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► **To cite this version:**

François Le Failler, Olivier Massoutier, Charles Pontonnier, Franck Multon. Comparison of two Qwan ki do punching techniques. 2024 - Sport Physics conference, Dec 2024, Rennes, France. pp.1-1. hal-04826686

**HAL Id: hal-04826686**

**<https://inria.hal.science/hal-04826686v1>**

Submitted on 9 Dec 2024

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# Comparison of two Qwan ki do punching techniques

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Qwan Ki Do is derived from Chinese and Vietnamese martial arts, mixing many fighting techniques such as fists, feet, elbows, sweeps, scissors, projections, grabs, locks, self-defense. Technique efficiency is a constant debate, for which masters and coaches have insights and beliefs. In Qwan Ki Do, punching may be performed with a classical fist technique or with an anchoring on the ground through the feet. Coaches think that this latter technique, consisting in voluntary "pushing" on the ground, may be more efficient in terms of striking force and propagation.

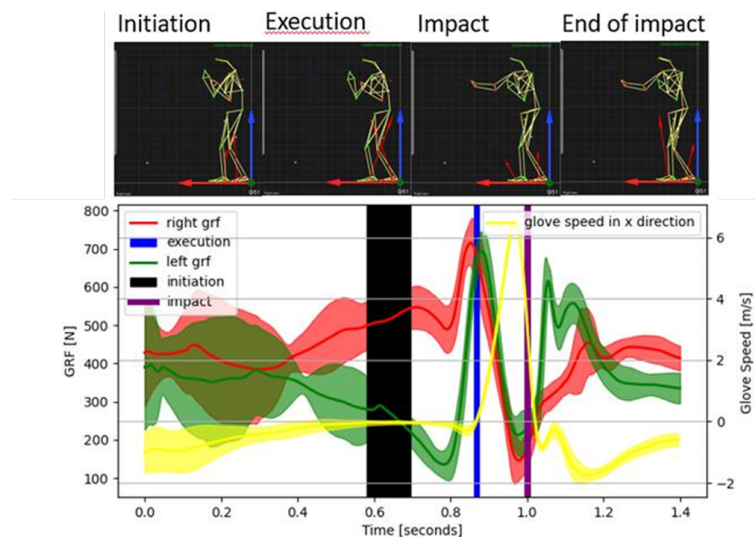


Figure 1: a strike performed with anchoring and right and left ground reaction forces (GRF).

To test this assumption, we defined an experimental protocol, consisting in striking an instrumented boxing pad, measuring striking force and pad acceleration, motion and ground reaction forces of the striker. 5 experienced (> 3 years) Qwan Ki Do practitioners were recruited to perform 4 series of 10 strikes (jab and cross, with and without anchoring). The anchoring technique was found to generate more power, particularly in the cross strike ( $p < 0.01$ ). Additionally, a consistent finding across both punch types was that the center of mass was lower in the anchoring condition ( $p < 0.05$ ). Additional results are investigated to understand the biomechanical adaptations related to the anchoring technique, and better describe its interest for the fighters.

## References

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