

Optimizing The Potential of Athletes with Arm Disabilities in The Sport of Archery

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ABSTRACT

This research examines adaptive sports coaching for arm amputee athletes in archery at NPC South Kalimantan. The research uses a qualitative approach with a case study method with various sources such as Deputy Chair II for Achievement Development, Coaches, Assistant Coaches and Athletes, using observation, interview and documentation techniques. Data were analyzed using data reduction techniques, data presentation, drawing conclusions, and verification and validated by technical triangulation and source triangulation. The results show that training for archery sports in the South Kalimantan Province NPC involves recruiting athletes from the City Regency NPC. The classification of athletes is carried out by specialized doctors. The role of the coach is in preparing training programs, identifying and developing the athlete's maximum potential. The facilities and infrastructure used are in accordance with standards with modifications to add mouth tabs, and sling straps on bows, as well as protective gear for athletes with arm amputations.

Keywords: Adaptive Sports Coaching, Archery, Disabilities

INTRODUCTION

The participation of people with disabilities in sports can have a positive impact in the social, psychological and physical fields and can improve the quality of life of people with disabilities (Côté-Leclerc, et al, 2017). To channel sports talents and abilities for people with disabilities, there is an organization called the National Paralympic Committee, which is then abbreviated as NPC. According to the Articles of Association and Bylaws of the Indonesian National Paralympic Committee (NPC), "NPC Indonesia is a sports organization that provides guidance, development and improvement of athletes' achievements in sports for people with disabilities in Indonesia." NPC plays an important role in supporting the participation and achievements of athletes with disabilities in sports.

As an institution committed to creating opportunities and an inclusive environment for Paralympic athletes, NPC plays a key role in the development of adaptive sports. Adaptive sports are sports specifically designed to help those with special needs improve their fitness (Rifki & Susanto, 2022). Through modification of rules, equipment, and training approaches, adaptive sports removes physical barriers and allows individuals to pursue their passion in the world of sport. More than just competition, adaptive sports are also inspiring and empowering, teaching us all about determination, hard work and one's strength to overcome obstacles. One of the adaptive sports in the South Kalimantan Province NPC that is attracting attention is archery for people with arm amputations, which offers significant competition and personal development opportunities.

Archery is a sport that is growing throughout the world. Archery is a sport that trains a person's skills in using a bow and arrow at a target to get the highest score (Sasmarianto & Muslim, 2023). Archery is not only about physical strength, but also about mental stability and concentration. In archery,

concentration and coordination between the hands and the eyes are very necessary to keep the archer focused on the target (Hanief & Purnomo, 2019). With the development of science and technology, archery can now be played by everyone, including people with disabilities, especially physical disabilities such as arm amputation.

Amputation is the loss or severing of a part of a body member, such as a finger or arm, which is also part of the operation to cut certain body parts to treat a condition or disease (Syamsyiah, 2021). In short, arm amputation refers to the loss of part or all of an arm as a result of surgery. The impact of arm amputation causes a person to experience limited ability to move their arms. So someone with an arm amputation needs special training to do archery.

The development of athletes' abilities towards sporting achievements is the result of a sports coaching process that is carried out systematically and planned, and involves quality human resources and adequate knowledge (Prasetyo, et al, 2018). Therefore, according to Saharullah, et al. (2019) in the sports coaching process it is necessary to pay attention to components including the availability of athletes, the role of coaches, training programs, infrastructure, and the support they receive.

Under ideal conditions, archery requires good hand coordination. However, in reality there are athletes with disabilities who are able to play this sport, and they are even talented in archery. Based on the results of observations that researchers had previously made at the NPC of South Kalimantan Province, an interesting case was found regarding two trained athletes who had one arm amputated, but had talent in archery. The 28 year old athlete with the initials D had his left arm amputated as a result of a car accident when he was 25 years old. Previously he had no experience in archery. However, by providing coaching for the adaptive sport of archery, he was able to play this sport and even achieve achievements in sports competitions for people with disabilities in archery. This athlete proves that physical limitations are not an obstacle in pursuing dreams and success in the world of sports.

Even though he only has one arm, he is skilled at using arrows and aiming at targets. In archery, they use the remaining arm to hold the bow, while to draw, they use the help of teeth. The ability of athletes with arm amputation disabilities to play archery has attracted the attention of researchers, and has become a motivation to dig deeper into the coaching provided to support the success of archery for athletes with arm amputations.

