Development of a training program in the special preparation period phase to improve (accuracy and speed) bowling skills in women cricket

by Susanto M.or

Submission date: 14-Apr-2023 05:00AM (UTC+0700)
Submission ID: 2063846447
File name: Development_of_a_training_program_in_the_special.pdf (41.3M)
Word count: 6255
Character count: 32002

fizjoterapia polska
nr 1/2023 (23)

Development of a training program in the special preparation period phase to improve (accuracy and speed) bowling skills in women cricket

Opracowanie programu treningowego w specjalnym okresie przygotowawczym w celu doskonalenia (dokładności i szybkości) umiejętności gry w kręgle zawodniczek krykieta

Nur Indah Atifah Anwar[1(A,B,C,D,E,F,G)], Sumaryanto[1(B,C,E,F)], Yudik Prasetyo[1(A,C,F,G)], Susanto[2(C,D,E,F)]

[1]Sports Science Study Program, Faculty of Sports, Yogyakarta State University, Yogyakarta, Indonesia
[2]State Islamic University Sayyid Ali Rahmatullah Tulungagung, Tulungagung, Indonesia

Abstract

Introduction. Good physical condition has many advantages, including athletes can and easily learn new skills that are relatively difficult, not get tired easily in participating in training and matches better. Purpose. This study was to intervene during the special preparation phase to improve the accuracy and speed of bowling skills in female cricket athletes. Materials and Methods. Preparation of a Special Preparation Stage Training Program to Improve Bowling Skills (Accuracy and Speed) for Female Cricket Athletes of South Sulawesi with a sample of 15 people. This type of research is a quantitative descriptive research. Data analysis used SPSS 21 software with descriptive tests, normality tests and hypothesis tests. Results. The results of the analysis of the effect of accuracy training variables on female cricket athletes obtained an average pretest accuracy value of 54.87 and a posttest accuracy value of 58.00 with a sig value of 0.000. The speed training program for female cricket athletes obtained an average pre-test speed value of 14.3373 and a post-test speed value of 13.2380, with a sig value of 0.000 and a difference of 1.0993 was obtained, so there was an increase in the speed training program, the average value -the average pre test bowling skill was 16.20 and the post test bowling skills score was 18.60, with a sig score of 0.000. and obtained a difference of 2,400. Conclusion. Based on the results of the data and discussion of this study, it can be concluded that the Development of a Special Preparatory Stage Training Program to Improve Bowling Skills (Accuracy and Speed) in Female Cricket Athletes.

Keywords

accuracy, speed and bowling skills

Streszczenie

Wstęp. Dobra kondycja fizyczna ma wiele zalet, między innymi taką, że sportowcy potrafią i łatwo przyswajają nowe umiejętności, nawet takie, które są stosunkowo trudne, nie męczą się łatwo uczestnicząc w treningach i rozgrywkach. Cel. Niniejsze badanie miało na celu ingerencję podczas specjalnej fazy przygotowawczej w celu poprawy dokładności i szybkości w grze w kręgle u zawodniczek krykieta. Materiał i metody. Przygotowanie specjalnego programu treningowego na etapie przygotowawczym w celu poprawy umiejętności gry w kręgle (dokładność i szybkość) dla zawodniczek krykieta z Południowego Sulawesi na próbie 15 osób. Zastosowany rodzaj badań to ilościowe badania opisowe. Do analizy danych wykorzystano oprogramowanie SPSS 21 z testami opisowymi, testami normalności i testami hipotez. Wyniki. Wyniki analizy wpływu zmiennych treningu dokładności na zawodniczki krykieta dały średnią wartość dokładności przed badaniem w wysokości 54,87 i wartość dokładności po badaniu w wysokości 58,00 przy istotności 0,000. Program treningu szybkościowego dla zawodniczek krykieta umożliwił uzyskanie średniej wartość prędkości przed badaniem w wysokości 14,3373 i wartość prędkości po badaniu w wysokości 13,2380, przy istotności 0,000 i różnicy 1,0993. Zaobserwowano, że nastąpił wzrost prędkości, wartość średnia - średnia umiejętność gry w kręgle przed badaniem wyniosła 16,20, natomiast po badaniu wynik osiągnął wartość 18,60, przy istotności 0,000 i różnicy w wysokości 2400. Wniosek. Na podstawie wyników i dyskusji z niniejszego badania można stwierdzić korzystny wpływ opracowania programu szkolenia na etapie przygotowawczym w celu poprawy umiejętności gry w kręgle (dokładności i szybkości) u zawodniczek krykieta.

