoretical system of studying durable running, thus constructing the theoretical framework of this paper and further determining the research direction.

The interview outline of this study aims at interviewing physical education teachers in some schools in Changchun City. After explaining the purpose of the interview to each interviewee, the researcher conducted the interview according to the interview outline in this study. The contents of the interview guide were listed by the researcher herself after

reading a large number of references, and sent to UB RIECO for the interview guide questions validation (refer to appendix for the approved tool validation).

11. Data Gathering Procedure

The study used primary data that was collected using interviews.

First, according to the research needs of the subject, the interview method is determined to carry out the research work, and the questions and contents of the interview are determined on the basis of the literature review of the subject.

Second, the list of interviewees was determined with the permission of the school through communication with the interviewees.

Third, arrange a time and place with interviewees for face-to-face interview offline or online video or voice interview. Each interviewee interviewed for about half an hour to an hour.

Finally, summarize the interview text. The sorted text is analyzed and refined for the discussion of subsequent study.

12. Treatment of Data

The primary study was conducted using structured interviews. The structured questions were open-ended. Data were collected by interviewing professionals in physical education and collecting related books and literature. After the data was collected, it was evaluated using thematic analysis.

Thematic analysis was used in assessing the running endurance of the Junior high school students on the perspective of the teachers. Coding was likewise used to organize the data and further protect the anonymity of the respondents.

13. Ethical Consideration

Various codes of ethics were considered. For instance, the researcher maintained the anonymity of the respondents，ensure confidentiality of interviewees' information. Before starting the data collection process, the researcher sought permission from the institutions that interviewees were coming from. Also, the researcher cited data acquired from secondary resources. In the conduct of the study, the researcher took into consideration the ethical issues of anonymity, confidentiality, volunteerism, risk/harm avoidance, and result dissemination.

To address the issue of anonymity, the respondents were not required to write their names on the questionnaires.

As regards confidentiality, the responses of the respondents were not revealed but kept confidential.

To address the issue of volunteerism, the respondents were not forced nor coerced into participating and accomplishing the questionnaire.

Regarding the issue of risk/harm avoidance, the researcher made sure that no risks / harm beset the participants.

14. Results and Discussions

After interviewing ten interviewees, the author refined and summarized the interview content, and discussed and analyzed the interview results.

Based on the teacher's perspective, the running endurance level of junior high school students is currently at a medium level and needs to be improved. There can be a number of reasons why junior high school students have moderate levels of running endurance, such as: lack of proper exercise and training; Poor eating habits; lack of motor awareness; stress and academic burden; Lack of professional guidance and so on.

Running endurance has a great positive effect on junior high school students. For example: Improving physical fitness; Enhancing physical strength and endurance; Enhancing psychological qualities; Relieving study pressure; Improving social skills; Developing healthy habits; Improving learning efficiency, etc.

Teachers can improve the running endurance level of junior high school students by taking relevant measures and interventions. For example: Making a scientific and reasonable exercise plan; Organizing running activities; Providing demonstrations and guidance; Guiding students to eat reasonably; Creating a positive sporting atmosphere; Encouraging parental support, etc.

15. Conclusion

According to the results of the research, running endurance is critical for students in junior high schools in Changchun, it is important to improve the running endurance of junior high school students.

The first importance is for fitness and health. Good health requires running endurance, and regular exercise can help avoid obesity, cardiovascular disease, and other health problems (Caterini et al., 2020). Middle school students can develop healthy habits that will benefit them throughout their lives by participating in running endurance programs.

The second importance is to improve students' academic performance. The research has shown that physical exercise can enhance students' cognition, concentration, etc., so improving running endurance may be of great help to improve students' academic performance in junior high school.

The third importance is to promote teamwork and social skills of students. Running endurance exercises can be done in groups, promoting social interaction and teamwork. Middle school students can improve their social skills and build good relationships with their peers by participating in running endurance programs.

The fourth importance is to facilitate the development of students' character. Discipline, perseverance, and determination are necessary for endurance activities such as running. Middle school students can develop important character traits by participating in running endurance programs that will help them in all aspects of their lives.

16. Recommendations

Based on the results and conclusions, the following recommendations were made:

First, exercise regularly. Teachers should always encourage learners to exercise for at least half an hour a day, whether running, jogging, or brisk walking, and this can be done during or after school PE class.

The second is the management of various training programs. Create an exercise regimen to help you improve your endurance. Interval running, hill climbing and other structured running scenarios are all viable options for achieving this.

Third, reasonable dietary guidance. Teachers teach students the importance of eating a healthy diet and how the quality of nutrition affects their ability to run long distances. Encourage

them to eat nutritious foods that provide the nutrients they need to maintain physical activity.

Fourth, monitoring progress. To determine how effective the intervention is, student progress should be monitored regularly. This can be done through routine medical exams and various other types of tests.

Fifth, motivate students. Teachers should motivate and encourage students to participate in physical activity to build their endurance. This can all be achieved by actively reinforcing, setting goals, and fostering a conducive environment and awareness.

In summary, the above are the relevant recommendations given by the author based on the survey and research, so as to provide physical education teachers as a reference.

References

[1] Ariani, L. P. T. (2021). The effect of repetition sprint training method combined with the level of physical fitness toward the speed of 100 meter run. <J> International Journal of Engineering, Science and Information Technology, 1(3), 59-63.

[2] Bangsbo, J., Mohr, M., Poulsen, A., Perez-Gomez, J., & Krustrup, P. (2006). <J> Training and testing the elite athlete. J Exerc Sci Fit, 4(1), 1-14. H. Poor, An Introduction to Signal Detection and Estimation. New York: Springer-Verlag, 1985, ch. 4.

