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# Analysis of Body Posture, Punching Speed and Kicks of Athletes of the Provincial PPLP Aceh, Indonesia

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**Abstract.** The Aceh Youth and Sports Service is one of the official containers in recruiting and fostering junior and senior high school-level youth athletes in Aceh every year. With this activity, it is hoped that in PPLPD coaching, the coaches, especially in the sport of combat degree, can find new athletes who will be fostered and guided according to their abilities and talents so that these athletes can achieve optimal performance. This study uses a quantitative approach. The findings are obtained through statistical procedures and other numerical calculations. This study's population comprised seven athletes from PPLPD Aceh who PPLPD coached. The instruments used to collect this research data are body pressure tests, double punches, and inner circle kicks.

Based on the research results, conclusions can be drawn as follows: 1) with the test results, PPLPD athletes assisted by the Aceh Provincial must train harder and be disciplined again by following the physical condition training program delivered by sports experts; 2) the speed of Aceh PPLPD athletes' punches and kicks can exceed West Java PPLP athletes, the results of this study can be used as a guideline for other researchers in relatively similar situations or contexts in different fields to improve coach performance.

The suggestions that can be given are as follows: 1) the technological system needs to be improved further to improve the quality of athletes in the future and the long term; 2) coaches are expected to provide direction and constructive criticism to their athletes. Coaches can also explain mistakes and shortcomings in detail during training and matches.

**Keywords:** Body Posture; Punch Speed; Kick Degrees.

## INTRODUCTION

Sports are an inseparable part of people's daily lives around the world. In general, exercise helps individuals maintain physical and mental health and is a source of fun and entertainment. Therefore, physical activity or exercise will benefit our body [1]. Sports is one form of effort to improve the quality of Indonesian people directed at the formation of character and personality, discipline and high sportsmanship, as well as increasing achievements that can arouse a sense of national pride. Therefore, the Indonesian government must have a strong will and determination to advance sports in Indonesia. Awareness of the strategic significance of sports must go through development planning in favour of the sport's progress. It must be comprehensive because sports have various potentials that contain the spirit

and strength to build because they manifest the energy of a long development process [2].

Pengrov Aceh, especially the pencak silat branch, is an athlete fostered by the Aceh Diaspora centred in a young dormitory. The purpose of concentrating athletes in dormitories is so that athletes can participate in training optimally because the athletes concerned can be controlled and always appropriately supervised, starting from diet, training, and rest. The hope of the Aceh Diaspora, with athletes centred in dormitories, can support the best performance. The recruitment process for Aceh Diaspora athletes has specific categories. Athletes who qualify are expected to have a high posture; male athletes must have a TB of 170 cm, and women must have 165 cm. The opinion expressed by [3] explained that: "Talent identification in adolescents can be done using motor skills, physiology, and physical

tests (posture) as a selection instrument for talented adolescent athletes in sports". Pengrov pencak silat also expects athletes who pass the selection to become PLPD athletes with high posture and good pencak silat skills. When the athlete recruitment process was carried out, most athletes who passed the selection stage had a short posture, very far from the expectations Pengrov and Diaspora Aceh desired.

Athletes with quick postures in competition must maintain distance when competing with outside athletes. A short posture makes it very difficult to play long distances because they cannot reach when doing kicks and punches. Athletes in Java Island have a higher posture than Aceh PLPD athletes. In 2019, Bali became the overall champion at POMNAS V West Java Province. Bali Province won 4 gold medals, while Aceh did not win a single medal. Based on these results, Aceh should commit to the recruitment process of PLPD athletes.

From some of the explanations above, it can be concluded that body posture or anthropometry is one element that is quite influential in sports, especially sports achievements. To achieve high achievements, specific physical characteristics and postures are needed to meet the demands of the sports they participate in. PPLPD Aceh hopes that athletes can be nurtured to achieve achievements, and these athletes are selected through selection stages. For fighting criteria, athletes must have a high and ideal posture To produce punches and kicks over long distances and have powerful speed and accuracy. In contrast, athletes must have an ideal, balanced posture with their team for the art of movement. In fact, on the field that passed the selection of athletes who had a short and fat posture when competing outside Aceh, PPLPD athletes in Aceh tend to keep their distance because outdoor athletes have a high and ideal posture with their weight. Number fighting, while in the art of number movement, some have an overweight posture. Body weight is not perfect, so there is no aesthetic posture.

## METHODOLOGY

Following the problems described, this study uses a quantitative approach. The analysis method is to analyze and present facts systematically to make it easier to understand and infer [4]. This descriptive research analysis is limited to the

presentation of measurement results related to body posture analysis, fast double punch speed, and inner circle kick speed. This research was conducted in the fourth week of July 2022 at the Harapan Bangsa Stadium.

## RESULT AND DISCUSSION

The results of the study were in the form of quantitative data obtained from measurements of several test items, namely: 1) body posture by measuring Body Weight, Height, Arm Length, and Leg Length, 2) punch speed using the Double Fast test, 3) kick speed using the Deep Circumference Kick test. The results of this test were obtained from athletes from Tarung Degree PPLPD Aceh.

