

## TRADITIONAL SPORTS

MADE AGUS DHARMADI<sup>1(A-F)</sup>, NI LUH PUTU SPYANAWATI<sup>2(E-F)</sup>

1 ORCID: 0000-0002-9277-0728

Universitas Pendidikan Ganesha, Department of Sport Training Education, Faculty of Sport and Health (Indonesia)

2 Universitas Pendidikan Ganesha, Department of Physical Education, Health and Recreation, Faculty of Sport and Health (Indonesia)

Corresponding Author: Made Agus Dharmadi, Universitas Pendidikan Ganesha, Department of Sport Training Education, Faculty of Sport and Health (Indonesia). Jalan Raya Jineng Dalem Buleleng, Bali-Indonesia, phone: +6285237876593;

e-mail: [agus.dharmadi@undiksha.ac.id](mailto:agus.dharmadi@undiksha.ac.id)

# The Effect of 6-week Traditional Balinese Game of *Megoak-goakan* on the Running Speed of Junior *Pencak Silat* Athletes

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**Key words:** traditional Balinese game, *Megoak-goakan*, running speed, junior *Pencak Silat* athletes

### Abstract

**Background.** The traditional Balinese game of *meoak-goakan* is a game of Balinese cultural heritage and tradition since the colonial era.

**Problem and aim.** The problem is whether there is a difference in the effect of the traditional Balinese game *meoak-goakan* on the running speed of junior *pencak silat* athletes. This study aimed at determining the effect of the traditional Balinese game of *meoak-goakan* on the running speed of junior *pencak silat* athletes in *Buleleng* Regency

**Material and Methods.** This research utilized quasi-experimental method, which is one of the quantitative research methods. The samples of this study consisted of junior *pencak silat* athletes at *Club Bakti Negara Banyuning (BNB)* in *Buleleng* Regency who were selected by simple random sampling of 36 people, consisting of 18 men and 18 women with an age range of 9-15 years.

**Result.** 1) there was a difference in the effect of those taking part in the traditional Balinese game of *meoak-goakan* on the running speed of junior *pencak silat* athletes, 2) there was no difference in the effect of those taking part in conventional training on the running speed of junior *pencak silat* athletes, 3) there was a difference in the effect on both group and in a follow-up test, it was found that the traditional Balinese game of *meoak-goakan* in *pencak silat* training had better results than those using conventional training.

**Conclusion.** it was found that the traditional Balinese game of *meoak-goakan* had a positive effect on the running speed of junior *pencak silat* athletes.

### Introduction

The traditional Balinese game of *meoak-goakan* has been a cultural heritage since the colonial era in Bali. This game originated from *Buleleng* Regency, precisely *Panji* Village, *Sukasada* Sub-District, *Buleleng* Regency, Bali-Indonesia [Kertya 2010]. *Megoak-goakan* game is played as a daily sport for Balinese people to fill their spare time and as a means of recreation. Historically, *goak* means crow, and *meoak-goakan* is a game inspired by the behavior of crows who are playing and fighting for prey with their friends. Furthermore, this game also has

a high historical value because the *goak* troops in the era of the *Buleleng* kingdom were great war troops and were difficult to defeat by the colonizers at that time. This game was often played by the people of *Buleleng* when facing war so that the people became healthy, enthusiastic, and well-trained. In Bali, this traditional Balinese game has been included in the physical education curriculum at school, as one of the subjects in school. This game was selected because, in addition to historical value and efforts to preserve culture and traditions, it has empirically been able to improve children's physical abilities [Dharmadi *et al.* 2022].

On the other hand, *pencak silat* is a sport inherited from the ancestral heritage of the Indonesian people, which continues to develop through schools of *pencak silat* that thrive in Indonesia as well as in Asian countries. In Indonesia, it is *pencak silat* that is widely practiced as it originates from there. Moreover, “Traditions of *pencak silat* have been recently inscribed by UNESCO on the Representative List of the Intangible Cultural Heritage of Humanity [Razak *et al.* 2022]. *Pencak silat* for Indonesia is a leading branch of sport that has the potential to win in world events. In *pencak silat*, speed is very much required, because with a high speed of movement, it will be difficult for the opponent to predict where the hands and feet will move, or with high speed the opponent will have difficulty defending [Lungit Wicaksono, Totok Sardianto, and Dimas Duta Putra Utama 2020]. Based on the observations and explanations of the *pencak silat* trainer at Club *Bakti Negara Banyuning* (BNB), *Buleleng* Regency, Bali-Indonesia, it was found that there were weaknesses in dodging, hitting, and kicking speeds in junior athletes, so it was necessary to provide additional exercises that could increase speed in moving, through running speed. Club *BNB Buleleng* Regency was selected based on the problems found in the club and it had a large number of junior athletes, thus meeting the needs of the research samples.