This research will focus on the important components that need to be considered in supporting adaptive archery sports development for athletes with arm amputations. This includes the availability of athletes, the role of coaches, appropriate infrastructure that can maximize the potential of athletes with physical limitations. Apart from that, it will be studied in more depth regarding the training programs used to hone skills, as well as the support received to support achievements in archery. With a deeper understanding of how to develop adaptive sports in archery for athletes with arm amputations, it is hoped that they will be able to make a positive contribution to the development of adaptive sports and the achievements of athletes in the future.

From the background description above, this research aims to dig deeper into the sport of archery for someone with an arm amputation, which includes the recruitment process for athletes with disabilities with arm amputations in the archery sport; process of classifying disabled athletes with arm amputation types in archery; the role of coaches in developing adaptive sports in archery for athletes with disabilities such as arm amputation; a form of adaptive sports training program for archery for athletes with disabilities such as arm amputation; facilities and infrastructure used in adaptive sports training in archery for athletes with disabilities such as arm amputation; and the forms of support that have been received during the coaching process.

METHOD

Researchers used a qualitative approach with case study research methods to explore data related to adaptive archery sports training for athletes with arm amputation disabilities in the South Kalimantan National Paralympic Committee organization, thus making this research an in-depth study. The problems studied produce data in the form of sentences, both written and spoken, from sources, as well as observable behavior. This research took place at the NPC archery field of South Kalimantan Province, Jalan Guntung Harapan, Griya Utama Trikora Complex 1 Block A RT 34 RW 05, Guntung Manggis Village, Landasan Ulin District, Banjarbaru City, South Kalimantan Province. This research took 3 months. The start of this research will be in November 2023, and will be completed in March 2024.

This research uses three instruments, namely observation, interviews and documentation. This research uses data collection techniques in the form of participatory observation with passive participation. Basically, researchers are directly involved on the spot but are not actively involved in the business run by the subject. Researchers are involved in activities that are the object of observation. However, the researcher only observed how the adaptive sport of archery was developed at the South Kalimantan Province NPC, the researcher was not directly involved in the sports development activities carried out. Therefore, through understanding the experts' explanations described above, the researcher used participatory observation with a type of passive participation. Basically, researchers are directly involved on the spot but are not actively involved in the business run by the subject.

The research data source is qualitative which contains primary data in the form of interviews obtained from archery coaches, as well as from all parties involved in the process of coaching archery sports at the South Kalimantan Province NPC. Apart from that, there is also secondary data in this research which was obtained through documentation in the form of a file listing the names of athletes with disabilities in archery and their achievements, training programs, archery training equipment, award certificates/trophies, video recordings, and photos of activities.

This research uses data analysis techniques in the form of interactive models. This analysis process includes three main steps, namely data reduction, data display and conclusion drawing/verification. Researchers use source triangulation and technical triangulation as an effort to validate the data. Source triangulation is a method for assessing the credibility of data by examining information collected from various sources. The data obtained from the coach's interview will be confirmed with the assistant coach and archery athletes to ensure that the data provided by the coach is correct. Triangulation techniques help researchers to confirm the findings obtained. Researchers can compare findings in direct observation with what coaches reveal through interviews. Additionally, researchers compared the findings with relevant literature in the field of adaptive sports.

RESULT AND DISCUSSION

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Sports coaching is a process of achieving athlete achievements that is carried out systematically and continuously (Atmanegara, 2020). Sports coaching involves various components that are important for developing athletes and achieving optimal results in the field of sports. These components include: availability of athletes, role of coaches, facilities and infrastructure, training programs, and support received (Saharullah, et al, 2019). This is in line with the series of coaching that has been carried out by the Kalimantan Province NPC in terms of the availability of athletes by carrying out the recruitment process to athlete classification, the role of coaches, the provision of facilities and infrastructure, training programs and the support provided

Recruitment Process

Interview results show that the athlete recruitment process is carried out strictly by the South Kalimantan Province NPC. The recruitment process is carried out by the Regency/City NPC registering its athletes for certain sports. Then a selection is carried out by the Provincial NPC. In this process, the head of Bimpres for athletes plays a central role by directing them to sports that suit their individual talents and interests. In the midst of selection, athletes are analyzed thoroughly, especially in terms of their physical abilities and potential. Based on research results in the NPC archery sport of South Kalimantan Province, there were 14 athletes with physical and motor disabilities. An athlete is a person who is trained, has unique characteristics and is talented in the field of sports (Saragih, 2017). Their participation includes competitions at regional, national and international levels which shows that they not only demonstrate their abilities at the local level, but also compete on the global stage.