Słowa kluczowe

dokładność, szybkość i umiejętności gry w kręgle

doi.org/10.56984/8ZG07B142

Introduction

The development of cricket is supported by good research, this is evidenced by several recent studies related to cricket. One of the basic techniques of cricket that is enough to determine victory is the basic technique of bowling. The focus of research on the sport of cricket is speed and accuracy. The application of training programs to increase bowling speed in terms of speed and accuracy is the coach's main focus. This shows that an increase in bowling speed does not cause a significant change in bowling accuracy [1]. Measures of strength have been significantly correlated with throwing speed, whereas interventions involving developing strength have been shown to increase throwing speed [2].

Accuracy and speed are important components that must be present in bowling skills. Better physical condition has many advantages, including athletes being able and easy to learn new skills that are relatively difficult, not getting tired easily in participating in training and matches better, recovery time is faster and being able to complete relatively heavy exercises. In addition, measurable physical training can increase accuracy or precision [3]. Besides that, physical exercise is very influential in increasing athlete's confidence and reducing the risk of injury. Confidence can also be trained with a variety of fun games [4]. Strength training can reduce the risk of injury due to lower loads compared to strength training, and consequently the physical effort demands during training sessions are lower. Therefore, strength training should be recommended as an attractive training stimulus to improve women's lower extremity strength, functional capacity and postural control. Physical exercise must be carried out in a measurable manner, and can be done anywhere according to the training period. When an athlete does not carry out regular physical exercise, of course, he cannot display his technique to the fullest. Programming must be carried out to improve physical condition, that training program is part of training management which must be prepared and implemented properly and correctly [5].

This cricket sport focuses on increasing the strength, speed, flexibility of the trunk and power of cricket players. Sprint training would be an effective way to improve leg muscle strength related to bowling speed and cricketer batting performance. This is corroborated by Pote L & Christie C who found that the aim of the CricFit intervention was to improve the general physical fitness of cricketers. [6]. The intervention consisted of a number of exercises centered on the movement demands associated with the sport of cricket, as well as injury prevention drills. Thus the program is focused on aspects such as agility, strength, endurance, speed, flexibility. Endurance training can be done with a variety of exercises such as playing water exercises [7].

To achieve peak performance, the trainer makes a good training periodization, because it is a very important step in terms of effective training. Bompa & Buzzichelli explained that training periodization in the context of there are two important components, namely: (1) annual training periodization planning and (2) dominant biomotor periodization. The annual practice periodization is divided into three phases, namely: (1) the preparation phase, (2) the competition phase and (3) the transition phase, while the preparatory phase is divided into a general preparation phase and a special preparation phase. [8]. In supporting training at this periodization stage, it is necessary to pay attention to the adequacy of fluid intake [9]. Fluids during the training period (before, during and after exercise) need to be adjusted according to needs [10]. However, there were a number of problems that occurred, especially in female cricket athletes in South Sulawesi related to the strength training model, which lacked models and variations because they focused on body weight training models.

The results of interviews with South Sulawesi Cricket coaches explained that there were several problems in fostering cricket such as inadequate facilities and infrastructure, then related to physical training specifically in training the strength of the trainers not all of them understood the method of strength training in accordance with the characteristics of the sport of cricket, and there was also no program specifically for physical training that gradually leads to the performance of cricket athletes. Of the several basic techniques in cricket, the worst score is bowling skills. Some can perform bowling skills but lack the speed and accuracy of bowling.

The bowling technique requires good strength so that a batter cannot score. The person who throws the ball is called a bowler. How to do bowling with the body sideways towards the batsman and the hands are rotated from the bottom up with the elbows and arms straight and releasing the ball by bouncing on the pitch right in front of the batsman (hitter), with the target hitting the ball with a stump. The purpose of bouncing the ball on the pitch is to confuse the bastman so the batsman cannot hit the ball. The main goal of the bowler is to make the batsman die/aut, the batsman cannot hit the ball and limit the value of the batsman team. As for the results of my monitoring, I found that the bowling skills of the women cricket athletes of South Sulawesi were at the low category level.