Running speed is the accumulation of step speed to reach the goal as quickly as possible [Marques *et al.* 2015]. Slow footsteps will have implications for the speed of movement in the sport of *pencak silat* [Murad 2020]. Running speed is a very important element of physical fitness for an athlete, good speed will affect muscle power because without the element of speed, power cannot be achieved [Bompa 2009]. For *pencak silat* athletes, the element of speed is very vital when competing in combat. Fight is a type of competition in *pencak silat* that requires elements of speed as well as other elements, such as strength, power, endurance,

and flexibility. In a fight competition, whoever can hit faster, kick faster, and move faster will have more chances, and vice versa; if the athlete is slow in dodging, slow in hitting, and slow in kicking, it is certain that he will lose. Seeing this condition, increasing the running speed becomes urgent.

Based on this background, the hypotheses in this study are 1) there is a difference in the effect of the traditional Balinese game of *meoak-goakan* on the running speed of junior *pencak silat* athletes, 2) there is a difference in the effect of conventional training on the running speed of junior *pencak silat* athletes, and 3) there is a difference in the effect of the two games, both *meoak-goakan* game and the conventional training on the running speed of the junior *pencak silat* athletes. Based on these hypotheses, the purpose of this study was to determine the difference in the effect of the traditional Balinese game of *meoak-goakan* and conventional training on the running speed of junior *pencak silat* athletes in *Buleleng* Regency.

Material and Methods

*Participants*

This research utilized a quasi-experimental method, which is one of the quantitative research methods [Arnesen *et al.* 2017; Emmert, Brooks, Lurdick 1971; Macdonald and Headlam 2008]. The samples of this study consisted of junior *pencak silat* athletes at *Bakti Negara Banyuning* (BNB) *Buleleng* Regency who were selected by simple random sampling consisting of 36 people including 18 men and 18 women with an age range of 9-15 years. The samples of this study had received approval from the parents of each athlete to participate in this research for 12 sessions.

Table 1. Training Programs of Traditional Balinese Game and Conventional

Practice Stage	Micro Training Program (Daily) of <i>Pencak silat</i> at <i>BNB Buleleng</i> Regency		
	<i>Megoak-goakan</i> Game Training	Duration	Conventional Training
Warm-Up	– Warm-up with Running 5 lps around the field – Static Warm-up – Dynamic Warm-up with 3 sets of <i>meoak-goakan</i> game*	10 Minutes	– Warm-up with Running 5 lps around the field – Static Warm-up – Dynamic Warm-up with 3 sets of shuttle run
Core	– Practice Punches, kicks, and brushes (Shadow) – Practice Punches, kicks, and brushes in pairs with peers. – Practice Punches, kicks with bags (pads). – Independent Exercise in the category of art/Exercise Art moves, using a knife, toya.	90 Minutes	– Practice Punches, kicks, and brushes (Shadow) – Practice Punches, kicks, and brushes in pairs with peers. – Practice Punches, kicks with bags (pads). – Independent Exercise in the category of art/Exercise Art moves, using a knife, toya.
Closing	– 1 set of <i>meoak-goakan</i> game* – Cooling-down/muscle-relaxing exercises.	10 Minutes	– Cooling-down/muscle-relaxing exercises.

\* Increased training was done every week.

Procedure

Data on the results of running speed were collected using a standardized 30-meter running test according to The Indonesian Physical Fitness Test [Nasional 2010]. Prior to taking the test, the participants were given an understanding regarding the implementation of the test, test facilities and infrastructure, and the motivation required during the test and were given a trial for 1 session. The best running results with second, from 2 sessions were used for the final result. The 36 junior *pencak silat* athletes at Club BNB *Banyuning*, *Buleleng* Regency were held for 12 sessions of *meogoak-goakan* game training during dynamic warm-up and during the closing stage for approximately 20 minutes. The exercise was done 3 times a week, at. 3.30-5.30 PM, located in Singaraja City Park Square. The study was conducted using a pre-test and post-test control group design. A total of 18 junior athletes in the experimental group were treated with the traditional Balinese game of *meogoak-goakan*, and 18 people in the control group were treated with conventional training (warm-up exercises as usual).

The effect of *meogoak-goakan* game was inseparable from the training program given to junior *pencak silat* athletes taking part in the traditional Balinese game practice of *meogoak-goakan* and conventional training as described in Table 1.

