JPES 15 (1) (2026)

Journal of Physical Education and Sports

http://journal.unnes.ac.id/sju/index.php/jpes

INDEPENDENTLY RUNNING TRAINING MODEL ON LIMITED BOX AREA FOR ATHLETES WITH VISUAL IMPAIRMENT CLASSIFICATION TOTAL BLINDNESS

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Article Info

History Articles
Received:
July 2025
Accepted:
July 2025
Published:
Maret 2026

Keywords:
Independently Running Training, Exercise Model In Limited Box Area, Athletes With Disabilities Visual Impairment

Abstract

This study aims to examine (1) Exercise models in a limited box area that can be used for independently running training for athletes with visual impairments classified as totally blind. (2) The acceptance and implementation of the training model in a limited box area for independently running training for athletes with visual impairments classified as totally blind.

The method used in this study is development research. Outline the steps for the development of the model in 4 stages, namely: (1) Preliminary research; (2) Model development planning; (3) Validation, evaluation, and revision of the model; and (4) Model implementation. In the process of developing the model, 2 test stages were carried out, namely 1 time in a small group and 1 time in a large group. The data in this study is a combination of quantitative and qualitative data.

After this study, it was concluded that (1) the form of a training model in a limited box area that is barrier-free, safe, and comfortable can be used for athletes with visual impairment classification of total blindness for independently running training. (2) The training model in a limited box area can be accepted and used to carry out independently running training for athletes with visual impairments classified as totally blind, with an acceptance and implementation rate of 92.86%.

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p-ISSN 2252-648X
e-ISSN 2502-4477

INTRODUCTION

Athletes with visual impairment are individuals who have visual acuity and field of view impairments, as determined by medical measurements. Athletes with vision impairment experience decreased or no vision caused by damage to the structure of the eye, optic nerve, or optic pathways, or the visual cortex of the brain (World Para Athletics, 2022). Athletes with visual impairments are divided into three classifications, namely (a) B1, which is total blind, (b) B2, which still has severe low vision, and (c) B3, which still has mild low vision. Athletes with visual impairments, classification, and total blindness cannot see objects at all.

Athletes with visual impairments classified as totally blind face significant limitations/loss of orientation tools, difficulty with mobility, and challenges in even seeing and visualizing the movements that must be performed. The limitation of orientation towards the environment has an impact on limitations in mobilization. People with visual disabilities often face limitations when participating in sports, particularly in running training.

Running is a straightforward sport to do. However, for people with visual disabilities, running is not easy. Athletes with disabilities who are blind are not able to run freely and everywhere alone. Athletes with disabilities who are blind will be able to run freely and everywhere if guided by a guide runner. This means that athletes with disabilities who are blind have difficulty doing running training independently.

To run training independently, it is necessary to prepare a dedicated training space. The condition of athletes with disabilities who are blind means that they cannot know the environment with the sense of sight, so they cannot move freely everywhere without being guided by others. Therefore, the modification of the training ground is limited to a specific place/area. The venue is designed to ensure the safety of all attendees. The boundaries of the safe area are marked to prevent blind athletes from leaving the designated area or training space. Running training for athletes with disabilities who are blind is carried out in a limited place, so the training is conducted on the spot. The training model in a limited safe area is an alternative for athletes with disabilities who are blind. Before training, athletes with disabilities who are blind are given an orientation to the place. After getting to know the area and its limits, athletes with disabilities who are blind can do running training independently without depending on others.

Athletes with Visual Impairments

Athletes with visual impairment, in Paralympic sports, are sportsmen who have impaired visual acuity or vision and field of view angle based on the results of medical measurements. Athletes with vision impairment experience decreased or no vision caused by damage to the structure of the eye, optic nerve, or optic pathways, or the visual cortex of the brain (World Para Athletics, 2022).

In Paralympic sports, athletes with visual impairment must meet minimum standards to participate in sports activities. Before competing, visually impaired athletes are classified and grouped according to their level of disability. Classification of visual impairment based on the results of measurement (assessment) of visual acuity and angle of view. Cattaneo, Z. & Tomaso Vecchi, T. (2011:8) suggest that the classification criteria for blindness and other forms of visual impairment are mainly based on measures of visual acuity and field of vision. Based on the level of impairment, the visually impaired are divided into three categories, namely (1) B1, which is total blind, (2) B2, which still has severe low

vision, and (3) B3, which is still having mild low vision.

Athletes with visual impairment are classified as totally blind (B1), which refers to athletes who have very low visual acuity and/or are unable to perceive light. People who are completely blind can have light perception without projection (meaning they feel the presence of light but are unable to project or identify the light source), or those who have no light perception at all (Susanti, 2016). Utomo & Muniroh (2019:23) stated that a person is considered blind if they experience a severe visual impairment or are completely blind.

Visually impaired athletes are classified as total blind athletes who experience vision loss so that it has a direct or indirect impact on the sports activities carried out (Powis & Macbeth, 2023). The real effect of the blindness is the limitation/loss of the primary orientation tool, difficulty in mobility, and difficulty in not even being able to see and visualize the movements that must be done. A conscious person can easily perform movements, techniques, exercises, or see examples of movements and imitate them through their vision. Due to vision loss, blind children often rely on other senses, such as hearing, touch, and smell, to help them navigate their surroundings. However, to perform orientation well, a process through Practice is needed (Utomo & Muniroh, 2019: 13).

