

What Happens to a Soccer Player's Brain After Missing a Penalty Kick

By ACSH Staff — June 25, 2016

It's that time again: the possibility of penalty shoot-outs looms large in Euro 2016 now that we are entering the knockout phases. We kick off on Saturday June 25 with Switzerland v Poland and Wales v Northern Ireland, though those with a taste for blood sports might prefer to look forward to the possibility of another England vs. Germany penalty showdown in the semi-finals.

It wouldn't be the European Championships if one or two footballers didn't end up going home knowing their team's exit was because they fluffed an all-important spot kick. During the group phases we have already seen two players fail to convert a penalty in the normal run of play – [Cristiano Ronaldo](#) ^[1] for Portugal and [Alexander Dragovic](#) ^[2] for Austria.

It may be straightforward to shoot from 12 yards past a goalkeeper into an otherwise empty net, yet many very skilled footballers miss when it matters most. In normal circumstances, many would gladly stake their house that the great Ronaldo, with the subtle wink and wide grin, would find the back of the net. Instead, he hit the left post against Austria and the [game ended](#) ^[3] 0-0, which meant the Portuguese were lucky to scrape through their group in third place.

Our research has consistently shown an interesting thing about the way players miss vital penalties – they often make [the exact error](#) ^[4] they are trying to avoid. A player places the ball on the penalty spot in a tournament like Euro 2016 and tells himself, “aim left; just don't hit the left post”. During training or a less important match, they would find the back of the net with ease every time.

But this is a high-pressure match – a stadium full of screaming fans and hundreds of millions of viewers around the world watching him take those steps back. And more often than not, the player who misses won't have kicked the ball wide of the post or over the crossbar. He'll have kicked it precisely at the left post. Since this is the thing he set out to not do, we call it the “ironic error”.

Under the bonnet

Why exactly does this performance error occur? When the brain seeks to make the body perform in a particular desirable way, it [relies on](#) ^[5] two processes – an operating process and a monitoring process.

The operating process is responsible for identifying all the steps that will allow us to achieve a desired outcome. If you are going to take a penalty, this would include taking the usual number of steps back, thinking of the spot where you want to hit the ball, running up, planting your non-striking foot next to the ball, and scoring where you were aiming. Simple, right?

At the same time, a monitoring process is subconsciously at work. It is like a radar sweep searching for information on what could go wrong, in this case hitting the post. Once it has identified such risks, it informs the operating process to try harder to find information that will make things go to plan so you can still score the penalty. Both processes work under one control system and operate together as part of a feedback loop.

This system usually works really well and provides us with the effective mental control to do what we intend to do. It means that a player lining up for a penalty on the training pitch will aim for the bottom left-hand corner, take a run up, strike the ball and marvel at his accuracy as the ball bulges against the inside side netting on the left corner.



What can go wrong? [razihusin](#) [6]

But in a competition such as Euro 2016, when a player is on the cusp of eternal glory or crushing defeat, the space required in their brain for the operating process to work [will be consumed](#) [4] by the mental load from being under pressure. When that happens, the operating process (“I know what I need to do”) and anxiety (“I am worried”) compete for the same limited mental space, and the operating process becomes far less effective at making the player aware of the desired result.

On the other hand, the monitoring process remains largely unaffected under pressure. This is because it works on a subconscious level; it doesn’t take up any cognitive space. This means that by being under pressure, the monitoring process [becomes more prevalent](#) [7]. When it carries out a sweep for information on what could go wrong under pressure – and here’s the irony in all this – it

brings what could go wrong into the person's consciousness.

In other words, the very mental process that should help the player not to hit the left post is the very reason that he ends up being more likely to hit the left post. By attempting to avoid the error, the mind is drawn ever closer to focusing on it.

Our most recent [research](#) [8] has found that more neurotic players are more prone to these ironic errors. But the most susceptible of all turn out to be the players who mask their performance anxiety under pressure by trying to look nonchalant or "cool". [The reason](#) [9] is that their brains are overloaded by statements that limit their behavior, such as "be cool" and "don't show that you're anxious".

The fix

How can players avoid becoming victims of ironic error in the knockout stages of Euro 2016? The simplest way is to practice controlling anxiety under pressure with relaxation strategies. A player could use techniques to [control breathing](#); [10] or "[progressive muscle relaxation](#) [11]", which involves tensing up a group of muscles as tight as possible and holding them like that for a few seconds. The muscles are then progressively relaxed to their previous state and the player experiences less anxiety as a result.

Another way is to [rephrase negative instructions](#) [12] in a positive way. Instead of a player telling himself "don't hit the left post" he should be instructing himself to pick the precise point where he wants the ball to strike the net.

Now that it's penalty knockout time again, we'll soon find out if the remaining teams have been practicing these techniques. England, Wales and Northern Ireland, are you listening?

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[1] <https://www.theguardian.com/football/2016/jun/18/portugal-austria-euro-2016-match-report>

[2] <http://worldsoccertalk.com/2016/06/22/no-blame-for-dragovic-penalty-miss-says-austria-coach-koller/>

[3] <https://www.theguardian.com/football/live/2016/jun/18/portugal-v-austria-euro-2016-live>

[4]

http://journals.humankinetics.com/AcuCustom/Sitename/Documents/DocumentItem/02%20Woodman%20TSP_2014_0223.pdf

[5] <http://psychology.iresearchnet.com/social-psychology/control/ironic-processes/>

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- [7] <http://www.theguardian.com/news/oliver-burkeman-s-blog/2013/dec/11/ironic-effects-sabotage-your-plans>
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