

Mapping overthinking: Athletes who ‘choke’ under pressure activate areas of the brain involved in long-term thinking

Are penalty shots a soccer player’s dream or nightmare? Penalties can go either way, which makes them exciting to watch, but also raises some questions about performance under pressure. And what might normally be considered a relatively straightforward shot can become a mammoth task when the hopes and fears of an entire nation rest on a player’s shoulders.

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The [investigators point out](#) that while technical skills will influence the “quality of the penalty kick,” psychological factors also appear to have a clear influence on the outcome of a penalty kick. Many studies on the causes of missed penalties have convincingly shown that the kicker’s anxiety and the mental pressure under which they find themselves are the most common psychological factors that can adversely affect performance. This then manifests as what’s known as “choking” under pressure.

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For players who tended to experience more anxiety and miss penalties, [a specific] area of the brain was more active—the prefrontal cortex (PFC). This brain region is involved in long-term thinking, suggesting that such players were thinking about the consequences of missing the shot, which impaired their performance.

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