Classification Process

Athlete classification is carried out by special doctors who have expertise in classifying athletes. Classification is carried out to understand the athlete's disability and determine the appropriate competition class. The classification process involves disability screening, including dental examinations for athletes who use teeth in archery. This is as stated by the informant.

The Role of the Coach

In sports coaching the coach has an important role in determining the success of the coaching carried out. This is in accordance with the opinion of (Asrianda et al., 2023) which states that coaches have an important role in the success of athletes in achieving achievements. Based on the results of the interview, it is known that coaches have a role in coaching the sport of archery. Some of the trainer's roles include the following: a) preparing training programs; b) identifying and developing athletes' maximum potential; c) formation of the athlete's mentality; d) help athletes manage stress and anxiety; e) monitor and evaluate the athlete's physical condition; f) guide and support a healthy lifestyle.

Training Program

The training program is designed by the trainer. The physical program is designed by measuring ability with maximum load lifting tests, used to regulate repetitions, intensity and training volume. On the other hand, technique programs involve evaluating an athlete's anatomy and posture in archery, with a focus on shaping, improving, stabilizing, and automating movements. In its implementation, there are four types of training applied to athletes, namely physical training, technical training, tactical training and mental training. There are four training programs provided by the coach, namely physical training, technical training, tactical training and mental training. This is done to support the achievements of the trained athletes. This statement is in line with the statement according to Harsono (Wulandari, 2022) that when these four training programs are implemented, they can help athletes to achieve peak performance.

Physical training is carried out 3 times a week. The focus of physical training is to increase strength, endurance, and prevent injury. Especially for athletes with arm amputations, because they shoot using their mouths, they must frequently stretch their neck muscles to avoid injury when archery. Apart from that, leg muscle endurance also needs to be trained by doing squats. There are differences in squat movements with weights for two-handed athletes and arm amputee athletes. When performing two-handed squats athletes hold one barbell each in their hands. Meanwhile, the arm amputee athlete holds the barbell with one remaining hand and places it in front of his chest. In carrying out physical endurance running training, athletes with arm amputations are instructed to run faster than other athletes with disabilities. Because they are not hampered in their footwork.

Technique training begins with adaptation to the use of archery equipment. Before practicing using standard equipment, athletes go through adaptation stages from pulling on used rubber tires, paralon bows, light bows, then standard bows. However, athletes with arm amputations do not go through the stage of pulling on rubber tires, because they pull and release arrows using their mouths, so they go straight to the paralon bow stage. Then there are clearly visible differences in archery technique between two-armed athletes and arm amputee athletes. For two-handed athletes, they use their dominant hand to hold the bow and the other hand for archery. For arm amputees, they hold the bow using one remaining hand, and draw and release the arrow using their mouth.



Figure 1 Set up drawing for archers using the mouth

Tactical training is carried out simultaneously with technical training. There is no difference in tactical training for arm amputee athletes and two-arm athletes. The trainer uses the same method, namely action observation. The coach observes the athlete's archery method and then provides input. If the athlete feels that the input given by the coach is not suitable, then he can communicate to the coach so that together they can find appropriate tactics.

Mental training in the form of providing motivation to athletes. Apart from that, before practicing, apply the briefing, imagery and self-talk methods. The brithing method or breathing exercises can relax the body and increase concentration. This method is carried out before the start of archery training, the athletes are instructed to stand parallel to the target butt with both feet shoulder-width apart and knees slightly bent. Relax your neck, arm and shoulder muscles, and relieve tension. Next, the athlete is asked to breathe slowly while looking at the butt target and focusing on the goals they want to achieve in today's training.

The next method is imagery or imagining. By applying this method, athletes can increase their self-confidence. Imagery can be done by instructing the athletes to close their eyes and imagine they are on the training ground, ask the athletes to imagine they are shooting archery and feel the weight of the bow being used, feel the pull of the bowstring, and imagine and feel shooting an arrow. By imagining first, it can increase the athlete's confidence when practicing archery later. This exercise can also prevent negative thoughts that can interfere with concentration.

Facilities and Infrastructure

For athletes with arm amputations who do archery using their mouths, this certainly requires modifications in the facilities used. This is because the way of playing is very clear compared to archers who have two hands. Generally, an archer uses both hands to shoot. However, because arm amputee athletes only have one arm, they will shoot using their remaining hand, and with the help of their mouth. Because of the difference in the way of playing, athletes who shoot archery use their mouths, they need equipment modifications to make it easier for them to shoot. Modification of playing equipment for arm amputee archers focuses on the bow. Those who shoot with two hands will use one hand to hold the bow, and the other hand to draw and release. Therefore, a device called a finger tab is attached to the bowstring to make it easier for them to pull the bowstring.