Based on the background of the problems described above, the researcher is interested in intervening in the special preparation period phase to improve the accuracy and speed of bowling skills in women cricket athletes. Therefore, this research was conducted to fill the gaps in previous research, namely to look more closely at training programs to increase the speed and accuracy of throwing in women's cricket athletes. This study aims to develop a physical training model construction in a special preparatory period phase to improve the accuracy and speed of bowling skills in women cricket athletes.

Method

This study uses development research methods. This research emphasizes more on efforts to produce something, test it in the field, revise it until the results obtained are confirmed to be satisfactory. scientific research that examines a theory, model, concept, or principle, and uses the results to develop a product. Development research always begins with a need, a problem that requires a solution using a particular product. The development model used by researchers is the Borg and Gall research and development model. [11].

Development procedure

The steps are: a).Information gathering, b) planning, c). Product draft development, d). Initial field trial, e) revision of trial re-

doi.org/10.56984/8ZG07B142

sults, f). Field trials, g). Product improvement and revision, h). Field implementation test, i). Product improvement and final revision, j). Dissemination. The research design developed in this study was the development of pre-competition physical training for strength, power and bowling skills, while the steps taken in this trial included; (1) determine the research subject group; (2) carry out the pre-test (O1); (3) try out the developed model; (4) carry out post-test (O2); (5) find the average score of pre-test and post-test and compare between the two; (6) looking for the difference between the two averages through statistical methods (t-test) to determine whether there is a significant effect from the use of the training model. The research subjects in this study were women cricket athletes in general which were divided into 10–15 people.

Data collection

The data collection method for needs analysis uses interviews with cricket coaches and athletes to disseminate surveys to cricket coaches in several regions of South Sulawesi. Data collection technique using the Delphi method to validate material and media professionals quantitatively through questionnaires and qualitatively through oral and written suggestions. Limited and extensive test data collection techniques are quantitative in questionnaires and qualitative when included in the form of oral and written suggestions. Data collection techniques for efficacy tests using experimental quantitative methods. The instrument used is the Likert Scale: (1) very inappropriate, (2) not appropriate, (3) quite appropriate, (4) appropriate, (5) very appropriate, while the instrument tests the effectiveness of bowling skills. Points are calculated from the total valid score. If the ball enters the goal area it counts as the point value. Balls out of area do not count. If the ball hits the stump and the ball doesn't go through the stump, the testee still gets points [12]. The effectiveness test instruments used in this study were 100 meter running speed, Bowling Skills.

Data analysis technique

The effectiveness test used was an experiment with a one-group pretest-posttest design. Hypothesis testing using the Wilcoxon nonparametric test compared the pretest and posttest results of the paired groups. data that the data collected was analyzed using the SPSS application version 20.

Results

Empirical data obtained in the field in the form of the effect of the training program (Accuracy and Speed) on improving bowling skills in South Sulawesi Women Cricket Athletes, data tabulation was first held to facilitate further testing. The data analysis used in this study is an analysis with inferential statistical techniques.
Furthermore, testing of the analysis requirements was carried out, namely the normality test and data homogeneity. To test the hypothesis using the t-test to find the effect of the training program (Accuracy and Speed) on improving bowling skills in Women Cricket Athletes of South Sulawesi with the requirements that the data must be in a normal and homogeneous distribution.

Descriptive Analysis

Descriptive data analysis is intended to obtain an overview of research data on the effect of the training program (Accuracy and Speed) on improving bowling skills in South Sulawesi Women Cricket Athletes so that it is easier to interpret the results of the data analysis. The descriptive data is intended to be able to interpret and give meaning to the data on the influence of the training program (Accuracy and Speed) on improving bowling skills in the South Sulawesi Women's Cricket Athletes, the data is successively as shown in the following table:

Table 1. Summary of the results of the analysis of the effect of the training program (Accuracy and Speed) on improving bowling skills in South Sulawesi Cricket Women Athletes

Category	N	Range	Minimum	Maximum	Sum	Mean	SD	Variances
Accuracy pre test	15	13	48	61	823	54.87	4.224	17.838
Post Accuracy test	15	16	50	66	870	58.00	4.736	22.429
Pre-test Speed	15	2.10	13.24	15.34	215.06	14.337	5.853	343
Post Speed test	15	2.01	12.11	14.12	198.57	13.238	5.687	323
Bowling Skills Pre test	15	14	9	23	243	16.20	4.296	18.457
Bowling Skills post test	15	15	11	26	279	18.60	4.239	17.971