Statistical analysis

This study was analyzed using the SPSS 25 program. Mean (*X*) and Standard Deviation (*SD*) values were calculated during the pre-test and post-test. Prior to being tested for the effect of the difference, the normality and homogeneity of the data were tested. This study found that the data obtained were normally distributed and homogeneous. To compare between groups, they were tested using a parametric test in the form of the Paired Sample *T-Test*, and to investigate which one was better, further tests utilized one-way ANOVA and the Bonfferoni follow-up test. This study set a significance level at (*p*)<0.05.

Results

Based on the results of the experimental test, prior to analysis, the data obtained was tested using Kolmogorov-Smirnov Normality Test and Homogeneity using Levene's Test. Based on the test results, the data obtained were declared Normal with a significance value (*p*) 0.200> 0.05 and homogeneous with a significance value (*p*) 0.870> 0.05.

The description of the data on the results of running speed in the experimental group treated with the traditional Balinese game of *meogoak-goakan* is shown in Table 2.

In Table 2, it is shown that the Mean (*M*) value in the pre-test was *M* = 3.841 and in the post-test was *M* = 4.646. Meanwhile, the Standard Deviation (*SD*) for the pre-test was *SD* = 0.277 and for the post-test was *SD* = 0.371.

Furthermore, to investigate the difference in the effect on the experimental group (the group treated with the traditional Balinese game of *meogoak-goakan*) between the pre-test and post-test, it was tested through t-test using Paired Sample *T-Test* using SPSS IBM 25 at significance level (*p*) of 0.05. Based on the test, the results were obtained as shown in Table 3.

Table 3 shows the value of *tcount* = -7.337 and the significance value of = 0.000. This indicates that if *tcount* > than *ttable*, and if the significance value (*p*) < 0.05, then there was a difference in the effect of the traditional Balinese game of *meogoak-goakan* on the running speed. From the data obtained *tcount* = (-) 7,337 > from *ttable* = 2,014 and the significance value (*p*) = 0.000 < 0.05. Thus, this means that the treatment with the game of *meogoak-goakan* in *pencak silat* practice had a different effect on the running speed.

The description of the data on the results of running speed in the control group using conventional training is shown in Table 4.

Table 4 indicates that the Mean (*M*) value in the pre-test was obtained at *M* = 4.048 and the post-test was *M* = 3.998. Meanwhile, the Standard Deviation (*SD*) for

Table 2. Data Description of Experimental Group Treated with Traditional Balinese Games *Megoak-goakan*

Variable	Experimental Group of <i>Megoak-goakan</i> game	
	<i>Pre-Test</i>	<i>Post-Test</i>
Number of Samples (N)	18	18
Mean ( <i>M</i> )	3.841	4.646
Standard Deviation ( <i>SD</i> )	0.277	0.371
Variance ( <i>r</i> )	0.077	0.138
Maximum Value	4.27	5.18
Minimum Value	3.36	4.00
Range	0.91	1.18

Table 3. Results of Paired Sample *T-Test* of Experimental Group Treated with Traditional Balinese Game *Megoak-goakan* (N=18)

	Mean	Std.Deviation	Std. Error Mean	95% Confidence Interval of Difference			t	df	Sig. (2-tailed)
				Lower	Upper				
Goak PreTest- Goak PostTest	-0.8055	0.4658	0.1098	-1.0372	-0.5739	-7.337	17		0.000

the pre-test was  $SD = 0.440$  and for the post-test was  $SD = 0.4611$

Furthermore, to determine the difference in the effect of the control group (the group treated with conventional training) between the pre-test and post-test, then a t-test was carried out using Paired Sample *T-Test* using SPSS Version 25 at a significance level ( $p$ ) 0.05. Based on the test, the results were obtained as shown in Table 5.

Table 5 indicates the value of  $t_{count} = 1.062$  and the significance value = 0.303. This shows that if  $t_{count} >$  from  $t_{table}$ , and if the significance value ( $p$ )  $< 0.05$ , then there was a different effect on the treatment given. From the data it was obtained that  $t_{count} = 1.062 <$  from  $t_{table} = 2.015$  and the significance value ( $p$ ) = 0.303  $> 0.05$ . Thus, this shows that the treatment using conventional training in *pencak silat* training did not have a different effect on running speed.

To investigate the difference in the effect of the two treatments between those treated with *meogoak-goakan* game and those treated with conventional training, a one-way ANOVA test using SPSS IBM Version 25 was used at a significance level  $p < 0.05$ . The results of the one-way ANOVA test can be seen in Table 6.