Table 1 – Raw data from research results on Aceh PPLPD Tarung Degree athletes

No	Sample	Body Posture				Punch Speed, s	Kick Speed, s
		BB, kg	TB, cm	Arm Length, cm	Limb Length, cm		
1	P01	47,1	152	63	95	2,08	8,86
2	P02	48,3	162	65	90	2,66	36,08
3	P03	58,1	166	68	90	4,34	27,92
4	P04	48,3	152	55	89	5,58	34,92
5	P05	68	174	72	98	5,78	40,04
6	P06	48	156	60	90	10,06	3,50
7	P07	48	156	62	94	10,06	2,48
Sum		365,8	1.118	445	646	40,56	153,8
Average		52,25	159,71	63,57	92,28	5,79	21,97

Body Posture is a person's body shape or posture that can be seen from head to toe. The purpose of the Body Posture test on athletes Tarung Degree PPLPD Aceh is to see ideally the athlete's body related to BB and TB, Arm Length in hitting, and Leg Length in kicking. Based on the results obtained that all athletes of Tarung Degree PPLPD Aceh have an ideal body with a Normal classification between Weight and Height, it can be said that the athlete's BB and TB are suitable with a percentage of 100%. When competing, Aceh PPLPD Degree Combat Athletes must have an ideal body according to the class classification. BB and TB must be in sync because if overweight athletes are divided between BB and TB, it is not perfect. It is challenging for the athlete's fighting number to win the match because outside athletes have a height that matches their weight. The length of the arm of the Aceh PPLPD Degree Fighting athlete, on average, is 60-63 cm. The arm's height can affect when the athlete makes a punch and reaches the punch and also affects the

speed of the punch produced by the athlete. The faster and longer the shot range, the better and more significant the athlete's chances to win.

Furthermore, on average, the length of the legs of athletes fighting degrees PPLPD Aceh is 89-91 cm. The height of the athletes' limbs also affects the speed at which athletes produce. Fast punches and kicks cannot be obtained instantly but through a long process of practice, discipline, and earnestness in doing the exercises.

This study used Double Fast Punch, and this test aimed to see the Speed of Punch in Aceh PPLPD Degree Fighting athletes. The punch is obtained in units of seconds. Based on the results that have been received, the average punch of Tarung Degree athletes is in the range of 4.09-6.08 s, with a Good classification. The speed of the punch produced by the athlete is inseparable from the BB, TB, and Arm Length owned by the athlete. Kicks are the most critical component that athletes must master.

This study used the Inner Circle Kick, and this test aimed to see the Kick Speed in Aceh PPLPD Degree Fighting athletes. Based on the results obtained, the Average Kick Speed of Tarung Degree athletes is 8.86-18.86 s, with a Very Good classification. The speed of kicks produced by athletes is inseparable from the BB, TB, and leg lengths owned by athletes. Kicks are the most critical component that athletes must master.

From the data above, arm length and leg length on body weight are not so visible to influence all samples by the theory proposed. Researchers conduct this can happen due to various other factors, namely:

- 1) The sample's age is still young, ranging from 14 to 16 years, so it does not have strong courage and maturity in making fast punches.
- 2) a lack of experience still causes a sense of doubt or fear of pain when hitting the force plate target, a challenging target different from the target box usually held by the trainer and made of softer material.
- 3) Application and understanding of the technique of fast double punches and circular kicks in still imperfect samples.

## CONCLUSIONS

The results of the research conducted obtained data on the results of the body posture test, the

speed of punches and kicks carried out on combat athletes fostered by PLPD Aceh Pengprov, then the following data were obtained:

1) for the stroke speed that the sample achieves in the athlete P03 with TB: 166, BW: 58.1, PL: 68, which results in a punch speed of 0,68 ms for an inner circle kick speed of 3,06 ms. Athlete P05 with TB: 174, BW: 68, PL: 72 resulting in a punch speed of 1,91 ms, for an inner circle kick speed of 0,99 ms, athlete P01 with TB: 156, BW: 47,1 PT: 95 able to produce punch speed 2,72 ms, then kicks 1,12 ms. Athlete P02 with TB: 162, BW: 48,3 PT: 65 can make a punch speed of 5,73 ms, then with a kick speed of 1,41 ms. Athlete P04 with TB: 152, BW: 48.3, PT: 55 can produce a punch speed of 5.55 ms then with a kick speed of 1.96 ms. Athlete P07 with TB: 156, BW: 48, and PT: 62 can produce a punch speed of 2.72 ms with a kick speed of 0.61 ms. The last athlete, P06 with TB: 156, BW: 48, PT: 90, can produce a punch speed of 3.61 ms and a kick speed of 2.31 ms.

Based on the findings of data in the field, it is known that several factors affect the speed of punches and the speed of kicks, especially in degree fighters, including a) internal factors and b) external factors, such as the fulfilment of athlete nutrition, intensity factors, training quality, endurance, physical condition, confidence, and various other physical factors. However, athletes are greatly influenced by the presence of the closest person to their athlete, especially during events at certain race levels. This considerably sharpens an athlete's mood in facing his opponent to show his best to the guests present, so physiologically, it dramatically influences the quality of matches/competitions.

Based on the research results, conclusions can be drawn as follows.

So, with the test results, PPLPD athletes assisted by the Aceh Provincial must train harder and be disciplined again by following the physical condition training program delivered by sports experts.

So, that the speed of Aceh PPLPD athletes' punches and kicks can exceed West Java PPLP athletes, the results of this study can be used as a guideline for other researchers in relatively similar situations or contexts in different fields to improve coach performance.

The suggestions that can be given are as follows:  
a) The technological system needs to be im-

proved further to improve the quality of athletes in the future, and the long term; b) Coaches are expected to provide direction and constructive

criticism to their athletes. Coaches can also explain mistakes and shortcomings in detail during training and matches.

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