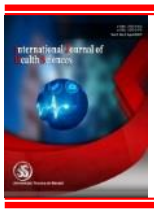

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Gyaku-Tsuki Punch Technique Training Model to Improve Physical Readiness and Character of Karate Athletes

Kadek Yogi Parta Lesmana [a], I Nyoman Kanca [b], Wahjoedi [c], I Ketut Iwan Swadesi [d]

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Corresponding Author [a]

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character;
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training models;

Abstract

The purpose of this study was to analyze the application of the *gyaku-tsuki* punch technique training model to improve physical readiness and character. The design of this study was quasi-experimental in the form of a posttest-only control design. The sample of this study was 56 which was divided into 2 groups, each group consisted of 28 people. Karate is a sport that requires a very good level of physical condition. The data collection method used was a questionnaire to measure character variables and documentation to measure physical readiness. The data analysis used was inferential with MANOVA. The results showed that the *gyaku-tsuki* punch technique training model has an impact on physical readiness and character both simultaneously and partially, this can be seen from the average value of the group trained with the *gyaku-tsuki* punch technique training model is greater than the exercise without the *gyaku-tsuki* punch technique training model. Therefore, it is recommended that this *gyaku-tsuki* punch technique training model can be used as an alternative to karate training to improve physical readiness and character.

Contents

[a] Universitas Pendidikan Ganesha, Singaraja, Indonesia
[b] Universitas Pendidikan Ganesha, Singaraja, Indonesia
[c] Universitas Pendidikan Ganesha, Singaraja, Indonesia
[d] Universitas Pendidikan Ganesha, Singaraja, Indonesia

1 Introduction

Martial arts have been known since prehistoric times. At that time, human life was simple and completely dependent on nature. Humans used certain techniques to hunt and protect themselves from animals, at that time humans used spears, maces, and arrows. When firearms appeared, the glory of martial arts began to recede. However, it does not make martial arts extinct. Martial arts continue to grow and become one of the tools to protect oneself without carrying a weapon. Also in times of peace, martial arts are still in demand by people because they are used to maintain health. From here then martial arts developed as a sport. One of the martial arts that is familiar to the people of Indonesia is karate. Karate is a martial art that originated in Japan. Karate consists of the word "kara" which means empty and "te" means hand and "do" means way. Karate-do has the meaning of walking empty-handed which aims to improve discipline, personality and form a complete human being who has noble personal characteristics, has good character, has a high fighting spirit and upholds ethical values and has mental maturity (Lamusu & Lamusu, 2020; Mohlisin, 2018; Wibisana et al., 2016). Karate is not only about the basic techniques of punches, kicks, parries, and slams, but also about positive philosophical values (Indrajaya, 2017; Sitanggang & Simamora, 2020). This is because there is a foundation in Japanese known as Kihon in karate. The success of karate athletes to achieve achievements cannot be separated from physical readiness.

Physical readiness is one of the indicators used to measure athletes' readiness for safe exercise (Betsch et al., 2021). Physical readiness can be seen from the physical condition of the athlete. Physical condition is a unified whole component with other components (Dawud & Hariyanto, 2020; Nurhidayah & Graha, 2017). Physical conditions are composed of several complementary components such as strength, endurance, flexibility, agility, balance, accuracy, reaction, coordination, speed and power (Herpandika et al., 2019; Sinaga et al., 2016). All physical activity requires the incorporation of the components of strength, speed, flexibility and others. Athletes from any sport absolutely and must train all components of their physical condition. This is because the physical condition is a unified whole consisting of several components that cannot be separated. The achievement of training will be known by conducting tests which will later show whether the athlete already has the quality of the expected physical condition (Herpandika et al., 2019). This shows that physical condition is the basis for evaluating athletes to achieve high performance. Discussing improving the performance of athletes, the physical condition is non-negotiable in the portion of their training to achieve peak performance. Physical conditions are not only needed for the physical components but physical condition training is needed to improve the techniques and tactics of each sport. From some of the explanations above, it can be concluded that physical conditions are needed to support the success of an athlete in achieving maximum performance. The maximum achievement does not necessarily appear in the athlete, but it takes a process called training. Exercise is a time-consuming process undertaken by athletes in achieving high performance with systematic planning to train their physical and body system functions. The purpose of systematic planning itself is to improve the athlete's readiness to face a match. Because the benchmark of the training process is the maximum achievement of the athlete. To achieve this goal, several solutions were carried out.

In addition to physical condition, the factor that determines the success of athletes to obtain achievements is character (Rokhman et al., 2014; Wright & Quick, 2011). Character is an important requirement in learning, considering that character will give a picture of a nation. In the future, the character has a very important role (Dewi et al., 2021; Tanto et al., 2019), this is considering that character is part of a person's way of thinking and acting to live in the context of society that involves thoughts, attitudes, feelings, and actions (Rehusisma et al., 2017). Someone who gets good character values will be able to apply them in everyday life (Arif, 2017), The strong character of the community will give a picture of a nation (Rahmawati et al., 2019; Tanto et al., 2019). Good character will not be formed automatically, it must be developed continuously through the teaching processes, examples, learning and practice on an ongoing basis through character education (Rockenbach, 2020). The formation of character can be started with continuous interaction between each other by exchanging information about the situation, socializing and interacting, in the family, community, school and environment

(Bustami et al., 2017; Groenewoudt et al., 2019). Character is very important for students because education is a planned effort to make students recognize, care and internalize values so that students behave as noble people, where the purpose of character education is to improve the quality of implementation and educational outcomes in schools through the formation of students' character in a holistic manner, whole, integrated, and balanced, according to standards (Parks & Peterson, 2006). The description provides a clear picture of the importance of character education for students. In the world of sports, the character will determine the success of the athlete where athletes who have good character will contribute enthusiasm and motivation to excel.