From table 1, the results of the data on the influence of the training program (accuracy and speed) on improving bowling skills for women cricket athletes in South Sulawesi are as follows:

1. For accuracy pre-test data, the value of N is 15, range 13, minimum 48,maximum 61, Sum 823, mean 54.87, Standard Deviation 4.224, variance 17.838.
2. For accuracy post-test data, the value of N is 15, range 16, minimum 50, maximum 66, Sum 870, mean 58.00, Standard Deviation 4.736, variance 22.429.
3. For the speed pre-test data, the value of N 15 is obtained, the range is 2.10, the minimum 13.24, maximum 15.34, sum 215.06, mean 14.337, Standard Deviation 5.853, variance 343.
4. For the speed post-test data, the value of N is 15, the range is 2.01, the minimum 12.11, maximum 14.12, Sum 198.57, mean 13.238, Standard Deviation 5.687, variance 323.
5. For bowling skill pre-test data, the value of N is 15, 14, minimum 9, maximum 23, Sum 243, mean 16.20, Standard Deviation 4,.296, variances 18,457.
6. For the bowling skill post-test data, the value of N is 15, the minimum is 1511, maximum 26, Sum 279, mean 18.60, Standard Deviation 4.239, variances 17,971.

doi.org/10.56984/8ZG07B142

Data Normality Test

One of the assumptions that must be met in order for parametric statistics to be used is that the data follows a normal distribution, if the test turns out that the data is normally distributed, it means that the parametric statistical analysis has been fulfilled. smirnov. The results of the data normality test can be seen in the table:

Table 2. Summary of the results of the normality test. The effect of the training program (Accuracy and Speed) on improving bowling skills in South Sulawesi Women Cricket Athletes.

Category	N	KS-Z	Asymp. Sig (2 tailed)	Ket.
Accuracy pre test	15	0.455	0.986	Normal
Post Accuracy test	15	0.645	0.799	Normal
Pre-test Speed	15	0892	0.404	Normal
Post Speed test	15	1,049	0.221	Normal
Bowling Skills Pre test	15	0.371	0.999	Normal
Bowling Skills post test	15	0.334	0.708	Normal

Based on table 2 of the variable Effect of the training program (Accuracy and Speed) on improving bowling skills in the South Sulawesi Women Cricket Athletes above, it can be obtained that the data normality test is as follows:

1. The pre-test data for the effect of the Accuracy training program on the South Sulawesi Cricket Women Athletes obtained an asymp value 0.986 (P > 0.005), with the asymp 0.986 > 0.005 then for the pre-test data the effect of the Accuracy training program on Women Cricket Athletes of South Sulawesi follows a normal distribution or normal distribution.
2. The post test data on the effect of the Accuracy training program on the South Sulawesi Cricket Women Athletes obtained an asymp value 0.799 (P > 0.005), with the asymp 0.779 > 0.005 then for post test data the effect of the Accuracy training program on Women Cricket Athletes of South Sulawesi follows a normal distribution or normal distribution.
3. The pre-test data for the effect of the speed training program on the South Sulawesi Cricket Women Athletes obtained an asymp value 0.404 (P > 0.005), with the asymp 0.404 > 0.005 then for the pre-test data the effect of the speed training program on the South Sulawesi Cricket Women Athletes follows a normal distribution or normal distribution.
4. The post test data for the effect of the speed training program on the South Sulawesi Cricket Women Athletes obtained an asymp value 0.221 (P > 0.005), with the asymp 0.221 > 0.005 then for the post test data the effect of the speed training program on the South Sulawesi Cricket Women Athletes follows a normal distribution or normal distribution.
5. The pre-test data on the influence of the bowling skill training program on the South Sulawesi Cricket Women Athletes obtained an asymp value 0.999 (P > 0.005), with the asymp 0.999 > 0.005 then for the pre-test data the influence of the bowling skill training program on the South Sulawesi Cricket Women Athletes follows a normal distribution or normal distribution.
6. The post test data on the effect of the bowling skills training program on the South Sulawesi Women Cricket Athletes obtained an asymp value 0.708 (P > 0.005), with the asymp 0.708 > 0.005 then for the post test data the effect of the bowling skill training program on the South Sulawesi Cricket Women Athletes follows a normal distribution or normal distribution.

