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Developing the Types of Exercise to Improve the Agility of Wheelchair Badminton Athletes

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ABSTRACT: This study aims to produce a developing product of exercise types to improve the agility of disabled badminton athletes. This research and development is conducted by adapting development research steps as follows: (1) preliminary studies, (2) initial draft design, (3) initial draft validation and revision, (4) small-scale trials and revisions, (5) large-scale trials and revisions, (6) final products, and (7) effectiveness tests. Small-scale trials were conducted at NPC of Bantul, and large-scale trials were conducted in the NPC of Yogyakarta Special Region. The effectiveness test was conducted in NPC of Yogyakarta Special Region. The data collection instruments used were: (1) interview guideline, (2) questionnaires, (3) and effectiveness test instruments in the form of performance tests. The effectiveness test used a zig-zag run modification instrument. Data were analyzed quantitative descriptive on the assessment scale, t-test on effectiveness test and qualitative descriptive on product assessment input and interview results. The results showed that: (1) Types of exercise to improve the agility of wheelchair badminton athletes with development stages starting from: (a) preliminary studies, (b) developing initial products; expert validation (materials and media) and revisions, (c) product trials; small-scale trials/ revisions and large-scale trials/ revisions, and, (d) product effectiveness tests. The final product in this study is a book entitled "Types of Agility Exercises for Wheelchair Badminton Athletes". The product produces ten types of agility exercises for wheelchair badminton athletes. (2) The types of exercise to improve agility for wheelchair badminton athletes based on a material expert assessment of 81% is in the very good/ very feasible category and a media expert assessment of 80%, is in the good/ feasible category. (3) Types of exercise to improve agility for wheelchair badminton athletes is effective with a p value < 0.05 and an increase of 8.73%.

KEYWORDS: types of exercise, para-badminton athletes, wheelchair.

INTRODUCTION

One of the most high-profile disability events in the world is the Paralympics, which features different classifications for athletes with disabilities. The purpose of the Paralympics is to promote human understanding and friendship [1]. Badminton is also played in this Paralympic Games. Badminton athletes who compete in this event are usually called para-badminton, each athlete will be classified based on his disability (classifier). According to the international Paralympic committer, there are six classes in badminton, namely: WH 1, WH2, SL 3, SL 4, SUi 5 and SS 6. More specifically, badminton in the Paralympic Games has the following categories (1) WH 1 (Wheelchair/ severe impairment), (2) WH 2 (Wheelchair/ minor impairment), (3) SL3 (Standing/ lower limb impairment/ minor), (4) SL4 (Standing/lower limb impairment/severe), (5) SUi5 (Standing/ upper limb impairment), (6) SS6 (Standing/ short stature).

In badminton, a number of factors, including physical, technical, tactical, and mental, help the players realize their potentials. Physical ability is a very significant and dominant factor that badminton players need to have [2]. To play badminton at a high level, there must be favorable circumstances in various fields. The competitive sport of badminton demands physical readiness, technique, tactics, mentality, and maturity of a champion [3].

Athletes are encouraged to perform better with a variety of biomotor. [4] It lists strength, agility, endurance, speed, coordination, and flexibility as common features of biomotor motion. Agility, on the other hand, is a key biomotor in badminton, where it plays a fairly dominant role in improving athletes' abilities. Agility is a part of fitness, a person's agility will have an impact on his overall fitness. This is in accordance with the statement[5] that coordination, balance, speed, agility, strength, and response time are important elements of physical fitness. [6] stating that to walk with high agility is required to be physically fit. A badminton player will be better at anticipating an upcoming shuttlecock the earlier he develops a move of high dexterity.

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Based on the description above and the results of observations made at the National Paralympic Committee of Yogyakarta Special Region, the researchers compiled a form of Exercise to improve the agility of badminton athletes with wheelchair disabilities.

METHOD

In this study, research with the development of Research and Development is used to produce a certain product. Then, the effectiveness of the product is tested [7] . The procedures developed by [7] are used in the design of this study, namely: Introduction Stage (1), Planning Stage (2), Planning and Revision Validation (3), Trials carried out with small-scale trials/small-scale revisions and large-scale trials/large-scale revisions (4), Final Products (5), and Conducting Effectiveness Tests (6). The research subject in this study is the target who will use the products, which are wheelchair badminton athletes.