Running Training For Visually Impaired Athletes

Running is an effective form of exercise that can help improve physical abilities, including endurance and speed. According to (Dimyati, 2017) that running is a movement of changing places or moving forward that is done quickly, because of the push force of the hind legs on the ground, which is done by scavenging, so that both feet can float in the air when running. Running is a form of exercise that benefits physical fitness.

Based on the energy used, running training can be aerobic and anaerobic. Running exercises can increase speed and endurance. Endurance is developed mainly through continuous runs, interval training, and fartlek training. According to Müller, H. & Ritzdorf, W. (2009:39) training methods that can be applied to long-distance and medium distance running training include: (1) Slow continuous runs (goal: recovery and regeneration), (2) Long slow distance runs (goal: general endurance), (3) Medium continuous runs (goal: general endurance), (4) Fast continuous runs (goal: general endurance), (5) Fartlek runs (goal: aerobic endurance and lactate system), (6) Extensive repetition training (goal: emphasizing aerobic endurance) and (7) Intensive repetition training (goal: remarkable endurance according to the event). According to John Cissik & Jay Dawes (2015: 310), running training methods for endurance include (1) Long, slow distance training, (2). Interval training and (3) Fartlek training. Running exercises to increase endurance are done at low to moderate intensity.

Running is a straightforward sport to do. It can be done in various places, at any time, at a low cost. For individuals with visual impairments, running can be challenging. According to Utomo & Muniroh, N. (2019:149), orientation and mobility refer to the ability, readiness, and ease of moving from one position/place to another that is appropriately desired, precise, effective, and safe. People with visual disabilities often face limitations when it comes to participating in training. The most effective way to train athletes with disabilities who are blind is to be accompanied by a guide runner. Running guides are often attached to athletes with disabilities who are entirely blind to help them perform running activities safely.

Guide runners act as companions and guides for runners classified as totally blind in undergoing training activities and competitions. Under Paralympic rules, it is possible for runners with severe visual impairments, including the classification of total blindness, to be assisted by guides in competitions. Athletes in the total blind classification will compete with a guide runner accompanying them during the event (World Para Athletics, 2022:77).

Running training, coupled with a running guide, makes one dependent on others. When there is no running guide, athletes with disabilities who are blind cannot do training. People with visual impairments and total blindness often struggle to perform running exercises independently. For athletes who are blind to participate in running training independently, the implementation of running training continues to be modified. The implementation of running training continues for blind athletes who are completely blind and is carried out by running in place.

Exercise Model in a Limited Box Area

Independently running training for people with disabilities who are blind is a very achievable goal. The running training model needs to be modified so that it can be done independently. Modifications of running training for the blind include: (a) the place of training, and (b) the implementation of the training. Modification of training places for athletes who are blind involves limiting the training ground and preparing a safe, barrier-free training area to avoid objects that can be hazardous. Based on this, a training ground was created with a limited area free of obstacles and a restricted area with safety features to prevent athletes from leaving the designated safe area. The size of the practice area can be adjusted according to the available space.

Running training for athletes with disabilities who are blind can be done independently in a safe and secure location. The area is designed with a specific shape and size, ensuring that the place is safe and comfortable for running Practice. The area where the training is is delineated to ensure that athletes do not leave a secure area or zone. The place can be represented as a 4-rectangular plane, for example, a rectangular area with dimensions of 4 meters x 4 meters. The quadratic exercise area is limited by safety in the form of ropes or foam arranged around. The practice area can be done on (1) a grass field, (2) a carpeted or paved field, or (3) a sand field.

METHODS

The research method employed is Research and Development (R&D) (Borg, W.R., & Gall, 2007). The Research and Development approach includes ten steps as follows: (1) Preliminary study, (2) Research planning, (3) Design development, (4) Preliminary field test, (5) Limited field test revision, (6) Main field test, (7) Revision of broader field test results, (8) Feasibility test, (9) Final revision of feasibility test results (10) Dissemination and implementation of final product.

The model field test is conducted in two stages: the field test in small groups and the field test in large groups. The small group field test involved athletes with visual impairments from NPCI Central Java, with a maximum of two athletes per group. The field test was significant in the group, particularly among athletes with visual impairments from NPCI Central Java, comprising five athletes. The field test is applying modifications to various running training methods, including (1) continuous running training, (2) speed play or fartlek training, (3) interval running training, and (4) Sprint training. These various training

methods are carried out in a confined area limited by ropes.

The data of this study is a combination of qualitative and quantitative data. Qualitative data related to the development of the form of the exercise model in a box area in a confined area. Quantitative data relate to the acceptability and implementation of training models in a limited area for independent training of athletes with visual impairments, specifically those classified as totally blind.