Homogeneity Test

The results of the variance homogeneity test showed that there were two groups, namely the group thatThe effect of the training program (Accuracy and Speed) on improving bowling skills in South Sulawesi Women Cricket Athletes, the results of the homogeneity test in the initial conditions of all variables can be seen in the table 3 in the following.

Table 3. Accuracy homogeneity test results

Levene Statistics	df1	df2	Sig.
0.060	1	28	0.808

From the results of the homogeneity test above, it shows that the data has uniformity which is not significantly different with a significant = 0.808 > 0.005 means that all variables have a homogeneous variance.

Table 4. Homogeneity test results: speed

Levene Statistics	df1	df2	Sig.
0.010	1	28	0.919

doi.org/10.56984/8ZG07B142

From the results of the homogeneity test above, it shows that the data has uniformity which is not significantly different with a significant = 0.919 > 0.005 means that all variables have a homogeneous variance.

Table 5. Homogeneity test results: bowling skills

Levene Statistics	df1	df2	Sig.
0.048	1	28	0.828

From the results of the homogeneity test above, it shows that the data has uniformity which is not significantly different with a significant = 0.828 > 0.005 means that all variables have a homogeneous variance.

Hypothesis testing

For the purpose of testing the hypothesis, the average difference test was carried out between the research groups, namely the training program (Accuracy and Speed) on improving bowling skills in South Sulawesi Cricket Women Athletes. The statistical test technique used is the regression test (independent). The summary of the results of the analysis can be seen in the following table:

Table 6. Summary of the results of the data regression test on the effect of the Accuracy training program on Women Cricket Athletes of South Sulawesi

Variable	N	Mean	Sig. (2 tailed)
Pre-test: accuracy	15	54.87	0.000
Post-test: accuracy	15	58.00	0.000
Difference		3.133	-

Based on table 6 above, it can be seen that the results of the variable regression testthe influence of the Accuracy training program on Women Cricket Athletes of South Sulawesiobtained an N value (sample) of 15 people, a mean pre-test accuracy value of 54.87 and an accuracy post-test value of 58.00, with a sig value of 0.000. as well as gain distinction of 3.133. Then this difference becomes the influence or increase inAccuracy training program for South Sulawesi Cricket Women Athletes.

Table 7. Summary of the results of the regression test on the effect of the speed training program on women cricket athletes in South Sulawesi

Variable	N	Mean	Sig. (2 tailed)
Pre-test: speed	15	14.3373	0.000
Post-test: speed	15	13.2380	0.000
Difference		1.0993	-

Based on table 7 above, it can be seen that the results of the variable regression testthe influence of the speed training program on the South Sulawesi Cricket Women Athletesobtained an N value (sample) of 15 people, a mean pre-test speed value of 14.3373 and a post-speed test value of 13.2380, with a sig value of 0.000. as well as gain distinctionof 1.0993. Then this difference becomes the influence or increase inspeed training program for women cricket athletes in South Sulawesi.

Table 8. Summary of the results of the data regression test on the influence of the bowling skill training program on the South Sulawesi Women Cricket Athletes

Variable	N	Mean	Sig. (2 tailed)
Pre-test: bowling skills	15	16.20	0.000
Post-test: bowling skills	15	18.60	0.000
Difference		2.400	-

Based on table 8 above, it can be seen that the results of the variable regression testthe influence of the bowling skills training program on the South Sulawesi Cricket Women Athletesobtained an N value (sample) of 15 people, the mean pre-test value bowling skills 16.20 and bowling skills post-test score 18.60, with a sig value of 0.000. as well as gain distinctionof 2.400. Then this difference becomes the influence or increase inbowling skill training program for South Sulawesi Cricket Women Athletes.

doi.org/10.56984/8ZG07B142

Discussion

This experimental research begins with pretest data collection in the form of bowling skills for each sample. This is done to describe the initial conditions of the sample before being given treatment in the form of a specially designed training program to improve accuracy and speed when playing bowling. Besides that, arm power and eye coordination are needed for accuracy [13]. Leg strength, wrist flexibility contributes sufficiently to accuracy [14]. On the other hand, distance also affects the speed of the bowling ball [15]. For the data collection process, the authors measure it with a bowling skill test, this is done to further emphasize the objectivity of the research results. In this study, the sample consisted of 15 cricket athletes from South Sulawesi Province. Based on the results of the author's tertiary observations, interviews and process evaluation carried out, the author makes a sample escalation chart every day. In the first and second meetings, several athletes seemed to be still not used to following the accuracy and speed training program for bowling skills. This corresponds to what the sample says. This particular accuracy and speed practice program is new to me but great for improving your bowling skills as it is very detailed. Example #1, in-depth interview, January 17, 2023).

