



## Development of Xander Resistance Training Exercise Model for Petanque Sports Branch at Student Level

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### Abstract

This research aims to investigate the dynamic growth and development of the sport of petanque in Indonesia, specifically focusing on the progress witnessed during the 2011 SEA Games. Notably, the establishment of the Federation of Petanque Sports Indonesia (FOPI) marked a significant turning point, leading to rapid progress facilitated by various universities and extensive community involvement. In addition, this study emphasizes the importance of physical condition, accuracy, and mastery of basic techniques such as Pointing and Shooting to achieve success in the sport of petanque. To further improve the physical condition of petanque athletes, this research implements the Training Resistance Xander (TRX) training model. This research is a Research & Development (R&D) study with qualitative methods. The results showed the implementation of this model demonstrated a positive impact on the athletes' physical condition, highlighting its efficacy as a comprehensive training solution. This research highlights the holistic approach required for sports development, emphasizing the need for customized training models to optimize athletic performance.

**Keywords:** Xander Resistance Training Exercise, Petanque, Development

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### A. Introduction

In Indonesia, during the SEA Games 2011 in Jakarta-Palembang, the establishment of the Indonesian Petanque Sports Federation (FOPI) took place on Friday, March 11, 2011, according to (Suwanto et al., 2018). Since the establishment of FOPI, the sport, which can be played on both hard or artificial surfaces as well as on sand, grass, or other surfaces, has experienced rapid development. This has been achieved through the efforts of various universities with sports study programs in five provinces, including East Java, West Java, Bali, DKI Jakarta, and Riau. The rapid development of petanque athletes in various regions in Indonesia is marked by scheduled training sessions, followed by the organization of various championship events as a means to assess the abilities and achieve success for petanque athletes (Pelana et al., 2019; Sinulingga et al., 2023). Furthermore, in the SEA Games 2011, petanque has become one of the sports branches contested similar to other sports branches, categorized as a Concentration sport (Gracia Sinaga & ., 2019).

The progress of petanque sport in Indonesia is also characterized by the growth of many clubs, groups, and communities of petanque sport in various regions (Hariansyah & Is, 2020). Moreover, in several locations, training

activities are not only intended for athletes but also for petanque coaches, from beginner to professional levels, with the aim of enhancing coaching knowledge in this sport (Awang, Fajar et al., 2019). Additionally, various championships held at regional, provincial, and national levels have also played a role in developing and popularizing this petanque sport (Isknadar et al., 2019). The city of Kediri, as the third largest city in East Java, has not lagged behind in contributing to the advancement of petanque sport in Indonesia, especially in the province of East Java. Through the Nusantara PGRI University of Kediri and the Physical Education and Health Study Program, petanque sport has begun to be introduced to various layers of society in the city. Initially, the promotion was only conducted within the campus environment of Nusantara PGRI University, but over time, the promotional activities have expanded, including reaching schools with the assistance of physical education teachers who introduced this sport to their students. Nusantara PGRI University of Kediri also participated in regular events held by the Kediri City Government, such as Car Free Day and Car Free Night, to introduce this sport to the general public. The enthusiasm shown by the residents of Kediri is evident from the emergence of many young talents among students, as well as the high interest from the

community due to the sport being considered enjoyable, which is reflected in the number of people interested in trying this sport during Car Free Day and Car Free Night. The peak moment of the development of petanque sport in the city of Kediri is currently marked by the acceptance of this sport by the community and the achievements of its athletes in achieving success in the multi-event competition such as the Provincial Sports Week (Porprov) (Purnomo & Yendrizar, 2020). Daily training has brought achievements, as evidenced by winning the overall champion title in the petanque sport category at the East Java Provincial Sports Week (Porprov) in 2019 held in Bojonegoro Regency. Out of the 15 participating athletes, they managed to bring home 2 gold medals and 3 silver medals.

