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SIMPLE ROUTINE COULD HELP ATHLETES AVOID CHOKING UNDER PRESSURE

Squeezing A Ball Before Competition May Improve Performance, Study Finds

WASHINGTON — Some athletes may improve their performance under pressure simply by squeezing a ball or clenching their left hand before competition to activate certain parts of the brain, according to new research published by the American Psychological Association.

In three experiments with experienced soccer players, judo experts and badminton players, researchers in Germany tested the athletes' skills during practice and then in stressful competitions before a large crowd or video camera. Right-handed athletes who squeezed a ball in their left hand before competing were less likely to choke under pressure than right-handed players who squeezed a ball in their right hand. The study was published online in the *Journal of Experimental Psychology: General*.

For skilled athletes, many movements, such as kicking a soccer ball or completing a judo kick, become automatic with little conscious thought. When athletes under pressure don't perform well, they may be focusing too much on their own movements rather than relying on their motor skills developed through years of practice, said lead researcher Juergen Beckmann, PhD, chair of sport psychology at the Technical University of Munich in Germany.

"Rumination can interfere with concentration and performance of motor tasks. Athletes usually perform better when they trust their bodies rather than thinking too much about their own actions or what their coaches told them during practice," Beckmann said. "While it may seem counterintuitive, consciously trying to keep one's balance is likely to produce imbalance, as was seen in some sub-par performances by gymnasts during the Olympics in London."

Previous research has shown that rumination is associated with the brain's left hemisphere, while the right hemisphere is associated with superior performance in automated behaviors, such as those used by some athletes, the study notes. The right hemisphere controls movements of the left side of the body, and the left hemisphere controls the right side. The researchers theorized that squeezing a ball or clenching the left hand would activate the right hemisphere of the brain

and reduce the likelihood of the athlete's choking under pressure. The study focused exclusively on right-handed athletes because some relationships between different parts of the brain aren't as well understood for left-handed people, according to the authors.

The research could have important implications outside athletics. Elderly people who are afraid of falling often focus too much on their movements, so right-handed elderly people may be able to improve their balance by clenching their left hand before walking or climbing stairs, Beckmann said.

"Many movements of the body can be impaired by attempts at consciously controlling them," he said. "This technique can be helpful for many situations and tasks."

In the first experiment, 30 semi-professional male soccer players took six penalty shots during a practice session. The next day, they attempted to make the same penalty shots in an auditorium packed with more than 300 university students waiting to see a televised soccer match between Germany and Austria. The players who squeezed a ball with their left hand performed as well under pressure as during practice, while players who squeezed a ball in their right hand missed more shots in the crowded auditorium.

Twenty judo experts (14 men and six women) took part in the second experiment. First, they performed a series of judo kicks into a sandbag during practice. During a second session, they were told that their kicks would be videotaped and evaluated by their coaches. The judo athletes who squeezed a ball with their left hand not only didn't choke under pressure, they performed better overall during the stressful competition than during practice, while those in the control group choked under pressure, the study found.

The final experiment featured 18 experienced badminton players (12 men and six women) who completed a series of practice serves. Then, they were divided into teams and competed against each other while being videotaped for evaluation by their coaches. Athletes who squeezed a ball in their left hand didn't choke under pressure, unlike the control group players who squeezed a ball in their right hand. A final phase of the experiment had the athletes just clench their left or right hand without a ball before competition, and players who clenched their left hand performed better than players who squeezed their right hand.

The ball-squeezing technique probably wouldn't help athletes whose performance is based on strength or stamina, such as weightlifters or marathon runners, the authors noted. The effects apply to athletes whose performance is based on accuracy and complex body movements, such as soccer players or golfers, they said.

Article: "Preventing Motor Skill Failure Through Hemisphere-Specific Priming: Cases From Choking Under Pressure;" Juergen Beckmann, PhD, Peter Groepel, PhD, and Felix Ehrlenspiel, PhD, Technical University of Munich; *Journal of Experimental Psychology: General*; online Sept. 3, 2012.

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