

## Performance Mouth Gear; It's Not Just for Protection Anymore

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How ever new and crazy it sounds, the phenomenon for enhancing performance through an oral appliance is centuries old. In ancient Greece, athletes bit down on leather straps during competition; Viking warriors and Roman legionnaires bit on leather thongs when entering battle; Civil War soldiers undergoing surgery without anesthesia bit on a bullet; Native American women giving birth bit on a stick. These groups of people knew that, by biting on an object, it would interrupt the fight or flight response, helping them to get through, and even excel at strenuous or punishing activities.

Clenching the jaw with the teeth together inhibits performance by compressing the temporomandibular joint (TMJ) signaling the hypothalamus, which triggers the production and release of a cascade of hormones including cortisol, the stress hormone. It also restricts airflow, limiting the exchange of O<sub>2</sub> and CO<sub>2</sub>.

Preventing the teeth from clenching together and dropping the jaw down and forward (putting a measured space between the teeth), relieves pressure on the TMJ and eliminates the fight or flight signal to the hypothalamus, preventing the excessive production of hormones including cortisol, and increasing airflow resulting in a greater O<sub>2</sub> and CO<sub>2</sub> exchange.

Research and scientific studies have been conducted at accredited universities, including the University of Tennessee, the University of Minnesota and the Citadel that demonstrates the benefits of bioengineered oral appliances to produce enhanced changes in human performance.

- Decreases cortisol production, the stress hormone, up to 49% during exercise/stress
- Decreases lactic acid product during exercise (25% at 30 minutes)
- Increases the airway and O<sub>2</sub> CO<sub>2</sub> exchange
- Increases strength (up to 20%)
- Increases anaerobic endurance (17%)
- Faster reaction times (up to 49%)
- Improves shooting accuracy
- Improves performance in weightlifting, tennis, golf
- Enhances blood-flow
- Helps prevent concussions (22% reduction in G-Force impact from blows to the jaw)

The mouthwear's cortisol-reducing capabilities and other benefits make it relevant to a broad range of applications other than sports and fitness. The military, first responders, search and rescue, health and wellness (stress relief, weight loss, snoring), education (test taking, studying) medical (birthing), dental (bruxing, TMJ) recreation and gaming (video games, bowling, poker), and business and industry (e.g. baggage handlers, construction workers, drivers, traders, surgeons).

To experience the benefits of Performance Mouthwear, call 254-4000 or visit [www.drdell.com](http://www.drdell.com).