RESULTS AND DISCUSSION

Visually impaired athletes are classified as total blind athletes who lose their primary orientation to space and surrounding objects, thereby affecting their mobility. Athletes with visual impairment classified as totally blind do not dare to move if they are not sure of their safety. For athletes with visual impairment classified as blind, a safe, comfortable, and accessible space is prepared to enable them to move freely. A secure and barrier-free box area with a rope is a model designed for visually impaired athletes classified as totally blind, allowing them to train independently. The location of the box can be adjusted according to the available space to provide flexibility in the movement of the box area, which is at least 4 x 4 meters.

Based on the assessment, the training model in the box area with a rope limit has an excellent quality value, scoring 93.75. The evaluation of the model's suitability includes running training models developed and assessed by competent experts. The elements studied, observed and evaluated by experts include: (1) Ease for athletes with total blind classification vision impairment to orient, (2) Safety for athletes with total blind classification vision impairment to use models, (3) Ease for total blind classification visual impairment athletes to use models, (4) Comfort for total blind classification visual impairment athletes to use models, (5) Fluency for visually impaired athletes classified as total blind to use the model without the help of others, (6) Flexibility to perform running movements on the model, (7) Practicality of the model so that it is easy to design, build and use, (8) Ease of obtaining the required equipment, (9) Efficiency of model making, (10) Ability to practice various methods of running training independently, (11) Training models can foster the encouragement and motivation of visually impaired athletes classification of total blindness, (12) Training models can increase the enthusiasm of visually impaired athletes classified as total blindness to run independently

Athletes with total blindness classification can perform running training activities independently within a limited area, bounded by a rope. Various training methods are modified to enable visually impaired athletes to execute them independently in restricted areas. The modified running training methods include: (1) Continuous running training, (2) Fartlek training, (3) Interval running training, and (4) Sprint training.

A training model in a box area with a rope restriction has been piloted with athletes who have a visual impairment classification of total blindness. Athletes with visual impairments classified as totally blind practiced various running training methods on a training model in a box area with a rope limitation. Based on athletes' assessments, the training model, which is confined to a limited box area bounded by ropes, can be accepted and utilized to conduct running exercises independently, with an acceptance and implementation rate of 92.86%.

At the beginning of the exercise, the coach explained each training method in detail. Furthermore, athletes practice with guidance and are coached. After understanding the different methods of running training, the athlete attempts to

perform the exercises independently on the developed model without the advice of a coach.

CONCLUSION

The conclusions of this study are as follows: (1) The running training model in the box area with limited rope is a form of model that can be used for independently running training for athletes with visual impairments classified as total blind, (2) The training model in a limited box area can be accepted and used to carry out running training independently for athletes with visual impairments classified as total blind, with an acceptance and implementation rate of 92.86%.

ACKNOWLEDGEMENT

This research would not have been possible without the assistance of various parties. Therefore, the researcher would like to express his sincere gratitude and appreciation to the parties who have helped him complete this research. First of all, gratitude is conveyed to the first supervisor, Mrs. Prof. Dr. Tandiyo Rahayu, M.Pd, Second Supervisor, Mr. Prof. Dr. Muhammad Furqon Hidayatullah, M.Pd, Third Supervisor, Mr. Prof. Dr. Setya Rahayu, M.S. who have provided direction and guidance in writing this article.

REFERENCES

Borg, W.R. and Gall, M.D. (2007). Educational Research: An Introduction (8th Edition). New Work: Longman Inc. (pp. 589–590).

Cattaneo, Z., & Vecchi, T. (2011). Blind Vision: The Neuroscience of Visual Impairment. Boston Review. https://doi.org/10.7551/mitpress/9780262015035.001.0001

Cissik, J. M. & Dawes, J. (2015). Maximum Interval Training. USA : Human Kinetics Publisher, Web site: www.HumanKinetics.com

Dimyati, A. (2017). Pengembangan Model Permainan Atletik Anak Dalam Pembelajaran Gerak Dasar Lari Bagi Siswa Berkebutuhan Khusus (Tunarungu) Di SLB Negeri Kabupaten Karawang. Journal Sport Area, 2(2), 19–26. https://doi.org/10.25299/sportarea.2017.vol2(2).1031

Mülle, H. & Ritzdorf, W. (2009). Run!, Jump!, Throw! : The Official IAAF Guide to Teaching Athletics. IAAF : IAAF Coaches Education and Certification System.

Powis, B., & Macbeth, J. L. (2023). Running blind: the sensory practices of visually impaired runners. Qualitative Research in Sport, Exercise and Health, 00(00), 1–15. https://doi.org/10.1080/2159676X.2023.2284704

Susanti, R.A. (2016). Modul Guru Pembelajar SLB Tunanetra. Bandung : Pusat Pengembangan dan Pemberdayaan Pendidik dan Tenaga Kependidikan Taman Kanak-Kanak dan Pendidikan Luar Biasa, Direktorat Guru dan Tenaga Kependidikan

Utomo, & Muniroh, N. (2019). Pendidikan Anak Dengan Hambatan Penglihatan. Banjarbaru : Prodi. PJ JPOK FKIP ULM Press.

World Para Athletics. (2022). World Para Athletics Classification & Categories. https://www.paralympic.org/athletics/classification