At the fourth meeting, the athletes got used to it and the author provided knowledge on how to quickly adapt to the accuracy and speed training program in bowling skills. The author also observes athletes who follow this training program to check whether it is correct or not. This is done because there are three objectives of experimental research, namely changing conditions, changing mindsets and changing behavior. However, in this study only took data on aspects of changing conditions where the conditions in the context of this study were bowling skills in terms of accuracy and speed. For the other two aspects the author still focuses on providing knowledge about biomechanics in bowling skills and tells when you want to improve your bowling skills you can use this type of training program. This is in line with the training principle put forward by Bompa Sports are sports activities that are systematic for a long time, progressively improved and individualized which lead to the characteristics of human psychological and physiological functions to achieve specified goals. [8]. In addition, the drill training method has quite an influence on bowler accuracy [16]. Practice at real and close range will affect accuracy and speed [15].

At the fifth meeting, progress was already visible, therefore the authors took the initiative to do a posttest again and it turned out that there had been progress. This can be seen from the movement patterns displayed by athletes, the accuracy and speed when performing basic bowling techniques while playing. Posttest in this case is to measure the escalation caused by the treatment given. The principles of the exercise must be adapted to the objectives of the exercise (Yulianto., 2019). The author synthesizes that there is an increase, although it is still not significant. Therefore, the authors continued the treatment until the increase was deemed statistically significant.

Meeting the six athletes was very close and they felt comfortable doing a special bowling training program that emphasized accuracy and speed. This is illustrated by the results of interviews with the following samples: I am used to doing this exercise, and I immediately feel the positive effects. As I play, I feel my bowling accuracy and speed improve (Example #3, in-depth interview, Jan. 23, 2023). From the narrative of the sample, it is very well illustrated the effectiveness of this training program. This effectiveness is because this training program focuses on accuracy and speed in basic bowling techniques, so the sample only focuses on these two aspects. This reinforces Sukadiyanto's explanation (2005) that in principle training is a process of change in a better direction, namely improving the physical quality of the functional abilities of the body's organs and the psychological quality of the trainees. Apart from that, the principles in training are through the stages of heating, conditioning and calming [17]. When the sample's attention is not divided with other exercises, concentration and focus can be used optimally. Concentration exercises greatly affect skill improvement (Akbar et al., 2019). In addition, concentration can create relaxation for athletes [18]. This is also proven through the results of interviews with the following samples: The training program is very simple, because it only focuses on aspects of accuracy and speed. I enjoyed doing this exercise because it was new to me (Example #6, in-depth interview, Jan. 26, 2023).

This effectiveness is not only due to the training program that is made very detailed and specific, the program that is carried out repeatedly is also a factor in the effectiveness and efficiency of the training program. The effectiveness of game-based training in bowling can lead to practice [19]. This was explained by Harsono that training can also be said to be a systematic training process that is carried out repeatedly where the amount of training load is increasing day by day[20]. The treatment in this study was carried out in eight meetings. At the eighth meeting the authors found that the sample bowling skills had developed and experienced a very significant increase. Therefore, treatment was discontinued. Another factor that causes the training program to develop bowling skills is that the sample is motivated to take part in the training program because it is different from the usual exercises. In addition, other factors that develop bowling skills are hand and eye coordination, and legs [21]. Of the fifteen samples, accuracy and speed when bowling has increased. So that it can be justified that the accuracy and speed training program can improve the bowling skills of cricket athletes in South Sulawesi Province.

Conclusions

From the conclusions of this study, recommendations will be put forward in the form of suggestions for the application and development of research results.With the research title that isDevelopment of a Training Program in the Special Preparatory Period Phase to Improve (Accuracy and Speed) Bowling Skills in Women Cricket Athletes of South Sulawesi.