Petanque, being a sport of achievement just like any other sport, demands a high level of performance from its athletes. As (Isknadar et al., 2019) pointed out, in petanque, apart from mastering the techniques, tactics, and strategies, one also needs to be in good physical condition. This can prove challenging for untrained athletes, and even experienced athletes often encounter difficulties despite their extensive experience, as stated by (Juhanis et al., 2019). Although petanque doesn't

require as much energy as some other sports, the game can be physically draining when considering the activities during the matches (Yusuf & Padli, 2020). After each game, athletes have to retrieve the metal balls they throw from various distances, starting from 6, 7, 8, and 9 meters. Moreover, to reach the final stage, they have to go through several matches. Since petanque is predominantly played outdoors or in open spaces, exposure to direct sunlight for extended periods, especially in hot and sunny weather, can quickly drain the athletes' stamina. This, in turn, significantly impacts the athletes' performance. Hence, if an athlete lacks physical fitness or robust physical condition, it may affect their performance (Pradana & Nurkholis, 2019).

In this game, there are several basic techniques used, including the Pointing technique. The Pointing technique aims to bring the Boule (big ball), also known as BOSI (iron ball), closer to the small wooden ball (BOKE) or also known as BOKA (wooden ball) (Apriani et al., 2021). Then, there is the Shooting technique, which is a way of sending the ball with the purpose of keeping the opponent's iron ball away from the target boka as far as possible (Hariansyah & Is, 2020). The Shooting technique can be applied in various match situations, both

when aiming to increase points or in pressured situations to ensure the match ends in a draw and to avoid losing points (Sani & Hulfian, 2022).

One of the most fundamental techniques that petanque athletes must master is the shooting technique, particularly the accuracy of the shooting (Susandi Eka Wahyudhi et al., 2021). According to (Hanief & Purnomo, 2019), petanque is characterized by its inclination towards requiring accuracy; anyone interested in playing petanque, regardless of gender, age, or social status, is allowed to participate in this sport. According to (Purnomo & Yendrizal, 2020), based on its main mechanics, petanque is categorized as a sport aiming for maximum precision. This implies that the throws made must precisely hit a specific target to score points and win the game. Based on the statement above, accuracy significantly influences the shooting aspect; the more precise the throw, the more points are earned. Achieving an accurate throw requires high concentration. According to (Apriani et al., 2021), concentration directs all energy and physical effort towards the target. Therefore, concentration in petanque also plays a significant role during shooting.

Hence, to ensure that the shooting technique yields the desired points, players need to utilize their full capabilities,

including their concentration and all aspects of physical ability such as arm length, hand-eye coordination, muscle strength, and others (Pradana & Nurkholis, 2019). However, a common issue encountered during training is the lack of appropriate varied exercises to enhance dominant physical conditions specific to this petanque sport. According to (Arni & Indrayana, 2021), physical conditioning plays a crucial role in the training program for athletes, particularly those in competitive sports. (Ridwan M & Irawan R, 2018) identifies ten components of physical conditioning, including strength, endurance, muscular power, flexibility, agility, coordination, speed, balance, accuracy, and reaction. Furthermore, (Isknadar et al., 2019) emphasizes that physical conditioning constitutes an integral unity of inseparable components, both in terms of improvement and maintenance. This implies that in the effort to enhance physical conditioning, all biomotor components must be developed, distinguished only by the varying percentage of emphasis placed on each component. (Susandi Eka Wahyudhi et al., 2021) note the presence of five basic biomotor components, namely strength, endurance, speed, flexibility, and coordination.

Based on research on the biomotor components in petanque, the dominant

requirements include power or explosive strength of the arm muscles, muscle endurance, flexibility, and hand-eye coordination. The enhancement of these biomotor components as a whole is facilitated by the presence of strong core muscles. The core muscles consist of the abdominal, back, and side muscles. Strong core muscles are crucial in maintaining balance during shooting, engaging in petanque exercises, and endurance training. They contribute significantly to improved athletic performance. Therefore, it is recommended that children engage in core muscle exercises before undertaking rigorous training or incorporate core muscle training into their daily exercise routine.