However, the reality in the field that is seen by the trainers is very inversely proportional to what is implemented, many karateka still do not fully implement how the karate oath is carried out as is the case; 1) karateka who have just achieved achievements at the district level already have an excessive sense of pride in recognizing how their achievements are, 2) there is still a gap in the association between karateka who have achievements (often become champions) and karateka who have never had achievements (never become champions), 3) lack of discipline in respecting every coach around them, only respecting their coach in the dojo, 4) not treating the equality of degrees between seniors and juniors. This condition is following the conditions of the karateka branch of the Buleleng Regency. Even though during the past 6 years it has gotten better, it still cannot be said to be good. Based on the results of observations and interviews conducted with the trainers of the Lemkari karate branch in Buleleng Regency, it was found that some of the problems that were always experienced by the coaches in handling the karateka for the championships that were prepared were (1) the physical condition factor which was very less than optimal when the championship took place, (2) in addition to the physical conditions described by the coach, he also saw how the psychological role of karateka when the championship that was followed was not optimal, (3) karateka felt compelled to practice because they did not know the importance of physical exercise, 4) the behavior of the karateka did not reflect as a karateka who excels in participating in an exercise program, this is due to a lack of meaning in how to apply the karate oath., following the results of the last 3 years of the championship held by the Lemkari District Administration of Buleleng Regency in 2017 there were very poor results in terms of the number of medals obtained for each branch, which are presented in Table 1.

Table 1
Lemkari Bondalem Cup Championship Data in 2017

	Medal Earning		
Branch	I	II	III
Bondalem	2	3	7
Panji A	9	5	5
Panji B	0	0	1
Panji C	0	0	0
Sawan	3	4	9
Kubutambahan	7	17	12
LKC	0	0	5
TYS	11	5	13
AMBENGAN	3	1	4
Dojo Eror	0	0	1

Source: Championship Organizing Committee

Based on Table 1, there are still some branches that have not received very good development results. From the results of interviews and tables, it can be concluded that the physical and psychological conditions of karateka must be improved both from the beginning and during the implementation in the field, the obstacles seen in the competition regarding the lack of techniques used, such as using less than optimal hitting techniques, and the coaches also conveyed if the model in training still uses the conventional model or the personal experience of the trainers. The trainers need the information or the desired needs in the development of the training pattern of each technique both in terms of physical and psychological development from the beginning of the exercise

to the implementation of the championship. If this problem continues to be ignored, it will certainly have an impact on the physical condition and mental condition of the athlete, which will have a negative impact on the achievements. These solutions include: Research by (Purnomo, 2019) found that the training program improved the athlete's physical condition. The magnitude of the change in the condition of handball athletes can be seen from the difference in the average value of the pre-test, which is 45.49 with the post-test of 54.54. It is known that the improvement in the physical condition of the Kubu Raya handball athletes is 9.05 or 19.89% after being given the Exercise program. Research conducted by Edwarsyah et al. (2017), stated that there was no significant effect of circuit training on improving the physical condition of UKO UNP Pencak Silat athletes. Research conducted by Ismoko & Sukoco (2013), stated that there was no significant difference in increasing leg power through agility hurdle drills and agility ring drills training methods. (2) There is no difference in the effect of exercise methods on leg power. (3) There is a difference in the increase in leg power between those who have high coordination and low coordination. (4) There is no interaction between training methods and coordination on increasing leg power. Research conducted by Evenetus et al. (2019), stated that the exercise program with the vasa trainer had significant results and effect on increasing arm power, arm endurance and 50-meter freestyle swimming performance but not on arm strength. Based on this description, it can be stated that the exercise model will be able to improve the physical condition of athletes. Therefore, this study assumed to develop a character-based *gyaku-tsuki* punch technique training model.

The *gyaku tsuki chudan* punch technique is one of the skills that must be possessed by a karateka (ACV et al., 2018; Purwanto, 2022; Rosita, 2014), hitting skills are the key to success in winning karate matches, punches are used to get points towards the opponent, where one stroke can produce one point. The *gyaku tsuki chudan* punch technique is the most widely used punch in karate matches, the *gyaku tsuki chudan* punch technique can be used as an attacking blow or counter attack, this punch technique leads to the stomach, using the hand opposite the foot position. *Gyaku tsuki chudan* launched from a stance (*zenkutsu dachi*) that is strong and stable and can provide strong momentum to the target, the hips are rotated and kept the height unchanged during rotation then shift the center of weight slightly forward, followed by rotating the upper body while the arm is straightened to the target to be addressed (shoulders should not rotate). The faster and stronger the movement, the greater the power generated. This stroke is often combined with additional movements to form a variety of movements. If training is carried out with this technique, the athletes will be able to improve their physical condition, if the athlete's physical condition is good, at least the athlete will be more confident and their mental condition is also good. To strengthen the physical and mental conditions, karate will be combined with character education.