Based on the results of the data and discussion of this study, it can be concluded that Development of a Training Program in the Special Preparatory Period Phase to Improve (Accuracy and Speed) Bowling Skills in Women Cricket Athletes of South Sulawesi, obtained the variable value of the effect of the accuracy training program on the South Sulawesi Cricket Women Athletes obtaining a mean pre-test accuracy value of 54.87 and an accuracy post-test value of 58.00, with a sig value of 0.000. and obtained a difference of 3.133, the variable effect of the speed training program on the South Sulawesi Cricket Women Athletes obtained a mean pre-test speed value of 14.3373 and a post-speed test value of 13.2380, with a sig value of 0.000. and obtained a difference of

doi.org/10.56984/8ZG07B142

1.0993, and the influence variable of the bowling skills training program on Women Cricket Athletes of South Sulawesi obtained a mean pre-test bowling skills score of 16.20 and a post-test bowling skills score of 18.60, with a sig value of 0.000. and obtained a difference of 2.400.

Adres do korespondencji / Corresponding author

Nur Indah Atifah Anwar

E-mail: nurindah.2021@student.uny.ac.id

Acknowledgments

We thank the South Sulawesi Province Bowling Club for giving us permission to complete this research.

Piśmiennictwo/ References

1. Huang, Q., Wu, M., Wu, X., Zhang, Y., & Xia, Y. (2022). Muscle-to-tumor crosstalk: The effect of exercise-induced myokine on cancer progression. Biochimica et Biophysica Acta (BBA)-Reviews on Cancer, 188761.
2. Brightwell, C. R., Latham, C. M., Thomas, N. T., Keeble, A. R., Murach, K. A., & Fry, C. S. (2022). A glitch in the matrix: the pivotal role for extracellular matrix remodeling during muscle hypertrophy. American Journal of Physiology-Cell Physiology, 323(3), C763–C771.
3. Gibson, A. L., Smith, J., & Gibson, D. L. (2022). Conducting Adult Client Field-Based Assessments Most Anywhere. ACSM's Health & Fitness Journal, 26(5), 29–44.
4. Susanto, S. (2022). Traditional Sport-Based Physical Education Learning Model in Character Improvement and Critical Thinking of Elementary School Students. SPORTS SCIENCE AND HEALTH, 24(2), 165-172.
5. Decheline, G., Widowati, A., Maryani, N. T. S., Ali, M., Aqobah, Q. J., Barikah, A., & Zawawi, H. D. (2020). The Effect of Bow Training on the Endurance of the Arm Muscles of the Beginner Archery at Kobar Club, Jambi City.
6. Kuswahyudi, Setiakarnawijaya, Y., Dlis, F., Widiastuti, Tangkudung, J., & Asmawi, M. (2021). Correlation study between arm muscle endurance and arm length and accuracy of 30-meter arrow shots in a national round. Journal of Physical Education and Sport, 21(4), 2357–2363.https://doi.org/10.7752/jpes.2021.s4316.
7. Verawati, I., Suprayetno, & Valianto, B. (2020). The Effects of Progressive Muscle Relaxation on Concentration in Archery Atheletes at the UNIMED Club. 1st Unimed International Conference on Sport Science, 23(UnICoSS 2019), 70–73. https://doi.org/10.2991/ahsr.k.200305.022.
8. Putra, G. N., Hidayatullah, M. F., & Purnama, S. K. (2022). Relationship of Arm Muscle Strength, Arm Muscle Endurance, Abdominal Strength and Balance with Arrow Achievement. International Journal of Multidisciplinary Research and Analysis, 05(01), 128–132. https://doi.org/10.47191/ijmra/v5-i1-17.
9. Simsek, D., Cerrah, A. O., Ertan, H., & Soylu, R. A. (2018). Muscular coordination of movements associated with arrow release in archery. South African Journal for Research in Sport, Physical Education and Recreation, 40(1), 141–155.
10.Susanto, S., Siswantoyo, S., Prasetyo, Y., & Putranta, H. (2021). The effect of circuit training on physical fitness and archery accuracy in novice athletes. Physical Activity Review, 1(9), 100-108.
11. Han, J., Anson, J., Waddington, G., Adams, R., & Liu, Y. (2015). The Role of Ankle Proprioception for Balance Control in relation to Sports Performance and Injury. ScientiaSinica,2015,117–127. https://doi.org/https://doi.org/10.1155/2015/842804.