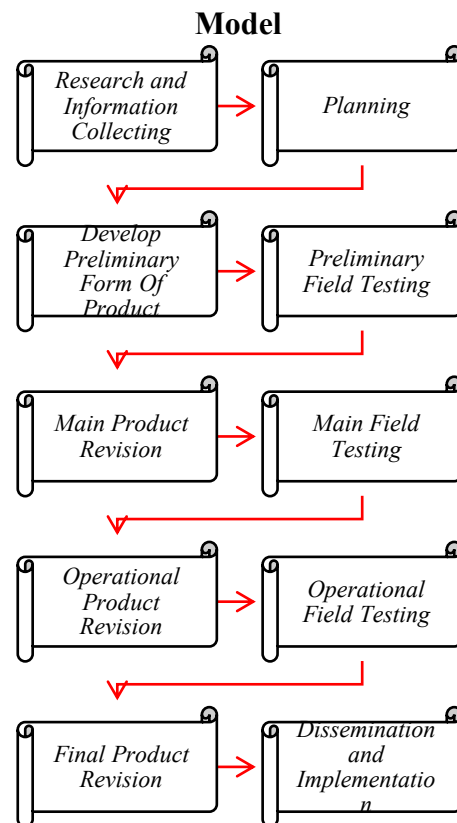
Before facing actual competitions, athletes are provided with guidance and training aimed at improving their physical condition, ensuring they are prepared to handle the pressure and demands of the game, including both mental and physical stress. Prior to a match, an athlete must possess a good level of physical condition or fitness to cope with the pressures or stresses encountered during the competition. Therefore, it is crucial to maintain excellent physical condition during every training session and match. Maintaining and enhancing physical condition heavily relies on the training

program and the athlete's awareness to consistently maintain their physical well-being, highlighting the significance of physical condition alongside mental, technical, and tactical aspects. This research focuses on the dominant physical condition during an athlete's shooting performance.

## B. Methods

This research employs the Research & Development (R&D) method to develop and validate a product consisting of various TRX training models for the student-level petanque sports branch. The research and development method used follow the steps of Borg & Gall, which are as follows:

Figure 1. Borg and Gall Development



This study took place in the Sports

Hall, Sport Center at Campus 4 of the Nusantara PGRI University in Kediri. The population for the study consisted of 10 athletes practicing at the Sport Center of Nusantara PGRI University, Campus 4, comprising 6 male athletes and 4 female athletes. The data collection technique utilized in this research involved observation to identify existing problems. Subsequently, problem-solving was conducted through observation, interviews, questionnaire surveys, and field documentation based on the identified issues. The data analysis technique employed in this research included both qualitative and quantitative descriptive data analysis.

## **C. Result and Discussion**

### **Result**

Presentation of trial data is a researcher's way to present the trial data that has been conducted in this development research. The series of procedures and activities carried out in the development of the Training Resistance Xander (TRX) exercise model for the sport of Petanque at the student level are as follows.

#### **1. Research and Information Collecting**

In this stage, the researcher conducts activities to search for and select the topic to be addressed in the research. In this case, the researcher chose Petanque as the main

topic to be researched. The reason for selecting Petanque as the topic is because there are not many studies that address this sport as a research topic, and the researcher is quite familiar with Petanque.

After that, the researcher tried to find a solution in the form of a new training model that is suitable and can be used for this Petanque sport. Finally, the researcher found a training model that is considered suitable and applicable for this Petanque sport, namely the Training Resistance Xander (TRX) exercise model.

#### **2. Planning**

In this stage, the researcher begins to create a plan or steps to be taken in the research. This includes determining where information sources can be obtained, determining the research object, deciding the research location, the duration of the research, determining the material, identifying the field experts to be approached, and ultimately the desired end result of improving the physical condition of Petanque athletes.

#### **3. Develop preliminary form of product**

The ultimate goal of this research is to create a training model that can be used to improve the physical condition of Petanque athletes according to the specific needs of the sport. To achieve this goal, the necessary facilities and infrastructure are needed to realize this objective. The facilities and infrastructure needed in the



development of this training model include the Training Resistance Xander (TRX) equipment itself. To obtain the TRX equipment, the researcher purchased the

equipment, which was available for sale online in the marketplace. The TRX equipment obtained by the researcher in the available marketplace is as follows:

**Figure 2. Training Resistance Merk P3 Pro**



#### 4. Initial Field Testing

At this stage, researchers conduct limited-scale field trials, involving a total of 6 to 12 athletes. During this step, data collection and analysis can be carried out through methods such as interviews, observation, or questionnaires, aimed at gauging the initial response of the research subjects and providing insights for further refinement in the subsequent phase if there are revisions suggested by experts. Consequently, the review process by an expert or specialist in the development of the TRX exercise variation model will be conducted at this stage. This is done to seek an assessment from experts on whether the

instrument developed is deemed appropriate and suitable in its content.