Based on Table 6, it was obtained  $F_{Count} = 21.582$ , while the significance value ( $p$ ) = 0.000. When compared with the value of  $F_{Table} = 2.947$ ,  $F_{Count}$  (21.582)  $> F_{Table}$  (3.592), which means that there was a difference in the effects of the two groups. In line with that,

the significance value ( $p$ ) was  $0.000 < 0.05$ . Thus, it can be interpreted that the two groups had significantly different effects because there was a difference in the effects of the two groups. Further test or comparison test was carried out using the Bonferroni test as described in Table 7.

In Table 7 Bonferroni Follow-Up Test, it can be seen from the results of the *Mean Difference* (I-J) that a comparison was obtained, namely for the treatment of *meogoak-goakan* game with the conventional training of 0.648\*, while the comparison of the treatment of the conventional training and the treatment of *meogoak-goakan* training was - 0.648\*. Therefore, from these results it can be concluded that the training with the treatment of the traditional Balinese game of *meogoak-goakan* was better than the treatment of conventional training on the running speed of junior *pencak silat* athletes.

Discussion

Based on the description of the data above, there was a difference in the effect of those treated with *meogoak-goakan* game on the running speed of the junior *pencak silat* athletes (Table 3). The training of junior *pencak silat* athletes who were treated with *meogoak-goakan* game was carried out through a systematic training program for 12 sessions (3 sessions a week) with a training duration of 110 minutes consisting of warm-

Table 4. Data Description of Control Group Treated with Conventional Training

Variable	Control Group with Conventional Training	
	Pre-Test	Post-Test
Number of Samples (N)	18	18
Mean (M)	4.048	3.998
Standard Deviation (SD)	0.440	0.461
Variance (r)	0.194	0.213
Maximum Value	4.95	4.96
Minimum Value	3.10	3.08
Range	1.85	1.86

Table 5. Results of Paired Sample T-Test of Control Group Treated with Conventional Training (N=18)

	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of Difference		t	df	Sig. (2-tailed)
				Lower	Upper			
PreTest of Conventional Training	-0.05	0.199	0.0470	-0.0493	0.1493	1,062	17	0.303
PostTest of Conventional Training								

Table 6. Results of One-way ANOVA Test of Running Speed (N=36)

Source	Type II Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	3,783	1	3,783	21,582	0,000
Intercept	672,624	1	672,624	3837,859	0,000
Megoak-Goakan	3,783	1	3,783	21,585	0,000
Error	5,959	34	0,175		
Total	682,366	36			

Table 7. Results of Bonferroni's Follow-Up Test on the Treatment of Megoak-goakan Game and Conventional

(I)Megoak-goakan	(J)Megoak-goakan	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval for Difference	
					Lower Bound	Upper Bound
Megoak-goakan	Conventional	0,648*	0,114	.000	0,366	0,934
Conventional	Megoak-goakan	-0,648*	0,114	.000	-0,930	-0,366



up, core and closing exercises. As shown in Figure 1, *meoak-goakan* game treatment was given to junior *pencak silat* athletes during the dynamic warm-up (3 sets) and the closing phase, namely cooling down (1 set). Figure 2 shows the mechanism (running direction) of *meoak-goakan* game.



Figure 1. *Megoak-goakan* Game

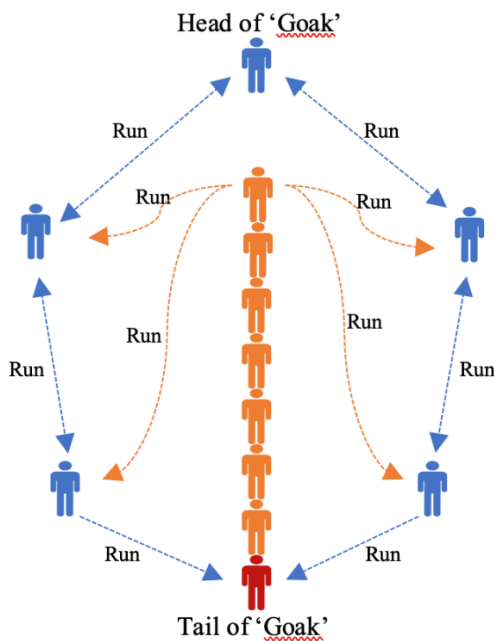


Figure 2. Running Directions of *Megoak-goakan* Game

In Figure 2, it can be seen that *meoak-goakan* game was a Balinese folk game with the purpose of having fun (running), fostering a fighting spirit, and training the physical abilities of the Balinese people who were at war. The game of *meoak-goakan* can be played by 6-15 people, depending on the size of the field used. The participants of the game consist of the head of the *goak*, the body/back of the *goak* and the tail of the *goak*. The role of the *goak* head is to catch the *goak* tail, and the *goak* body serves to prevent the *goak* head from being able to catch the *goak* tail. The game will end if the *goak* head manages to catch the *goak* tail. If the *goak* tail has not been caught by the *goak* head, then the game will continue, until one of the team gives up or within the specified time limit for example 15-30 minutes.