Character education has a higher meaning than moral education and has the content of moral formation (Badawi, 2019). Character education can be interpreted as a conscious and planned effort in internalizing character values so that these characters can be understood, lived and implemented in everyday life by students (Putry, 2019). Character education is a deliberate and proactive effort to build ethical values such as caring, honesty, justice, responsibility and respect for oneself and others (Berkowitz & Bier, 2017). The implementation of character education aims to make students have good character (Asriani et al., 2017). Character education must be integrated within the framework of education in the form of learning or training (Anisah, 2018; Jaya, 2019). Character education has three main functions. The first is the function of the formation and development of potential. Character education shapes and develops the potential of students to think well, have a good heart and behave following the Pancasila philosophy. The second, is the repair and strengthening function (Maunah, 2015). Based on this description, it can be stated that character education will shape, and develop one's potential and can shape one's mentality. This is following several previous studies. Research conducted by Bahri (2015), found that character education is one solution to overcome the moral crisis of children. Kristiawan (2016), showed that character education and mental revolution are two solutions to building Indonesian human resources. Bidaya & Dari (2020), showed that a mental revolution through strengthening character education for students with special needs can be carried out through programs that are integrated with the process of learning activities in schools including the five main values of strengthening character education, namely religious values, nationalism, cooperation, integrity, and independence through academic learning programs, skills programs, special programs, self and extracurricular development, culture and national character. Based on this description, it can be stated that character education, will be one solution to improve children's mentality. These descriptions are one of the reasons why this research was conducted. The combination of *gyaku-tsuki* punches with character education will able to improve the mental and physical condition of athletes.

The *gyaku-tsuki* punch will allow the athlete to train physically through the techniques that have been prepared, while character education will make the athlete have strong character values that will affect the athlete's achievement. In this study, character education will be trained along with the *gyaku-tsuki* punch. With the development of this training model, it is hoped that it will be one of the solutions that can be used to overcome the problems of the athlete's physical and mental condition that affect karateka performance. This research has been carried out until the training model development stage, from the results of the training model development data obtained that the resulting exercise model is valid, and practical to use with a very good category. To strengthen these results, a further test is needed, namely testing the effectiveness of this training model on the physical readiness and character of karate athletes (Maltby et al., 2001; Bailis et al., 2003).

2 Materials and Methods

The study used a quasi-experimental research design. This research design is quasi-experimental in the form of a nonequivalent post-test-only control group design (Rogers & Revesz, 2019). In the implementation of the research, the experimental group was treated with a *gyaku-tsuki* punch technique training model, while the control group was treated by applying a non-*gyaku-tsuki* punch technique training model. Both the experimental group and the control group were given a post-test to determine the difference in physical readiness and character between the experimental group that was given treatment and the control group. The data that will be obtained in this study are (1) the physical readiness (Y_1) of students who are taught the gyaku-tsuki punch technique training model; (2) physical fitness (Y_1) of students who are taught by learning the gyaku-tsuki punch technique training model; (3) Characters (Y_2) of students who are taught with the gyaku-tsuki punch technique training model; and (4) the character (Y_2) of students who are taught by learning beside the gyaku-tsuki punch technique training model.

The target of the research on the development of engineering-based physical models is karate students. In particular, students aged 15-23 years enter high school and senior levels. According to Tudor O. Bompa, the age of 15-23 years is an age where this age tends to be individualistic, to choose sports that are following the ability and development of the genetic structure. At this time children enter the stage of maximum strength training, anaerobic, aerobic, and individual training according to the chosen sport (of interest) and are ready to be trained into high-performance Elite athletes (Long Term Development Training). According to Tudor O Bompa, 3 rules need to be considered in training adolescent athletes, (1) developing flexibility, (2) developing tendon strength before muscle strength, and (3) developing core muscle strength before other strength strengths. In living each stage of life, children have unique characteristic developments at each stage. Although each of these stages has unique characteristics, these stages of development do not stand alone but are interrelated. After conducting a characteristic analysis, 56 research samples were finally obtained which were divided into 2 groups, each group consisting of 28 people.

The method of data collection is conducted by using a questionnaire and documentation. Questionnaires are used to measure the character of students after being trained with the *gyaku-tsuki* punch technique training model. The questionnaire developed consisted of 5 choices, namely strongly agree, agree, moderately, disagree and strongly disagree. The number of instruments developed is 30, consisting of 4 dimensions, these dimensions include 1) appreciating achievement; 2) being friendly; 3) being peace-loving, and responsible. A more complete grid is presented in Table 2. In testing the validity of the character questionnaire instrument, it is necessary to test the validity of the instrument items, the validity of the content of the instrument, and the reliability. Testing the validity of the contents of the questionnaire instrument used the CVR formula. The CVR results from the calculation of each instrument item are 1 and the total CVR of all scientific literacy ability instruments is 30 and can be declared valid based on the validation provisions of each instrument item in the CVR formula. Testing the validity of the contents of the questionnaire with the help of SPPS obtained 0.84 results where this value is classified as very strong. Testing the reliability of the questionnaire with the help of SPSS obtained the results of the analysis with the value of Cronbach's Alpha with a value of 0.85 which means that the developed questionnaire is very reliable. While the documentation method is used to determine the physical condition of karate athletes where there are 4 components to be measured, 4 components are push-ups, sit-ups, back-ups and MFT.

Table 2
Character Indicators of Karate Athletes

No	Dimension	Indicator
1	Appreciate Achievements	1) Give praise, encouragement or support to friends who excel
		2) Motivate friends who experience failure
2	Friendly	1) Respect others
		2) Communicate well and politely
		3) Good listener
		4) Attention to others
		5) Can work together
3	Love Peace	1) Patience
		2) Humble
		3) Not easy to get emotional
		4) Not grumpy
		5) Full of love
4	Responsibility	1) Perform routine tasks without being notified
		2) Can explain what he/she does
		3) Don't blame others too much
		4) Able to make choices from several alternatives

The data collection methods used in this study were descriptive analysis and inferential statistical analysis. The descriptive analysis carried out in this study was processed with the help of SPSS 26.0 for Windows and the post-test data was analyzed. The values sought in the statistical test include the mean, standard deviation, maximum and minimum values. Meanwhile, the inferential analysis was carried out utilizing inferential statistical analysis which was used with the MANOVA test for post-test data. Before the Manova test, the prerequisite test was performed, the prerequisite test was a normality test with Kolmogrof-Smirnov, a homogeneity test with Levene Statistic and Box's Test of Equality of Covariance Matrices and a multicorrelation test. The MANOVA test and the prerequisite test were carried out with the help of SPSS 25.0 for Windows.

