

# An analysis of reaction times to three different punch types among amateur boxing athletes of the Thailand National Team

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## Summary

Participants in the study were amateur boxing athletes from the Thailand national team, who will compete in the 2024 Summer Olympics in Paris. The result showed that the number of punches thrown per stimulus was higher with throwing the double punch, in comparison to throwing either the left punch or right punch, the average fastest punching time per stimulus of throwing the double punch was faster than throwing the left punch, and the average reaction time to the stimulus of throwing the double punch was faster than throwing either the left or right punch.

## Background

There are limited studies of the reaction time of throwing punches in Thai Amateur Boxing athletes. Amateur Boxing which is point-scoring blows, based on the number of clean punches landed to movable specific areas.[1] This study will be baseline information for developing Amateur Boxing athletes. Objectives. To compare the reaction time of punches; left, right, double punches.

## Methods

12 participants were male Amateur Boxing athletes of the Thailand National Team, 18–35 years old, Welterweight–Light Heavyweight, right-handedness. Participants warmed up and familiarized themselves with the procedure, standing on the test ground while posting the Orthodox Stance, left hands were 15 cm. away from machines. Then randomly selected order and performed 3 sets of left, right, and double punch over 60 seconds, 3-minute breaks between sets and 10-minute breaks between forms. Their punches as fast as possible to the stimulus, that is, the LED lights target at the SMART fit machine [2] to measure the number of punches thrown per stimulus (times/second), the fastest punching time per stimulus (seconds), the average reaction time to stimulus (seconds) of each punch type.[3] Following the data collection, the researchers calculated the average values from the 3 sets. In order to lower the participants' risk of injury, the fitness professionals then guided them through stretches and cool-down exercises.

## Result and Discussion

Using One-Way Repeated Measures ANOVA, the number of punches thrown per stimulus between left and double punch was a significant difference ( $p < 0.001$ ); also, between right and double punch ( $p < 0.001$ ). The fastest punching time per stimulus was a significant difference between left and double punch ( $p = 0.006$ ). The average reaction time to the stimulus was a significant difference between left and double punch ( $p < 0.001$ ), and between right and double punch ( $p < 0.001$ ). In addition, this research study found that participants tend to react faster to stimulus and have good coordination when using both hands to throw double punches. The athletes should always practice and be familiar with the double punch or combinations. To improve the efficiency of combinations that will give Amateur Boxing athletes a competitive edge.[4]

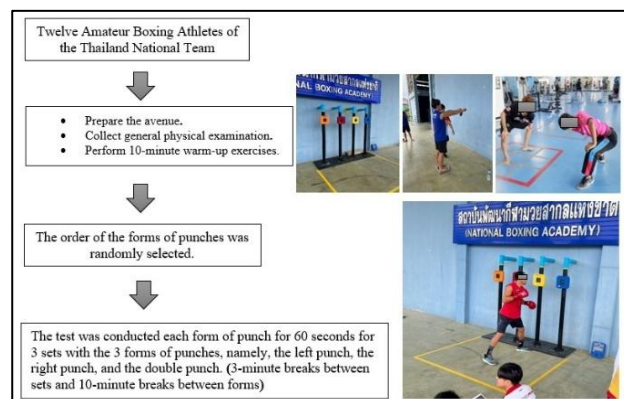


Figure 1. Data Collection Procedure

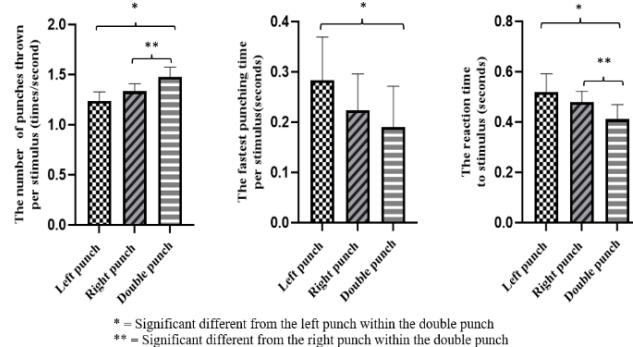


Figure 2. Comparison of the number of punches thrown per stimulus, the fastest punching time per stimulus, and the average reaction time to stimulus from throwing the left punch, the right punch, and the double punch.

## Conclusions

Throwing double punches produced the highest number of punches thrown, the fastest punching time, and a better average reaction time per stimulus than a left or right punch. In terms of the reaction time to stimulus, throwing a double punch is the most effective, but the left punch is a less effective form of punch.

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