DISCUSSION

Experts in the subject matter conducted an evaluation by using a questionnaire. The modified Likert scale is used as a measurement system. The results of the material expert's assessment on the types of exercise to improve agility for wheelchair badminton athletes are presented in Table 1 as follows.

Table 1. Data on material expert validation results in the Agility Exercise Types for Wheelchair Badminton Athletes Book

No	Aspect	Rill Score	Max Score	Percentage	Category
1	Materials Quality	50	60	83%	Very Good/ Very Feasible
2	Content	84	105	81%	Very Good/ Very Feasible
Total		134	165	81%	Very Good/ Very Feasible

Table 1 above shows the results of the assessment of material experts in the types of exercise to improve the agility of wheelchair badminton athletes, which is 83% for aspects of material quality included in the very good/ very feasible category, and 81% for aspects of content included in the very good/ very feasible category. Expert opinions and input on the results of validation are evaluated based on the results of validation after the material expert evaluates the developed product. The material expert's assessment of training form products to improve the agility of wheelchair badminton athletes has been made very feasible to be tested on a small scale as well as a large scale.

The assessment was carried out by media experts using a questionnaire. The measurement scale used is a modification of the Likert scale. The results of the material expert's assessment on the form of training to improve agility for wheelchair badminton athletes with are presented in Table 2 as follows:

Table 2. Media Expert Validity Results Data in Agility Exercise Types for Wheelchair Badminton Athletes Book

No	Aspect	Rill Score	Max Score	Percentage	Category
1	Cover Design	11	15	73%	Good/Feasible
2	Content Design	45	55	81%	Very Good/ Very Feasible
3	Size	4	5	80%	Good/ Feasible
Total		60	75	80%	Good/ Feasible

Table 2 above shows the results of the assessment of media experts in the types of Exercises to improve the agility of wheelchair badminton athletes, namely 73% for aspects of cover design into the category of very good/very feasible 81% for aspects of content design into the category of very good/very feasible, and 80% for aspects of size into the category of good/feasible. Expert opinions and input on the results of validation are evaluated based on the results of validation after the material expert evaluates the developed product. The material expert's assessment of training form products to improve the agility of wheelchair badminton athletes has been made very feasible to be tested on a small scale as well as a large scale.

In the t-test analysis using paired sample t test (df= n-1), namely to ascertain whether there is an increase in agility between pre-test and post-test. If t count > t table and the sig value is less than 0.05 (Sig < 0.05), then the conclusion of the study is considered significant. The following table shows the results of the effectiveness test between the pre-test data as follows.

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Table 3. T test of pre-test and post-test agility

Data	Mean	T count	Sig.	t_{table}	Difference	Percentage
Pre-test	16.73	9.939	0.000	2.306	1.46	8.73
Post-test	15.27					

The results of the t test in table 3 above show that there is a significant difference between pre-test and post-test, with a t value of 9.939>t table (df8) 2.306 and a significance value of 0.000<0.05. After athletes received a form of agility training for wheelchair disabled athletes, their average post-test agility score decreased to 15.26 seconds from the average pre-test agility score of 16.73 seconds. Based on these results, it can be said that wheelchair athletes with disabilities benefit from agility training because their agility increases by 8.73%.

CONCLUSION

Based on the results of the analysis, it can be said that the product, which is the book related the agility exercise types for wheelchair badminton athletes can be practiced and are feasible to be used. The form of the exercise consists of 10 forms. The assessment of media experts gets a percentage of 80% in the good/feasible category, while the assessment of material experts gets a percentage of 81% in the very good/very feasible category. With a p value of < 0.05 and an increase of 8.73%, this form of agility exercise for wheelchair badminton athletes is effective for improving their agility.