3 Results and Discussions

3.1 Result

After students were taught according to the design of the training model that had been made, namely the *gyaku-tsuki* punch technique training model, the results of the descriptive analysis showed that there was a significant effect on the implementation of the *gyaku-tsuki* punch technique training model on the physical readiness and character of the students. The results of the descriptive analysis are shown in Table 3 completely. The results of the descriptive analysis showed that there are differences in the physical readiness and character of students who are taught by learning with the *gyaku-tsuki* punch technique training model with students who learn without the *gyaku-tsuki* punch technique training model. This is shown by the difference in the physical readiness score of 4.61 where the average value of the physical readiness of the students who are taught with the *gyaku-tsuki* punch technique training model is greater than the students who are taught without the *gyaku-tsuki* punch technique training model. Meanwhile, the character shows a difference score of 3.43 where the average score of the character of students who are taught with the *gyaku-tsuki* punch technique training model is greater than the students who are taught without the *gyaku-tsuki* punch technique training model. The results also show that the *gyaku-tsuki* punch technique training model has more effect on physical readiness than character.

Table 3
Results of descriptive analysis of physical readiness and character

Treat	Dependent Variable	Mean	Std. Deviation	Min.	Max.	Range
Gyaku-tsuki punch technique training model	Physical Readiness	31.33	7.06	19.00	44.67	25.67
	Character	80.89	3.73	74.00	88.00	14
Without Tri Pramana's *gyaku-tsuki* punch technique training model	Physical Readiness	26.72	6.16	15.00	38.80	23.80
	Character	77.46	4.15	70.00	84.00	14

The analysis prerequisite tests included the normality test of the data distribution, the homogeneity of variance test, the multivariate homogeneity test, and the linearity test of the dependent variable. The first prerequisite test was the normality test with the Kolmogorov-Smirnov. The results of the analysis show that all data come from groups of data that are normally distributed, this can be indicated by the value of Sig. > 0.05, which is presented in Table 3. After the normality requirements are met, the next prerequisite test is the homogeneity test. In this study, the homogeneity test was carried out with two analyzes, namely the homogeneity of variance test with Levene's Test of Equality and the multivariate homogeneity test with Box's Test of Equality of Covariance Matrices.

Table 3
Results of Normality analysis

	Learning_Approaches	Kolmogorov-Smirnov[a]		
		Statistic	df	Sig.
Physical Readiness	Gyaku-tsuki punch technique training model	0.13	28	0.20*
	No gyaku-tsuki punch technique training model	0.15	28	0.13
Character	Gyaku-tsuki punch technique training model	0.14	28	0.15
	No gyaku-tsuki punch technique training model	0.15	28	0.14

The results of the homogeneity analysis showed that the research data came from homogeneous data groups, this can be seen from the sig value. each test showed a value of more than 0.05. Value of Sig. Levene's Test of Equality test is 0.34 for physical readiness while the value of Sig. characters of 0.35. Meanwhile, the homogeneity test with Box's Test of Equality of Covariance Matrices obtained sig. of 0.63 with an F value of 0.58. The next prerequisite test is the linearity test, which aims to determine whether there is a linear relationship in each of the analyzed dependent variables. The results of the analysis show that the value of sig. on Deviation from Linearity of 0.03 <0.05, this means that there is no linear relationship between physical readiness data and character. The test requirements for MANOVA analysis have been met, where the research data obtained are normally distributed, and homogeneous so that hypothesis testing with Manova can be carried out. The results of the complete analysis are described in Table 4 and Table 6.

Table 5
Results of the Manova Test Analysis

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	1.00	13702.58[b]	2.00	53.00	0.00
	Wilks' Lambda	0.00	13702.58[b]	2.00	53.00	0.00
	Hotelling's Trace	517.08	13702.58[b]	2.00	53.00	0.00
	Roy's Largest Root	517.08	13702.58[b]	2.00	53.00	0.00
Treat	Pillai's Trace	0.30	11.36[b]	2.00	53.00	0.00
	Wilks' Lambda	0.70	11.36[b]	2.00	53.00	0.00
	Hotelling's Trace	0.43	11.36[b]	2.00	53.00	0.00
	Roy's Largest Root	0.43	11.36[b]	2.00	53.00	0.00

The results of the analysis obtained several findings. First, based on Pillar Trace, Wilks' Lambda Hotelling's Trace, and Roy's Largest Root shows that the F coefficient is 13702.58b with a value of Sig. 0.00. This means that there was a simultaneous difference in the physical readiness and character of the students who are taught with the *gyaku-tsuki* punch technique training model. Second, the results of the Tests of Between-Subjects Effects analysis showed an F value of 6.80 with Sig. 0.01 which is smaller than 0.05, this shows that there was an effect of the *gyaku-tsuki* punch technique training model on physical readiness. And Third, the results of the Tests of Between-Subjects Effects analysis showed an F value of 10.58 with Sig. 0.00 which is smaller than 0.05. This showed that there is a *gyaku-tsuki* punch technique training model for characters.