The game of *meoak-goakan* can train children intensely in running, both fast and slow. The game mechanism where the participants run in all directions enables

the children to release the ability to run using the leg muscles. Running training through this *meoak-goakan* game has been able to gradually increase muscle capacity [Sari, Ganing, Tirtayani 2017]. Increased muscle capacity will further increase muscle strength. Therefore, acceleration can be obtained in doing sprints [Feser *et al.* 2021; Majumdar, Robergs 2011]. When becoming the head of *goak*, the child will try to run as fast as possible and try to outwit the movement direction of the participants on the body of *goak* and tail of *goak*, so they can catch the tail of *goak*. This ability may be done if the child has good motor skills. According to Aksovic, [Aksovic *et al.* 2021], motor skills can affect the results of short distance running. On the other hand, running with an irregular rhythm in the game of *meoak-goakan* allows conditions such as interval training to occur where short, high-intensity and continuous training occurs. This is in line with Rahman [Rahman, Sugiarto 2015; Shalaby *et al.* 2022], stating that interval training can increase the running speed of 100m. In the game of *meoak-goakan*, children indirectly train to run continuously and running training is a positive way to improve a children's running ability [Ariyantini, Tian-ing, Artini 2016; Wibowo 2017; Zou 2014]. Moreover, by becoming the head of *goak*, the child will indirectly practice plyometrically. This means of exercise in fact can significantly affect the running speed with the help of a stimulus by chasing the opponent to catch the *goak* tail [Krakan, Milanovic, Belcic 2020; Liebensson 2009; Suc *et al.* 2022]. Furthermore, the practice of running in all directions performed by the participants in the game of *meoak-goakan* is believed to be able to hone running skills and also agility, because running speed affects agility [Horicka, Hianik, Simonek 2014]. It has proven that training with the traditional Balinese game of *meoak-goakan*, can have an effect on the running speed.

Furthermore, it was found that there was no significant effect of the treatment of conventional game training on the running speed of junior *pencak silat* athletes (Table 5). The conventional game given was a running game around a 400 square meter field for 5 minutes. Running constantly for a certain distance with good intensity without the challenge of increasing the load does not affect the increase in running speed, as stated by Supriansyah [Supriansyah, Lumintuarso 2019], On the other hand, the conventional games did not provide excessive training as part of the training principle. Therefore, that athletes did not experience an increase in muscle quality that could help increase their running speed, in accordance with the principle that running speed is strongly influenced by running exercises that are programmed in a systematic and integrated manner using media that can be a training load such as sand [Hammami *et al.* 2022]. Based on the above explanation, empirically conventional games cannot affect running speed.

Overall, both the *meoak-goakan* game and the conventional game obtained significant results (Table 6).

This was because even though conventional games were given if seen from the results of the pre-test and post-test in the control group in Table 4, it shows that there was a group of samples that increased, a group that did not increase and a group that decreased. A group that saw an increase even though it was very small if tested together, significant results would be obtained. Furthermore, after further testing using the Bonferroni test, it was found that the treatment of the traditional Balinese game of *meoak-goakan* was better than treating using conventional games to increase the running speed of junior *pencak silat* athletes (Table 7). This was not without a reason, because in *meoak-goakan* game every player will get the experience of running continuously and repeatedly to maintain the tail of *goak* and also the head of *goak* running to catch the tail of *goak*. This repetition of sprint can significantly improve sprint ability [Ari, Deliceoglu 2021; Nascimento *et al.* 2015]. Besides that, the game of *meoak-goakan* is also very much determined by how fast, agile and alert the participants in the game are to maintain their positions and catch their opponents, so that after playing *meoak-goakan* it is believed that they can increase their running speed. This is in accordance with the findings of Azmi [Azmi, Kusnanik 2018; Milanovic *et al.* 2014], in general, this game can be played in a minimum for 4 minutes and a maximum of 30 minutes. If the game participants are equally strong, then the game can run for a long time. Thus, the essence of this condition is called endurance training. With endurance training, it will directly increase the ability to run in accordance with the findings of Ronnestad [Ronnstad, Mujika 2014]. This is supported by physiological aspects where the physiological response to exercise is dependent on the intensity, duration and frequency of the exercise as well as the environmental conditions. During physical exercise, requirements for oxygen and substrate in skeletal muscle are increased, as are the removal of metabolites and carbon dioxide, this is what happens in the traditional Balinese game *meoak-goakan*, so this game affects the running speed. On the other hand, physiological analyzes of physical activity are basing on a physical capacity of human body. Physical capacity is understood as the human body's ability to perform various types of physical work, one of physiological indicators of body reaction during activity is maximum oxygen uptake and blood lactic acid (LM). Those two parameters are considered as main indicators determining physical capacity. Maximum oxygen uptake, or  $VO_{2max}$ , is the term for the highest oxygen consumption during one minute of physical activity [Zoladkiewicz 2019]. Enhancing exercise capability and cardiopulmonary fitness with specific exercise training programs could increase organ system reserve and make activities of daily living less stressful since they would be performed at lower percentages of maximal, as well as of peak oxygen uptake, pulmonary ventilation and heart rate reserve [Roger *et al.* 2004].

