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Gamblers in a spin over frustrating losses

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A new study provides evidence that gamblers interpret near-misses as frustrating losses rather than near-wins. This frustration stimulates the reward systems in the brain to promote continued gambling, according to Mike Dixon from the University of Waterloo in Canada, and his colleagues. This, in turn, may contribute to addictive gambling behavior. Their work is published online in Springer's *Journal of Gambling Studies*.

Dr. Dixon comments, "Our findings support the hypothesis that these types of near-misses are a particularly frustrating form of loss, and contradict the supposition that they are a mis-categorized win. Specifically, following these types of near-misses, participants may be driven to spin again as quickly as possible to remove themselves from a particularly frustrating state."

Studies to date have shown that near-misses support persistent gambling and activate brain areas that reinforce certain behaviors. If near-misses are seen as near-wins, then they should be pleasurable. If, however, near-misses are highly frustrating losses, then they should be unpleasant. Dixon and team set out to shed light on this debate.

They measured the time between the result of a spin and the initiation of the next spin following losses, near-misses and wins of various sizes among 122 participants as they played a slot machine simulator. Of the 122 gamblers, 22 were non-problem gamblers, 37 were at risk players and 23 were problem gamblers. The researchers also assessed the players' frustration levels by measuring the rate at which electricity travels through the skin. Skin responses reflect psychophysical changes

as a result of frustration.

The analyses showed that progressively larger wins led to longer pauses between spins and increased arousal levels. Near-misses with jackpot symbols landing on the first two reels led to significantly larger skin responses than regular losses and other types of near-misses. In addition, the gamblers were compelled to repeat the spin as quickly as possible after this type of near miss.

"By activating what we call the appetitive component of the mesolimbic rewards system, these near-misses may help a player develop a hopeful, subjective impression that the next win is imminent," said Dixon. "This might ultimately contribute to the sensitization of the appetitive system, which plays a key role in addictive behavior."

More information: Dixon MJ et al (2012). The frustrating effects of just missing the jackpot: slot machines near-misses trigger large skin conductance responses, but no post-reinforcement pauses. *Journal of Gambling Studies*, DOI 10.1007/s10899-012-9333-x

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