Table 6
The results of the analysis of tests of between-subjects effects

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	Physical_Readiness	298.27[a]	1	298.27	6.80	0.01
	Character	164.57[b]	1	164.57	10.58	0.00
Intercept	Physical_Readiness	47181.88	1	47181.88	1075.43	0.00
	Character	351077.79	1	351077.79	22578.89	0.00
Treat	Physical_Readiness	298.27	1	298.27	6.80	0.01
	Character	164.57	1	164.57	10.58	0.00
Error	Physical_Readiness	2369.12	54	43.87		
	Character	839.64	54	15.55		
Total	Physical_Readiness	49849.27	56			
	Character	352082.00	56			
Corrected Total	Physical_Readiness	2667.39	55			
	Character	1004.21	55			

3.2 Discussion

The results showed that the *gyaku-tsuki* punch technique training model had an effect either simultaneously or partially on the physical readiness and character of the students. This condition certainly cannot be separated from the training model used. The *gyaku-tsuki* punch technique training model provides an opportunity for students to train their physique more. Considering that the *Gyaku tsuki chudan* punch technique is the most widely used punch in a karate match, the *gyaku tsuki chudan* punch technique can be used as an attacking blow or counter attack, this punch technique goes to the stomach, using the hand opposite the foot position (Suryasa et al., 2022). *Gyaku tsuki chudan* launched from a stance *(zenkutsu dachi)* that is strong and stable and can provide strong momentum to the target, the hips are rotated and kept the height unchanged during rotation then shift the center of weight slightly forward, followed by rotating the upper body while the arm is straightened to the target to be addressed (shoulders should not rotate). The faster and stronger the movement, the greater the power generated. This stroke is often combined with additional movements to form a variety of movements. Through exercise, the physical condition of an athlete's physical fitness can be maintained or improved, both related to skills and general health. Where physical fitness is a measure of the physical ability of an athlete in carrying out their daily duties (East et al., 2017). The higher the degree of physical fitness of the athlete, the higher his physical work ability. Physical condition training is the main program in coaching athletes to excel. Physical condition training is the process of developing the ability of physical movement activities that are carried out systematically and progressively improved to maintain or increase the degree of physical fitness to achieve optimal physical work abilities (Indrayogi & Nurhayati, 2020). In other words, this exercise model can improve physical condition. Physical readiness can be seen from how the physical condition of the athlete.

Physical condition is a unified whole component with other components (Dawud & Hariyanto, 2020; Nurhidayah & Graha, 2017). Physical conditions are composed of several complementary components. Strength, endurance, flexibility, agility, balance, accuracy, reaction, coordination, speed and power (Herpandika et al., 2019; Sinaga et al., 2016). All physical activity requires a combination of the components of strength, speed, flexibility and others. Athletes from any sport absolutely and must train all components of their physical

condition. The existence of appropriate training will form the ideal body composition, and the ideal body composition for athletes will help improve performance during sports (Brown et al., 2017; Leão et al., 2022; Setiarini, 2020; Sarıalioğlu, 2019). In this study, the measured component that experienced an increase was the ability to push up. Push-up ability experienced a significant increase compared to the 3 components of physical readiness measured. The ability to do push-ups has increased this is due to the exercise model being carried out. The existence of the *gyaku tsuki chudan* punch exercise will give strength to the arms so that students can do push-ups better than before (Batara et al., 2022). Push-ups are usually done to strengthen the muscles of the body (Kim et al., 2016), such as arm muscles, biceps, triceps, shoulders and chest (Irawan & Sandiyudha, 2018). Push-ups are activities that are usually carried out and conditioned on programs that aim to increase upper body endurance (Hariti et al., 2020). Increasing the ability to do push-ups will provide an overview of the physical readiness of students.

The readiness of students will affect their character of students to get achievements. The existence of a *gyaku-tsuki* punch technique training model will have an impact on the physical readiness of students which will have an impact on their character of students. Character here means the behavioral characteristics possessed by a person to act (Guo et al., 2018; Hariti et al., 2020), Students who have character will achieve better academic results (Ji et al., 2013; Lee & Huang, 2021). Good character will not be formed automatically, it must be developed continuously through the processes of teaching, examples, learning and practice on an ongoing basis through character education (Rockenbach, 2020). The formation of character can be started with continuous interaction between each other by exchanging information about the situation, socializing and interacting, in the family, community, school and environment (Bustami et al., 2017; Groenewoudt et al., 2019). Character is very important for students because education is a planned effort to make students recognize, care and internalize values so that students behave as noble people, where the purpose of character education is to improve the quality of implementation and educational outcomes in schools through the formation of students' character in a holistic manner, whole, integrated, and balanced, according to standards (Parks & Peterson, 2021). Hence, with good character possessed by students, they will be able to make students compete healthily and produce good achievements.

These descriptions illustrate that the *gyaku-tsuki* technique training model carried out by students will be able to improve their physical condition, if the athlete's physical condition is good, at least the athletes will be more confident and their mental condition is also good. To strengthen the physical and mental conditions, karate will be combined with character education. Character education will shape, and develop one's potential and can shape one's mentality (Sembiring et al., 2022). The combination of *gyaku-tsuki* punches with character education will able to improve the mental and physical condition of athletes. The *gyaku-tsuki* punch will allow the athlete to train physically through the techniques that have been prepared, while character education will make the athlete have strong character values that will affect the athlete's achievement. In this study, character education will be trained along with the *gyaku-tsuki* punch. The development of this training model, it will be one solution that can be used to overcome the problems of athletes' physical and mental conditions that affect karateka performance.

4 Conclusion

The results show that the *gyaku-tsuki* punch technique training model has an impact on physical readiness and character both simultaneously and partially, this can be seen from the average value of the group trained with the *gyaku-tsuki* punch technique training model is greater than the exercise without *gyaku-tsuki* punch technique training model. Hence, it is recommended that this *gyaku-tsuki* punch technique training model can be used as an alternative to karate training to improve physical readiness and character.