In an effort to produce effective exercise results, the use of media in this case reference books in the form of agility exercises for wheelchair badminton athletes plays an important role. The potential senses of athletes can be accommodated by the media in the form of books so as to improve exercise results. It is in accordance with the statement made by [8] that the nature of multimedia which is a combination of various elements of media which includes text, graphics, and animation is one of the superior qualities that are able to improve learning outcomes.

The book in the types of agility exercise for wheelchair badminton athletes can also be an exercising guide so that athletes do not experience boredom and saturation during training. It is reinforced by the results of the study, namely the physical condition training model of football referees that varied training models can make athletes not feel bored. In addition, a study by [9] find an association between the performance of wheelchair badminton athletes with physical fitness. According to the research, a zig-zag running modifier can improve the agility of wheelchair badminton athletes.

The results of the study with the output of exercise types items for wheelchair badminton athletes prioritize the physical condition of athletes' agility. If a coach wants to offer an agility exercising program, he or she needs to have a deeper understanding of the variations and types of exercise so that the athlete can easily develop his or her agility. In addition, agility exercises specific to the sport of badminton are well based on the energy system used in the sport and the characteristics of the sport movement. [10] It is feasible for a person to learn or improve movement in a technique in a sport that he is interested in through exercise, in accordance with the statement that exercise is a person's way to boost his potential. Exercise is a series of activities that are carried out progressively and regularly with the aim of improving the performance and abilities of an athlete. So that athletes do not get bored during exercising because there are many types of agility exercises. Badminton is one of the sports that are very popular by the community, therefore it needs to continue to be developed by everyone, especially in terms of coaching and community coaching as a foundation for talent development in the future.

Traits that indicate a change of direction forward, sideways (right-left), backward, or turning and turning are constant features of agility exercising methods. There are differences in agility exercising methods for each sport of course. As a result, coaches must be fully aware of the agility requirements in the sport they are going to train in.

The types of exercising developed also in addition to adding diversity to the types of disability training also aims to add the insight of a coach and athlete, so that athletes and coaches have a broader insight in developing the form of agility exercising in wheelchair badminton athletes so that it easier for them to achieve the expected training program goals.

REFERENCES

1) Khuluq, M.H, Kurniawan, A, Sunaryo, F.Y.A.B, & Prayitno, J.A. (2019). Modifikasi model power soccer wheelchair (kursi roda elektronik power soccer) sebagai alat latihan olahraga power soccer bagi atlet tuna daksa. E-Journal Pendidikan Olahraga, Vol 1 No 2
2) Andara, Edo Hari. 2018. Perbandingan Komponen Kondisi Fisik Bulutangkis Pada Atlit PB Fifa Sidoarjo dan atlit PB Satria Muda Sidoarjo U17. Juirnal Preistasi Olahraga, 3(1).
3) Purnama. (2010). Kepelatihan Bulutangkis Modern. Surakarta: Yuma Pustaka. Journal of Education, Health and Sport.
4) Sukadiyanto. (2011). Pengantar teori dan metodologi melatih fisik. Bandung: CV Lubuk Agung.
5) Lutan, Rusli, dkk. (2002). Pendidikan Kebugaran Jasmani: Orieintasi Pembinaan Di Sepanjang Hayat. Dirjen Pendidikan Dasar dan Menengah Dirjein OR. Jakarta
6) Hadi, Sutrisno. (1991). Analisa Butir untuk Instrument. Edisi pertama. Yogyakarta: Andi Offseit.
7) Sugiyono (2015). Metode Penelitian Kombinasi (Mix Methods). Bandung: Alfabeta.
8) Rusman. (2010). Model model pembelajaran mengembangkan profesionalisme guru. Jakarta: Rajawali Pres
9) Steininger, R. N., Strapasson, A. M., Cardoso, V. D., & Gaya, A. C. A. (2021). Para-Badminton: aptidão física reilacionada ao deiseimpeinho dei atleitas brasileiiros eim cadeiira dei rodas. Lecturas: Educación Física y Desportes. Buenos Aires. Vol. 26, n. 281 (2019), p. 123-136.
10) Bompa, T.O. (1994). Theory and methodology of training. Toronto: Kendall/ Hunt Publishing Company