Based on the discussion, it was found that treating with the game of *meoak-goakan* to junior *pencak silat* athletes in training can increase running speed to support performances in the sport of *pencak silat*.

## Conclusions

Based on the results and discussion, it can be concluded that 1) there was a difference in the effect of those treated with the traditional Balinese game of *meoak-goakan* on the running speed of junior *pencak silat* athletes, 2) there was no difference in the effect of those taking part in conventional training on the running speed of junior *pencak silat* athletes, 3) there were differences in the effect of the two groups and in a further test it was found that the traditional Balinese game of *meoak-goakan* in *pencak silat* training had better results than those treated using conventional training. This indicates that the traditional Balinese game of *meoak-goakan* is good to be used to improve physical abilities in the form of running speed. Based on these conclusions, it can be suggested to coaches, and sports teachers, that the results of this study have measurable benefits in increasing running speed by providing traditional Balinese game of *meoak-goakan*.

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## References

1. Aksovic N., Skrypchenko I., Bjelica B., Singh M., Filip M., Dejan N., Milan Z. (2021), *The Influence of Motor Skills on the Short Sprint Result*, "Pedagogy of Physical Culture and Sports", vol. 25, no. 6, pp. 382–87; doi: 10.15561/26649837.2021.0607.
2. Ariyantini K.M., Tianing N.W., Artini I.G.A. (2016), *Acceleration Running Training Improves Running Speed of 100 Meters More Than Interval Running Training for High School Students in Badung Regency*, "Majalah Ilmiah Fisioterapi Indonesia", vol. 4, no. 2, pp. 19–23; doi: 10.24843/MIFI.2016.v04.i02.p11.
3. Ari E., Deliceoglu G. (2021), *The Prediction of Repeated Sprint and Speed Endurance Performance by Parameters of Critical Velocity Models in Soccer*, Pedagogy of Physical Culture and Sports", vol. 25, no. (2), pp. 132–43; doi: 10.15561/26649837.2021.0208.
4. Arnesen H., Bechensteen A.G., Jacobsen A.F., Omenaas E. (2017), *From Idea To Publication: The Research Handbook*, pp. 1-186; ISBN: 9788247300435.