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References

ACV, M., GR, P., AM, E., & LS, L. (2018). Cinematic characteristics of technique gyaku-zuki no jion kata do karatê style shotokan. MOJ Applied Bionics and Biomechanics, 2(2), 164–168. https://doi.org/10.15406/mojabb.2018.02.00060

Anisah, G. (2018). Validitas Instrumen Asesmen Menulis Cerpen Terintegrasi Pendidikan Karakter. *Al Ulya: Jurnal Pendidikan Islam*, *3*(1), 15-25.

Arif, R. M. (2017). Implementasi pendidikan karakter dalam pembelajaran sains. *STILISTIKA: Jurnal Bahasa, Sastra, Dan Pengajarannya*, *2*(1).

Asriani, P., & Sa'dijah, C. (2017). Bahan ajar berbasis pendidikan karakter untuk siswa kelas IV sekolah dasar. *Jurnal Pendidikan: Teori, Penelitian, Dan Pengembangan*, *2*(11), 1456-1468.

Badawi, B. (2019). Pendidikan Karakter dalam Pembentukan Akhlak Mulia di Sekolah.

Bahri, S. (2015). Implementasi pendidikan karakter dalam mengatasi krisis moral di sekolah. *Ta'allum: Jurnal Pendidikan Islam*, *3*(1), 57-76.

Bailis, D. S., Segall, A., & Chipperfield, J. G. (2003). Two views of self-rated general health status. *Social science & medicine*, *56*(2), 203-217. https://doi.org/10.1016/S0277-9536(02)00020-5

Batara, R., Ardani, I. G. A. I., Wardani, I. A. K., Windiani, I. G. A. T., Adnyana, I. G. A. N. S., & Setiawati, Y. (2022). Psychogenic dysphagia in children, and the success of family-based treatment: Case report. *International Journal of Health & Medical Sciences*, *5*(1), 163-168. https://doi.org/10.21744/ijhms.v5n1.1894

Berkowitz, M. W., Bier, M. C., & McCauley, B. (2017). Toward a science of character education. *Journal of Character Education*, *13*(1), 33-51.

Betsch, M., Hoit, G., Dwyer, T., Whelan, D., Theodoropoulos, J., Ogilvie-Harris, D., & Chahal, J. (2021). Postoperative pain is associated with psychological and physical readiness to return to sports one-year after anterior cruciate ligament reconstruction. *Arthroscopy, sports medicine, and rehabilitation*, *3*(6), e1737-e1743. https://doi.org/10.1016/j.asmr.2021.08.001

Bidaya, Z., & Dari, S. M. (2020). Revolusi Mental Melalui Penguatan Pendidikan Karakter untuk Siswa Berkebutuhan Khusus di Kota Mataram. *CIVICUS: Pendidikan-Penelitian-Pengabdian Pendidikan Pancasila dan Kewarganegaraan*, *8*(2), 51-60.

Brown, K. A., Patel, D. R., & Darmawan, D. (2017). Participation in sports in relation to adolescent growth and development. *Translational pediatrics*, *6*(3), 150.

Bustami, Y., Corebima, A. D., & Suarsini, E. (2017). The Social Attitude Empowerment of Biology Students: Implementation JiRQA Learning Strategy in Different Ethnics. *International Journal of Instruction*, *10*(3), 15-30.

Dawud, V. W. G., & Hariyanto, E. (2020). Survei Kondisi Fisik Pemain Sepakbola U 17. *Sport Science and Health*, *2*(4), 224-231.

Dewi, D. A., Hamid, S. I., Kamila, J. T., Putri, S. B., & Haliza, V. N. (2021). Penanaman Karakter Smart Young And Good Citizen untuk Anak Usia Sekolah Dasar. *Jurnal Basicedu*, *5*(6), 5234-5240.

e1737–e1743. https://doi.org/10.1016/j.asmr.2021.08.001

East, W., Muraca-Grabowski, S., McGurk, M., DeGroot, D., Hauret, K., Greer, T., ... & Redmond, J. (2017). Baseline soldier physical readiness requirements study. *Journal of Science and Medicine in Sport*, *20*, S24-S25. https://doi.org/10.1016/j.asmr.2021.08.001

Edwarsyah, E., Hardiansyah, S., & Syampurma, H. (2017). Pengaruh Metode Pelatihan Circuit Training Terhadap Kondisi Fisik Atlet Pencak Silat Unit Kegiatan Olahraga Universitas Negeri Padang. *Jurnal Penjakora*, *4*(1), 1-10.

Evenetus, Y., Mulyana, R. B., & Ma'mun, A. (2019). Pengaruh Program Latihan terhadap Peningkatan Kekuatan, Power, Daya Tahan Lengan dan Performa Renang 50 Meter Gaya Bebas. Jurnal Penelitian Pendidikan, 19(3), 445–455.

Groenewoudt, A. C., Rooks, G., & van Gool, P. J. (2019). When problems lead to ideas: the roles of daily vigor and social interactions. *The Journal of Creative Behavior*, *53*(3), 286-297.

Guo, Y. J., Yang, L., Ji, H. X., & Zhao, Q. (2018). Caring characters and professional identity among graduate nursing students in China-A cross sectional study. *Nurse Education Today*, *65*, 150-155. https://doi.org/10.1016/j.nedt.2018.02.039

Hariti, T., & Rejeki, S. (2020). Strengthening soft skills as the character of student nurses through the preceptorship management model. *Enfermeria Clinica*, *30*, 64-68. https://doi.org/10.1016/j.enfcli.2019.11.022

Herpandika, R. P., Yuliawan, D., & Rizky, Y. (2019). Analisis kondisi fisik atlet puslatkot Kota Kediri dalam rangka menuju " Kediri Emas " di Porprov 2019 Analysis of physical conditions of Puslatkot at Kediri city in order to " Kediri Emas " in Porprov 2019 PENDAHULUAN Pembangunan suatu negara tergantung. *Jurnal SPORTIF, 5*(2), 342–353.