[3] Beall, C. M. (2023). Climate-Related Human Biological Variation. <J> A Companion to Biological Anthropology, 140-166.

[4] Bramble, D. M., & Lieberman, D. E. (2004). Endurance running and the evolution of Homo. nature, 432(7015), 345-352.

[5] Buist, I., Bredeweg, S. W., Lemmink, K. A., Pepping, G. J., Zwerver, J., van Mechelen, W., & Diercks, R. L. (2007). The GRONORUN study: is a graded training program for novice runners effective in preventing running related injuries? Design of a Randomized Controlled Trial. BMC musculoskeletal disorders, 8(1), 1-8.

[6] Caterini, J. E., Campisi, E. S., & Cifra, B. (2020). Physical activity promotion in pediatric congenital heart disease: are we running late?. <J> Canadian Journal of Cardiology, 36(9), 1406-1416.

[7] Cumming, J., & Hall, C. (2002). Deliberate imagery practice: the development of imagery skills in competitive athletes. <J> Journal of Sports Sciences, 20(2), 137-145.

[8] Deeks, A., Lombard, C., Michelmore, J., & Teede, H. (2009). The effects of gender and age on health related behaviors. <J> BMC Public Health, 9(1), 1-8.

[9] Doma, K., Deakin, G. B., Schumann, M., & Bentley, D. J. (2019). Training considerations for optimising endurance development: an alternate concurrent training perspective. <J> Sports Medicine, 49, 669-682.

[10] Duncan, R. G., Chinn, C. A., & Barzilai, S. (2018). Grasp of evidence: Problematizing and expanding the next generation science standards' conceptualization of evidence. <J> Journal of Research in Science Teaching, 55(7), 907-937.

[11] Feely, C., Caulfield, B., Lawlor, A., & Smyth, B. (2020, September). Providing explainable race-time predictions and training plan recommendations to marathon runners. In Proceedings of the 14th ACM Conference on Recommender Systems (pp. 539-544).

[12] Haugen, T., Seiler, S., Sandbakk, Ø., & Tønnessen, E. (2019). The training and development of elite sprint performance: an integration of scientific and best practice literature. <J> Sports medicine-open, 5, 1-16.

[13] Hayward, G., Gaborini, L., Sims, D., Schumacher, Y. O., Millet, G. P., Rhumorbarbe, D., ... & Robinson, N. (2022). The athletic characteristics of Olympic sports to assist anti-doping strategies. <J> Drug Testing and Analysis, 14(9), 1599-1613.

[14] Hespanhol Junior, L. C., Pillay, J. D., van Mechelen, W., & Verhagen, E. (2015). Meta-analyses of the effects of habitual running on indices of health in physically inactive adults. <J> Sports medicine, 45, 1455-1468.G. W. Juette and L. E. Zeffanella, "Radio noise currents n short sections on bundle conductors (Presented Conference Paper style)," presented at the IEEE Summer power Meeting, Dallas, TX, Jun. 22–27, 1990, Paper 90 SM 690-0 PWRS.

[15] Hollander, K., Baumann, A., Zech, A., & Verhagen, E. (2018). Prospective monitoring of health problems among recreational runners preparing for a half marathon. <J> BMJ open sport & exercise medicine, 4(1), e000308.

[16] Izquierdo, M., Merchant, R. A., Morley, J. E., Anker, S. D., Aprahamian, I., Arai, H., ... & Singh, M. F. (2021). International exercise recommendations in older adults (ICFSR): expert consensus guidelines. <J> The journal of nutrition, health & aging, 25(7), 824-853.

[17] Izzicupo, P., Di Baldassarre, A., Ghinassi, B., Reichert, F. F., Kokubun, E., & Nakamura, F. Y. (2019). Can off-training physical behaviors influence recovery in athletes? <J> A scoping review. Frontiers in Physiology, 10, 448.

[18] Luff, C. (2019). How to Run Longer without getting Tired? https://www.verywellfit.com/how-to-run-without-getting-tired-or-breathing-heavy-2911281

[19] Raichlen, D. A., Foster, A. D., Seillier, A., Giuffrida, A., & Gerdeman, G. L. (2013). Exercise-induced endocannabinoid signaling is modulated by intensity. <J> European journal of applied physiology, 113, 869-875.

[20] Ramirez-Campillo, R., Andrade, D. C., García-Pinillos, F., Negra, Y., Boullosa, D., & Moran, J. (2021). Effects of jump training on physical fitness and athletic performance in endurance runners: A meta-analysis: Jump training in endurance runners. <J> Journal of sports sciences, 39(18), 2030-2050.

[21] Santisteban, K. J., Lovering, A. T., Halliwill, J. R., & Minson, C. T. (2022). Sex differences in VO2max and the impact on endurance-exercise performance. <J> International Journal of Environmental Research and Public Health, 19(9), 4946.

[22] Smith, D. J. (2003). A framework for understanding the training process leading to elite performance. <J> Sports medicine, 33, 1103-1126.

[23] Tashpulatov, F. A. (2022). Specific Features of Teaching Handball Sports to Senior Students in Secondary Schools. <J> Journal of Pedagogical Inventions and Practices, 6, 166-169.

[24] Valentin, S., Pham, L. A., & Macrae, E. (2022). Enablers and barriers in ultra-running: a comparison of male and female ultra-runners. <J> Sport in Society, 25(11), 2193-2212.

[25] Viana, J. L., Martins, P., Parker, K., Madero, M., Pérez Grovas, H., Anding, K., ... & Wilund, K. R. (2019, July). Sustained exercise programs for hemodialysis patients: the characteristics of successful approaches in Portugal, Canada, Mexico, and Germany. <J> In Seminars in dialysis (Vol. 32, No. 4, pp. 320-330).