#### 5. Main Product Revision

The main product revision is a stage where improvements are made to the initial product based on the results of the initial trials. During this stage, multiple revisions are highly likely, as suggested by the limited trials, leading to the development of a main draft product ready for broader testing. The researcher's improvements primarily stem from the feedback provided by subject matter experts through a questionnaire, which had been previously reviewed by these experts regarding the form or sequence of movements in the development of the TRX exercise variation

model.

#### 6. Main Field Testing

During this stage, the researcher conducts a trial involving the entire sample of 10 subjects, comprising 6 male and 4 female subjects aged between 17 and 19 years. Before conducting the product testing phase, the researcher needs to assess the initial physical condition of the research subjects, enabling an assessment of the extent of change in the subjects' conditions at the end of the trial stage. To obtain initial data on the physical condition of the Nusantara Petanque Club Kediri athletes, a Pre-Test is conducted. For the final data after the trial or treatment, a Post-Test will be performed using the same instrument. Based on the data obtained in the field through various stages undergone by the researcher, initial data was acquired on the athletes' physical condition, gathered from the initial tests (Pre-Test) conducted on Monday, May 17, 2021, at the Sport Center, Campus 4, UN PGRI Kediri. The tests administered to the research subjects included tests for arm muscle strength, arm power, grip strength, abdominal muscle strength, and leg muscle endurance.

#### 7. Operational Product Revision

During this stage, the researcher makes improvements to the identified shortcomings found during the trial phase, including the validation tests conducted

with the experts and any deficiencies noted during the Main Field Testing. (As the previous results did not indicate the need for revisions, the researcher proceeds to the next stage, which involves creating a module/guidebook for further progress to the Operational Field Testing phase.

#### 8. Operational Field Testing

Operational Field Testing involves the validation of the operational model that has been produced. After a series of treatments or interventions with the research subjects over a period of approximately one month, concluding on June 24, 2021, a final test, commonly known as the Post Test, is conducted to determine the results of the treatments or interventions. The tests conducted during this stage use the same instruments as those used during the initial test or Pre-Test.

#### 9. Final Product Revision

At this stage, the researcher makes final improvements to the developed model to produce the final product, which, in this case, is in the form of a module containing a TRX training guide for petanque sports.

### **Discussion**

In all stages, from topic selection to disseminating the developed product or model, the researcher has gone through every step, ensuring that the resulting product is considered ready and suitable for use and dissemination, aiming to



provide benefits for those in need.

Expanding on the above discussion, it is crucial to note that the researcher has traversed each stage, starting with the selection of the research topic and culminating in the dissemination of the developed product or model. The initial phase involved a comprehensive literature review to ensure the relevance and necessity of the chosen topic. Following this, the research was conducted using an appropriate methodology to develop a product or model that could offer a solution to the research problem or question.

The research findings indicate that the resulting product has undergone a series of feasibility tests and evaluations to ensure its reliability. In this stage, the researcher can refer to similar previous research findings to compare and confirm the superiority of the developed product. Comparisons with past research can reinforce claims of the product's excellence and provide a foundation for dissemination decisions.

The process of disseminating the developed product or model also requires a well-thought-out strategy. Previous research outcomes can guide effective dissemination methods and identify factors influencing the product's acceptance in the target community or market. Lessons

learned from previous research experiences can be used to optimize dissemination efforts, including identifying the target audience, using effective communication media, and collaborating with relevant stakeholders.

Overall, this research not only produced a ready-to-use product but also involved a profound understanding of the research stages and their connection to previous research outcomes. The integration of previous findings strengthens the validity, reliability, and relevance of the developed product or model, with the expectation of delivering tangible benefits to those in need of the solutions offered by this research.

#### **D. Conclusion**

From the results obtained from the series of stages undergone and the data analysis conducted, the following conclusions can be drawn. Based on the Pre-Test and Post-Test results following the application of the exercise model using the TRX equipment as the main tool, the researcher can conclude that the implementation of the TRX training model has a positive impact on the physical condition of the relevant athletes, specifically the 17 to 19-year-old athletes from the Petanque Club Kediri. This is evidenced by the comparison of the athletes' physical condition before and after receiving the treatment. Each aspect of the

physical condition tested experienced improvement, although not all of them had the same percentage of improvement, as this also depends on the individual athlete.

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### **F. Conflict of Interest**

No conflict of interest

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