Indrajaya, M. I. (2017). Tingkat Kondisi Fisik Cabang Olahraga Karate Kota Surabaya (Studiatlet Putri Karate Puslatcab Surabaya. *Jurnal Prestasi Olahraga*, *1*(1).

Indrayogi, I., & Nurhayati, M. (2020). Pengaruh Latihan Senam Sehat Indonesia Terhadap Peningkatan Kapasitas Paru-Paru Bagi Lansia Di Universitas Majalengka. *Jurnal Educatio FKIP UNMA*, *6*(2), 419-424.

Irawan, F. A., & Sandiyudha, T. B. (2018). Pengembangan Alat Bantu Push-Up (Push-Up Counting) Sebagai Alternatif Perangkat Kebugaran Jasmani. *Media Ilmu Keolahragaan Indonesia*, *8*(1), 26-30.

Ismoko, A. P., & Sukoco, P. (2013). Pengaruh metode latihan dan koordinasi terhadap power tungkai atlet bola voli junior putri. *Jurnal Keolahragaan*, *1*(1), 1-12.

Jaya, K. A. (2019). Membangun Mutu Pendidikan Karakter Siswa Melalui Implementasi Ajaran Tri Hita Karana. *Jurnal Penjaminan Mutu*, *5*(1), 57-67.

Ji, P., DuBois, D. L., & Flay, B. R. (2013). Social-emotional and character development scale. *Journal of Research in Character Education*, *9*(2), 121-147.

Kim, Y. S., Kim, D. Y., & Ha, M. S. (2016). Effect of the push-up exercise at different palmar width on muscle activities. *Journal of physical therapy science*, *28*(2), 446-449.

Kristiawan, M. (2016). Telaah revolusi mental dan pendidikan karakter dalam pembentukkan sumber daya manusia Indonesia yang pandai dan berakhlak mulia. *Ta'dib*, *18*(1), 13-25.

Lamusu, A., & Lamusu, Z. A. (2020). Hubungan Power Otot Tungkai Dengan Kecepatan Tendangan Mawasi Geri Pada Mahasiswa Pendidikan Jasmani Kesehatan Dan Rekreasi (PJKR) Fakultas Olahraga dan Kesehatan Universitas Negeri Gorontalo. *Aksara: Jurnal Ilmu Pendidikan Nonformal*, *6*(3), 365-376.

Leão, C., Silva, A. F., Badicu, G., Clemente, F. M., Carvutto, R., Greco, G., ... & Fischetti, F. (2022). Body Composition Interactions with Physical Fitness: A Cross-Sectional Study in Youth Soccer Players. *International Journal of Environmental Research and Public Health*, *19*(6), 3598.

Lee, C. K. J., & Huang, J. (2021). The relations between students' sense of school belonging, perceptions of school kindness and character strength of kindness. *Journal of school psychology*, *84*, 95-108. https://doi.org/10.1016/j.jsp.2020.12.001

Luhut, S. M., & Jualita Ardiah, R. (2016). The Improvement of Arms Muscle Power and Shoulder by Using The Pull Down Exercise For Woman Boxing Athlete Club Histom Boxing. *Journal Online Mahasiswa*, *3*(2), 1-10.

Maltby, J., Macaskill, A., & Day, L. (2001). Failure to forgive self and others: A replication and extension of the relationship between forgiveness, personality, social desirability and general health. *Personality and Individual Differences*, *30*(5), 881-885. https://doi.org/10.1016/S0191-8869(00)00080-5

Maunah, B. (2015). Implementasi pendidikan karakter dalam pembentukan kepribadian holistik siswa. *Jurnal Pendidikan Karakter*, *6*(1).

Mohlisin, G. (2018). Gedung Pelatihan Olahraga Beladiri di Pontianak. *JMARS: Jurnal Mosaik Arsitektur*, *6*(2).

Nurhidayah, D., & Graha, A. S. (2017). Profil Kondisi Fisik Atlet Unit Kegiatan Mahasiswa Pencak Silat Universitas Negeri Yogyakarta Kategori Tanding. *MEDIKORA*, *16*(1).

Park, N., & Peterson, C. (2006). Moral competence and character strengths among adolescents: The development and validation of the Values in Action Inventory of Strengths for Youth. *Journal of adolescence*, *29*(6), 891-909. https://doi.org/10.1016/j.adolescence.2006.04.011

Purnomo, E. (2019). Pengaruh program latihan terhadap peningkatan kondisi fisik atlet bolatangan porprov kubu raya. *JSES: Journal of Sport and Exercise Science*, *2*(1), 29-33.

Purwanto, S. (2022). Fleksibilitas pinggang dan kekuatan otot lengan: bagaimana kontribusinya terhadap kecepatan pukulan gyaku tsuki?. *Jorpres (Jurnal Olahraga Prestasi)*, *18*(1), 10-16.

Putry, R. (2019). Nilai pendidikan karakter anak di sekolah perspektif Kemendiknas. *Gender Equality: International Journal of Child and Gender Studies*, *4*(1), 39-54.

Rahmawati, I., Suminar, D. R., Soedirham, O., & Saptandari, P. (2019). SKKD No. 1272/UN25. 5.1/TU. 3/2019" Hubungan Personal Remaja Dengan Pelaksanaan Pendidikan Karakter OIeh Orang Tua dalam Upaya

Pencegahan Perilaku Seksual Pranikah di Kabupaten Jember (elationship of Adolescents Personal on the Implementation of Character Education by Parents in the Prevention of Premarital Sexual Behavior in Jember)".

