

Source: Otacon. New Study Shows That Grunting Gives You 10% More Power and Slows Your Opponents' Reactions. Tennis Warehouse, 2018.



Kiai as Force Multiplier

A 2018 study shows that grunting in tennis provides 10% more power and slows an opponent's reactions. Grunting during physical activities that demand sudden short, sharp bursts of power, such as weight training, is common and probably has been used since our prehistoric ancestors hefted stones or heaved projectiles. Emitting a high-decibel grunt or squeal while hitting a tennis backhand or performing a roundhouse kick could substantially increase the power of that movement and sneakily bedevil your opponent.

A 2014 study of college tennis players determined that grunting could indeed increase the power of players' groundstrokes and serves. And a study from 2010 found that such sounds can serve as a distraction for others. But those studies could not determine whether the usefulness of grunting was confined only to tennis or how the ballistic squawks were affecting onlookers and opponents. Were the sounds more directly distracting people, drawing their attention away from the onrushing ball and befuddling their reactions?

To learn more, some of the same scientists decided, for the new experiment, which was published in 2018, to look closely at mixed martial arts and grunting. They chose that sport for several reasons, the first being that, like tennis, it demands sudden, explosive movements, meaning punches and kicks, to which grunting conceivably could add power. Perhaps even more important, martial arts moves do not involve inherent noise, unlike the ping of a tennis racket meeting a ball. So if an onlooker proved to be worse at judging a fast-approaching kick when someone grunted, it would be because the yell had directly confused the watcher, not because it had masked some other noise.

Twenty local participants from a local mixed martial arts (MMA) academy in Hawaii were recruited for this study (18 males and 2 females), ranging in ages 20-35. Each participant had at least one year of MMA and/or Muay Thai training, with several participants having professional competitive experience. All participants kicked a specially prepared heavy bag, which contained a device that measured force. The athletes kicked the bag multiple times while producing a mighty yell or remaining silent. The participants were able to generate significantly more g-force while kicking with a grunt than without. Specifically, they generated 24.2 g-forces when grunting and 22 g-forces when not grunting, a 9% increase in force.

Then they gathered 22 undergraduate students and had them watch the videos, which showed the athletes' feet advancing toward the viewers at intimidating speed. The students had to rapidly decide whether the kick would land high or low and press a corresponding computer key. During about half of the kicks, a sound like a grunt (standardized to avoid changes in volume or pitch)

accompanied the motion. Otherwise the videos were quiet. The sound affected viewers, although not favorably, as they were much slower in responding and more prone to errors in judging direction when the kick had come with a grunt.

The results do not show whether grunting loudly in other situations and sports would produce the same results. It is unlikely, for instance, that grunting would be beneficial in long-distance running or walking, which require little explosive force (although yelling at random moments would be likely to surprise and worry your training partners). This study also cannot tell us whether consciously deciding to scream during sports would be beneficial, if noise is not natural to you. You might wind up distracting yourself with your grunts and playing worse.



The grunt or “spirited shout” is known as kiai in Karate and kihap in Taekwondo. Kiai has different expressions (vocalization, duration, purpose, timing, etc.). The majority of students simply imitate the kiai of their teachers. Okinawan Karate originally didn’t have kiai. When Gichin Funakoshi introduced Karate to Japan, his university students would sometimes practice alongside Kendo and Judo students who did kiai. Reportedly, his students asked if they could also kiai to show good spirit. Funakoshi agreed and kiai was added to Karate in order to keep up with Japanese martial arts. When performing a kata they could kiai at any point that they felt the urge; however, this was later changed to 2 kiai at set points in each kata. Many Okinawan schools have incorporated kiai into their kata because aspects of Karate was reverse-imported from mainland Japan back to Okinawa after World War II.



Kicking a heavy bag with kiai can produce a 9% increase in force.

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