



## Kinematic analysis of GiakoZuki Judan and Chudan punches in professional and semi-professional male karate athletes

*Oral Presentation*

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### Abstract

**Introduction:** Gyakuzuki is a major and important skill in karate. The aim of this study was to investigate the kinematic characteristics of the two skills of Judan and Chudan Giakozuki Karate, professional and semi-professional male men.

**Methods:** 10 Professional and 10 semi-professional amateur male karate athletes participated in this study and performed the techniques. The ground reaction force during the impact, which was an indirect parameter to calculate the impact power, was measured using a force plate with a frequency of 250 Hz. The ADXL320 accelerometer was used to calculate the hand transfer acceleration. The kinematic data were recorded using Phase Space real-time optical tracking system with 8 high-speed cameras at 480 fps. The kinematic parameters associated with each fist were modeled and quantified by a three-dimensional imaging system. Paired t-test and independent t-test were used to analyze the data.

**Results:** The results in the parameters of the wrist, elbow, shoulder movement in Judan and Chuadan Gyakozuki skills, ground reaction force, the peak speed of elbow and shoulder in Chuan Gyakozuki skill, peak wrist velocity in Judan Gyakozuki skill in semi-professional karate and professional showed a significant difference

**Conclusion:** Finally, the results showed that the type of impact and the level of experience of karatekas were the main factors in determining the size of the displacement parameters and peak velocity, which are considered an important factor in success in competitions and lead to better scores in competitions.

### Keywords

Parameter Kinematic; Judan and ChudanGiakozuki; Professional; semiprofessional; Karate Man

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