Rehusisma, L. A., Indriwati, S. E., & Suarsini, E. (2017). Pengembangan media pembelajaran booklet dan video sebagai penguatan karakter hidup bersih dan sehat. *Jurnal Pendidikan: Teori, Penelitian, Dan Pengembangan*, *2*(9), 1238-1243.

Rockenbach, A. N. (2020). Character education for the public good: The evolution of character capacities in and beyond college. *Journal of College and Character*, *21*(1), 6-13.

Rogers, J., & Revesz, A. (2019). Experimental and Quasi-Experimental. ResearchGate, July, 133–143.

Rokhman, F., Hum, M., & Syaifudin, A. (2014). Character education for golden generation 2045 (national character building for indonesian golden years). *Procedia-Social and Behavioral Sciences*, *141*, 1161-1165. https://doi.org/10.1016/j.sbspro.2014.05.197

Rosita, I. (2014). Reaction Speed and Coordination Improves The Punch of Gyaku Zuki Chudan. *Journal of Physical Education, Sport, Health and Recreation, 4*(2), 102–108.

Sarialioğlu, N. (2019). Analysis of the Relationship between Proprioceptive Sensory Functions and Body Mass Index Parameters of Football and Volleyball Players. *Uluslararası Anadolu Spor Bilimleri Dergisi*, *4*(2), 12-16.

Sembiring, T. B., Maruf, I. R., Susilo, C. B., Hidayatulloh, A. N., & Bangkara, B. M. A. S. A. (2022). Health literacy study on approaching forest and boosting immune system strategy. International Journal of Health Sciences, 6(1), 40–49. https://doi.org/10.53730/ijhs.v6n1.3145

Setiarini, A. (2020). Hubungan Komposisi Tubuh Dengan Nilai Volume Oksigen Maksimal (VO2MAKS) Pada Atlet Pria Kelompok Usia Remaja Dan Dewasa Awal (10-30 Tahun): Systematic Review. *Jurnal Kesehatan Komunitas*, *6*(1), 7-12.

Sitanggang, W. H., & Simamora, P. (2020). Pengaruh Model Pembelajaran Generative Learning Terhadap Hasil Belajar Siswa Pada Materi Pokok Momentum, Impuls Dan Tumbukan. *Jurnal Inovasi Pembelajaran Fisika, 8*(2), 31–36.

Suryasa, I. W., Rodríguez-Gámez, M., & Koldoris, T. (2022). Post-pandemic health and its sustainability: Educational situation. *International Journal of Health Sciences*, *6*(1), i-v. https://doi.org/10.53730/ijhs.v6n1.5949

Tanto, O. D., Hapidin, H., & Supena, A. (2019). Penanaman Karakter Anak Usia Dini dalam Kesenian Tradisional Tatah Sungging. *Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini*, *3*(2), 337-345.

Wibisana, F., Rinaldy, A., & Nusufi, M. (2016). Evaluasi Kondisi Fisik Dominan Pada Atlet Karate-Do Dojo Lanal Inkai Kota Sabang Tahun 2015. *Pendidikan Jasmani, Kesehatan dan Rekreasi*, *2*(2).

Wright, T. A., & Quick, J. C. (2011). The role of character in ethical leadership research. *The Leadership Quarterly*, *22*(5), 975-978. https://doi.org/10.1016/j.leaqua.2011.07.015

Biography of Authors

Kadek Yogi Parta Lesmana
is a Lecturer in the Faculty of Sports and Health at the Ganesha University of Education. Born in Singaraja on October 25, 1984. Education S1 Physical Education Health and Recreation at the University of Education Ganesha, Masters in Learning Technology at the University of Education Ganesha and currently pursuing a doctoral education in Education Science Concentration in Sports Education.
Email: yogi.parta@undiksha.ac.id

I Nyoman Kanca
is a Professor and Lecturer in the Faculty of Sport and Health at the Ganesha University of Education. Born in Singaraja, on October 18, 1959. Education: S1 Sports Education UNS Surakarta, S2 Sports Science, S3 Medical Science, Subjects taught: PJOK Research Methods, PJOK Learning Strategies, Kinesiology and Biomechanics, PJOK Seminars, Statistics, School Health Education, THK.
Email: nyoman.kanca@undiksha.ac.id

Wahjoedi
is a lecturer at the Faculty of Sports and Health, the Ganesha University of Education-FOK Undiksha since 1994. He is active and contributes to the Education Quality Development Team, Sports Development, and Human Resources through SM3T and PPG Services at the Ministry of Education and Culture RI 2003-present. Contributing to the development of Sports Science and Technology, Pioneering and Management of the Sports Science and Technology Journal, and the Indonesian Education Sports Journal-JOPI at the Kemenpora RI 1999-present. Actively participate in the development of sports achievements, both at the district and provincial levels of Bali. As: 1) General Chairperson of FPTI Buleleng Regency 2003-present; 2) Organizational Board of Trustees "National Teacher Association-IGORNAS Bali Province 2022-2026", and 3) Advisory Board for Bali Province FPTI Management 2022-2026.
Email: wahjoedi@undiksha.ac.id

I Ketut Iwan Swadesi
holds the position of Lecturer and Lecturer at the Faculty of Sports and Health, Ganesha University of Education. He was appointed as a lecturer at the University in 2001 and continued his postgraduate studies in sports science at Sebelas Maret State University, Surakarta. He was appointed as Senior Lecturer in 2001 and Lecturer in 2005. He is passionate about improving the quality of teaching and student learning in Schools and the development of sports science in higher education and clubs. I Ketut Iwan Swadesi's research interests lie in Physical Education, Sports Achievement and sports tourism.
Email: iwan.swadesi@undiksha.ac.id