Arm amputee athletes require modifications in playing equipment. This modification focuses on bows, where they shoot using their mouths, so a mouth tab is needed to make it easier to pull the string. The slink on the bow was also modified so that it could be attached to the wrist, making it easier to shoot arrows. And use a tooth protector to minimize damage to tooth structure. Most of the tools they use are imported from abroad because they are difficult to find in Indonesia. The results of this research are in line with Luik (2023) in a book entitled Adaptive Equipment Resource Guide which mentions adaptation of the means used in the adaptive sport of archery, namely the use of a mouth tab to pull the bowstring. For athletes who shoot with their hands, they use finger tabs to pull the bowstring. However, athletes who shoot using their mouths use mouth tabs made from pieces of cloth tied to the bowstring to pull the bowstring. Next is the tooth protector. A tooth protector is a mechanical aid used by archery athletes using teeth (Priambudi, et al., 2023).



Figure 2 Facilities and infrastructure are components that support the smooth running of training programs

With adequate facilities and infrastructure, athletes can increase their potential. According to (Gunawan, et al, 2021) if sports facilities and infrastructure are not managed effectively then this can hinder efforts to improve sports performance. There are no special modifications for infrastructure for athletes with disabilities who shoot using their mouths, because the available infrastructure is accessible to them. The facilities and infrastructure used during training are standard. This is in line with the results of tests carried out by (Winario et al., 2023) Facilities and Infrastructure have a positive and significant influence on Athletes' Sports Performance.

Support

In implementing the training program, of course there are various forms of support such as monetary awards for outstanding athletes, monthly incentives, providing nutritional money, and providing facilities. Having support can make a significant contribution to improving the quality of training and equipment needed. Support in sports coaching is the key to developing outstanding athletes. In line with the statement of Sayekti & Lumintuarso, (2022) which states full support, both material and non-material, athletes will become more enthusiastic in training and championships. The support that archery receives during coaching training consists of moral and material support. Morale takes the form of providing encouragement and motivation carried out by the chairman of the Bimpres by monitoring archery sports. Material support in the form of funding from the government. The government allocates a budget for organizing adaptive sports performance development for people with disabilities through the regional revenue and expenditure budget (APBD). This material support is used to provide incentives, funds to improve nutrition, and procurement of infrastructure.

CONCLUSION

The development of the adaptive sport of archery in the NPC of South Kalimantan Province involves various important components such as the availability of athletes, the role of coaches, facilities and infrastructure, training programs, and the support received. The availability of athletes is obtained through the recruitment and classification process. The recruitment process for arm amputee athletes for archery will be carried out in June 2022. After being recruited, the athletes are classified to see the type of disability and determine the competition class. There are differences in classification for archery athletes with arm amputations and athletes with other archery disabilities. Athletes with arm amputations receive dental and oral health checks, this is done because their children will use their mouths for archery.

The next component is the role of the trainer. In the South Kalimantan Province NPC archery sport, coaches have several roles in preparing training programs, identifying and developing athletes' maximum potential, forming athlete mentality, managing stress and anxiety, monitoring and evaluating athletes' physical condition, as well as guiding and supporting athletes' healthy lifestyles.

Then, there are four training programs given to athletes, namely physical training, technical training, tactical training and mental training. Physical training for archery athletes generally focuses on training the arm, shoulder and leg muscles. However, athletes who shoot using their teeth must also stretch their necks frequently to avoid injury during archery later. Their leg endurance must also be trained because they are in standing class so their body balance must be maintained. In technical training, the difference between athletes who shoot using their mouth and athletes who shoot using two hands lies in when they pull the bowstring. For athletes who do archery using a mouth, their left hand is bent, while for athletes who do archery using two hilts, their left hand is straight. For tactical training and metal training, there is no difference between athletes who shoot using teeth and athletes who shoot using two hands.

The infrastructure used in developing the adaptive sport of archery at the NPC of South Kalimantan Province is in accordance with standards. No infrastructure modifications are required for athletes who shoot using their mouths. However, their facilities require modification. Modifications lie in the use of mouth tabs, sling straps, and the addition of tooth protectors. During the coaching implementation, we received support from various parties, including the government, organizations and athletes. This support is used for the smooth running of the coaching program.

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