5. Azmi K., Kusnanik N.K. (2018), *Effect of Exercise Program Speed, Agility, and Quickness (SAQ) in Improving Speed, Agility, and Acceleration*, "Journal of Physics: Conference Series", vol. 947, no. 1, pp. 1-5; doi: 10.1088/1742-6596/947/1/012043.
6. Bompa T.O. (2009), *Periodization: Theory and Methodology of Training*, 4th Ed, "Champaign, Ill, Human Kinetics", pp. 1-355; ISBN: 9780736074834.
7. Dharmadi M.A., Kanca I.N., Parwata I.G.L.A., Spyana-wati N.L.P., Semarayasa I.K., Ariani L.P.T., Dartini N.P.D., Wijaya M.A. (2022), *The Effect of Balinese Traditional Games megoak-goakan and 'Megala-Gala' on Physical Agility in Martial Arts Athletes*, "International Journal of Human Movement and Sports Sciences", vol. 10, no. 3, pp. 423-28; doi: 10.13189/saj.2022.100308.
8. Emmert P., Brooks W.D., Lurdick R.G. (1971), *Communication Booknotes Books on Research Methods*, pp. 1-206; doi: 10.1080/10948007109489547.
9. Feser E.H., Korfist C., Lindley K., Neil B.E., Bezodis N.E., Clark K., Cronin J. (2021), *The Effects of Lower-Limb Wearable Resistance on Sprint Performance in High School American Football Athletes: A Nine-Week Training Study*, "International Journal of Sports Science and Coaching", vol. 16, no. 5, pp. 1187-95; doi: 10.1177/17479541211003403.
10. Hammami M., Gaamouri N., Ramirez-Campillo R., Aloui G., Shephard R.J., Hill L., Knechtle B. (2022), *Effects of Supplemental Jump and Sprint Exercise Training on Sand on Athletic Performance of Male U17 Handball Players*, "International Journal of Sports Science & Coaching", vol. 17, no. 2, pp. 376-84; doi: 10.1177/17479541211025731.
11. Horicka P., Hianik J., Simonek J. (2014), *The Relationship between Speed Factors and Agility in Sport Games*, "Journal of Human Sport and Exercise", vol. 9, no. 1, pp. 49-58; doi: 10.4100/jhse.2014.91.06.
12. Kertya U.P.T.D. (2010), *Handbook of Buleleng History*, "Kabupaten Buleleng", pp. 1-76
13. Krakian I., Milanovic L., Belcic I. (2020), *Effects of Plyometric and Repeated Sprint Training on Physical Performance*, "Journal of Sports", vol. 8, no. 7, pp. 1-13; doi: 10.3390/sports8070091.
14. Liebensohn C. (2009), *Training for Speed*, "Journal of Bodywork and Movement Therapies", vol. 13, no. 4, pp. 362-63; doi: 10.1016/j.jbmt.2009.07.001.
15. Wicaksono L., Sardianto T., Utama D.D.P. (2020), *The Effect of Pencak silat Training Using Stuffed Weights on the Speed of Pesilat's Front Kicks at Padepokan PSHT, West Lampung Branch*, "Jurnal Kejaora (Kesehatan Jasmani dan Olah Raga)", vol. 5, no. 2, pp. 47-52; doi: 10.36526/kejaora.v5i2.958.
16. Macdonald S., Nicola H. (2008), *Research Methods Handbook: Introductory Guide to Research Methods for Social Research*; ISBN: 1870053656.
17. Majumdar A., Robergs R. (2011), *The Science of Speed: Determinants of Performance in the 100 m Sprint: A Response to Commentary*, International Journal of Sports Science and Coaching, vol. 6, no. 3, pp. 479-493; doi: 10.1260/1747-9541.6.3.479.
18. Marques M., Gabbett T., Marinho D., Blazevic A.J., Sousa A., Tilaar V.D. R., Izquierdo M. (2015), *Influence of Strength, Sprint Running, and Combined Strength and Sprint Running Training on Short Sprint Performance in Young Adults*, "International Journal of Sports Medicine", vol. 36, no. 10, pp. 789-795; doi: 10.1055/s-0035-1547284.
19. Milanovic Z., Sporis G., Trajkovic N., Sekulic D., James N., Vuckovic G. (2014), *Does SAQ Training Improve the Speed and Flexibility of Young Soccer Players? A Randomized Controlled Trial*, "Human Movement Science", vol. 38, no. October 2017, pp. 197-208; doi: 10.1016/j.humov.2014.09.005.
20. Murad M.S. (2020), *Pengaruh Latihan Menggunakan Beban Karet Terhadap Peningkatan Kecepatan Tendangan Sabit Pencak silat*, "Jurnal Pendidikan dan Pembelajaran Khatulistiwa", vol. 9, no. 4, pp. 1-8; doi: 10.26418/jppk.v9i4.40552.
21. Nascimento L.R., de Oliveira C., Ada L., Michaelsen S.M., Teixeira-Salmela L.F. (2015), *Walking Training with Cueing of Cadence Improves Walking Speed and Stride Length after Stroke More than Walking Training Alone: A Systematic Review*, "Journal of Physiotherapy", vol. 61, no. 1, pp. 10-15; doi: 10.1016/j.jphys.2014.11.015.
22. State of Educational Department. (2010), *The Indonesian Physical Fitness Test (TKJI)*, 1-9.
23. Rahman A., Sugiarto (2015), *Increase Your 100-Meter Running Speed with 1 in 2 and 1 in 3 Interval Training*, "Journal of Sport Sciences and Fitness", vol. 04, no. 1, pp. 1-6; doi: 10.22245/jpor.v1i2.3725.
24. Razak S., Arifin M.T., Meng L.K., Rahim A., Nor M., Samudin H. (2022), *A Narrative Exploration of Issues in Silat Development From Children To Youth Athletes*, "Ido Movement for Culture", vol. 22 (Supplement 2), pp. 23-30; doi: 10.14589/ido.22.2S.3.
25. Roger M.S., Thomas W.J., Janssen A.G., Satyendra C.G. (2004), *The Physiology of Exercise*. <http://books.google.de/books?id=Gd3VuxElm3wC>
26. Ronnestad B.R., Mujika I. (2014), *Optimizing Strength Training for Running and Cycling Endurance Performance: A Review*, "Scandinavian Journal of Medicine and Science in Sports", vol. 24, no. 4, pp. 603-12; doi: 10.1111/sms.12104.
27. Sari, Pramita N.M.A., Ganing N.N., Tirtayani L.A. (2017), *The Effect of megoak-goakan Traditional Game on the Development of Locomotor Skills in Group B Children in Jempiring Early Childhood Education*, "e-Journal Pendidikan Anak Usia Dini Universitas Pendidikan Ganesha", vol. 5, no. 1, pp. 55-64; doi: 10.23887/paud.v5i1.11213.
28. Shalaby M., Sakoury M., Akl H., Hassan R.H.K., Ababtain H., Alghamdi A. (2022), *Effect of Physical Exertion on the Concentration of Copper and Blood Pressure in Athletes the Concentration of Copper and Blood Pressure in Athletes*, "Pedagogy of Physical Culture and Sports", vol. 26, no. 4, pp. 260-264; doi: 10.15561/26649837.2022.0405.
29. Suc A., Sarko P., Plesa J., Kozinc Z. (2022), *Resistance Exercise for Improving Running Economy and Running*