12. Sarro, K. J., Viana, T. D. C., & De Barros, R. M. L. (2021). Relationship between bow stability and postural control in recurve archery. European Journal of Sport Science, 21(4), 515–520.
13. Chiu, L. Z. F. (2018). Biomechanical methods to quantify muscle effort during resistance exercise. Journal of Strength and Conditioning Research, 32(2), 502–513. https://doi.org/10.1519/jsc.0000000000002330.
14. Taha, Z., Mat-Jizat, J. A., Omar, S. F. S., & Suwarganda, E. (2016). Correlation between Archer's Hands Movement while Shooting and its Score. Procedia Engineering, 147, 145–150. https://doi.org/10.1016/j.proeng.2016.06.204.
15. Taha, Z., Muazu Musa, R., Razali Abdullah, M., Azrai Mohd Razman, M., Ming Lee, C., Azizi Adnan, F., Amirul Abdullah, M., & Haque, M. (2017). The Application of Inertial Measurement Units and Wearable Sensors to Measure Selected Physiological Indicators in Archery. Asian Journal of Pharmaceutical Research and Health Care, 9(2), 85. https://doi.org/10.18311/ajprhc/2017/11046.
16. Sirufo, M. M., Bassino, E. M., De Pietro, F., Ginaldi, L., & De Martinis, M. (2020). Microvascular damage in a young female archer assessed by nailfold videocapillaroscopy: A case report. International Journal of Environmental Research and Public Health, 17(12), 1–9. https://doi.org/10.3390/ijerph17124218.
17.Sax van der Weyden, M., Toczko, M., Fyock-Martin, M., & Martin, J. (2022). Relationship between a Maximum Plank Assessment and Fitness, Health Behaviors, and Moods in Tactical Athletes: An Exploratory Study. International Journal of Environmental Research and Public Health, 19(19), 12832
18. Castillo-Rodríguez, A., Onetti-Onetti, W., Mendes, R. S., & Chinchilla-Minguet, J. L. (2020). Relationship between leg strength and balance and lean body mass. Benefits for active aging. Sustainability (Switzerland), 12(6). https://doi.org/10.3390/su12062380.
19. Innes, E. (1999). Handgrip strength testing: A review of the literature. Australian Occupational Therapy Journal, 46(3), 120–140. https://doi.org/10.1046/j.1440-1630.1999.00182.x.
20. Kuswahyudi. (2018). The Contributing Factors to Athletes' Achievement in Archery. 2nd International Conference on Sports Science, Health and Physical Education, 1(10), 223–226. https://doi.org/10.5220/0007058402230226.
21. Tian, H., Li, H., Liu, H., Huang, L., Wang, Z., Feng, S., & Peng, L. (2022). Can Blood Flow Restriction Training Benefit Post-Activation Potentiation? A Systematic Review of Controlled Trials. International Journal of Environmental Research and Public Health, 19(19), 11954.
22. Taha, Z., Haque, M., Musa, R., Abdullah, M. R., Maliki, A. B. M., Mat-Rashid, S. M., Kosni, N. A., & Adnan, A. (2017). Analysis of biological and mechanical related performance parameters of Malaysian senior youth archers. Advances in Human Biology, 7(3), 137. https://doi.org/10.4103/aihb.aihb_35_17.
23. Dan, P., Stability, C., Side, D., Hip, L., Dan, A., Crunch, O., & Keseimbangan, T. (2016). Pengaruh Latihan Core Stability Statis (Plank dan Side Plank) dan Core Stability Dinamis (Side Lying Hip Abduction dan Oblique Crunch) Tterhadap Keseimbangan. Journal of Physical Education Health and Sport, 3(2), 96–103.
24. Açıkada, C., Hazır, T., Asçı, A., Aytar, S. H., & Tınazcı, C. (2019). Effect of heart rate on shooting performance in elite archers. Heliyon, 5(3), 1–11.

doi.org/10.56984/8ZG07B142

Development of a training program in the special preparation period phase to improve (accuracy and speed) bowling skills in women cricket

ORIGINALITY REPORT

10%	9%	4%	2%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

MATCH ALL SOURCES (ONLY SELECTED SOURCE PRINTED)

4%

★ jurnal.univpgri-palembang.ac.id

Internet Source

Exclude quotes	On	Exclude matches	< 1%
Exclude bibliography	On		