- Biomechanics and Decreasing Running-Related Injury Risk: A Narrative Review, "Journal of Sports", vol. 10, no. 7, pp. 2-16; doi: 10.3390/sports10070098.
30. Supriansyah R., Lumintuarso R. (2019), *The Effect Training Methods and Power on Performance Run 60*, "Journal of Sport and Health", vol. 1, no. 1, pp. 37-48; doi: 10.26486/jfp.v1i1.974.
31. Wibowo R. (2017), *The Impact of Assisted Sprinting Training (As) and Resisted Sprinting Training (Rs) in Repetition Method on Improving Sprint Acceleration Capabilities*, Jurnal Pendidikan Jasmani dan Olahraga, vol. 2, no. 1, pp. 79-83; doi: <https://doi.org/10.17509/jpjo.v2i1.7971>.
32. Zou Y. (2014), *Primary Exploration on Speed and Endurance Training for Men's 400m Athletes*, "Proceedings of the 3<sup>rd</sup> International Conference on Science and Social Research" vol. 1 (Icssr), pp. 1255-58; doi: 10.2991/icssr-14.2014.275.
33. Zoladkiewicz K. (2019). *Impact of Physical Activity on The Human Body - The Physiological Basis of Physical Activity*, "Journal Quality in Sport", vol. 5, no. 2, pp. 40-46; doi: 10.12775/qs.2019.010.

## Wpływ wprowadzenia w ciąg 6 tygodni tradycyjnej balijskiej gry megoak-goakan na szybkość biegu juniorów trenujących Pencak Silat

**Słowa kluczowe:** tradycyjna gra balijska, megoak-goakan, prędkość biegu, juniorzy Pencak Silat

### Streszczenie

Tło. Tradycyjna balijska gra megoak-goakan to gra balijskiego dziedzictwa kulturowego i tradycji od czasów kolonialnych. Problem i cel. Problem dotyczył różnicy w wpływie tradycyjnej balijskiej gry megoak-goakan na szybkość biegu juniorów, zawodników pencak silat. Badanie to miało na celu określenie wpływu tradycyjnej balijskiej gry megoak-goakan na szybkość biegu juniorów uprawiających sport pencak silat na terenie regencji Buleleng.

Materiał i metody. W badaniach wykorzystano metodę quasi-eksperymentalną, która jest jedną z ilościowych metod badawczych. W badaniu wzięli udział juniorzy, zawodnicy pencak silat z Club Bakti Negara Banyuning (BNB) na terenie regencji Buleleng, którzy zostali wybrani przez prosty losowy dobór próby 36 osób, składających się z 18 mężczyzn i 18 kobiet w wieku od 9 do 15 lat.

Wyniki. 1) stwierdzono różnicę w wpływie osób biorących udział w tradycyjnej balijskiej grze megoak-goakan na szybkość biegu juniorów pencak silat, 2) nie stwierdzono różnicy w rezultatach osób biorących udział w treningu konwencjonalnym na szybkość biegu juniorów uprawiających pencak silat, 3) wystąpiła różnica w wpływie na obie grupy, a w teście kontrolnym stwierdzono, że tradycyjna balijska gra megoak-goakan w treningu pencak silat dała lepsze wyniki niż przy użyciu treningu konwencjonalnego.

Wniosek. Stwierdzono, że tradycyjna balijska gra megoak-goakan miała pozytywny wpływ na szybkość biegu juniorów uprawiających pencak silat.