



# RESEARCH SYNOPSIS

Dixon, M., Harrigan, K., Sandhu, R., Collins, K., & Fugelsang, J. (2010) Losses disguised as wins in modern multi-line video slot machines *Addiction*. (105) 1819-1824

## RESEARCH QUESTIONS

Do the sights and sounds associated with losses disguised as wins (LDWs) stimulate similar physiological responses as those associated with regular wins on modern slot machines?

## PURPOSE

LDWs occur when a player wins less than wagered on a slot machine spin. LDWs are celebrated by the machine with sights and sounds similar to a true win (i.e., win amount is more than wagered). The purpose of this study was to determine if the similar sights and sounds of LDWs and real wins bring forth the same physiological changes in heart-rate deceleration and skin conductance.

## HYPOTHESIS

1) The similar sights and sounds accompanying both LDWs and wins would cause players to react physiologically to LDWs as if they were wins; 2) A player's heart-rate deceleration would be greatest for a real win, next largest for an LDW, and smallest for a loss; 3) There will be higher skin conductance response (SCRs) for wins and LDWs than for losses.

## PARTICIPANTS

A sample of forty-six students (29 females) from the University of Waterloo whose ages ranged from 19-30 years participated in the study. All participants met inclusion criteria of being a novice gambler and free from gambling problems according to the Canadian Problem Gambling Index.

## PROCEDURE

The participants were fitted with the SCR and heart-rate monitoring electrodes while being given a tutorial on how the slot machine operated. Players were instructed to place a 'max bet' for each play, wagering on all 15 lines of the game. After each play the participants waited 6 seconds before they spun again.

## MAIN OUTCOME MEASURES

To measure event-related phasic heart-rate changes, Inter-beat Intervals (IBI) were compared prior to and after stimulus presentation. SCR amplitudes were calculated following each win, LDW, and loss for each participant and the average SCR (consisting of 3 values) was taken for each participant to be analyzed.

## KEY RESULTS

Each participant had slightly different numbers of wins, LDWs, and losses. Heart rate deceleration was greatest shortly after seeing the sights and sounds of a real win, more so than either LDWs or losses [the only significant difference between the 3 conditions was shortly after seeing the result]. These findings support the hypothesis that heart-rate deceleration would be greatest in wins, next greatest in LDWs and least in losses. The SCR data showed the wins and LDWs were not significantly different from one another, however they were both significantly higher than SCRs for losses. The data found for SCRs supports the hypothesis that both wins and LDWs would yield higher SCRs than losses.

## LIMITATIONS

Although the players were playing on real slot machines, they did not play with their own money.

## CONCLUSIONS

The sights and sounds that accompany a win trigger physiologic arousal. The sights and sounds that accompany LDWs elicit similar levels of arousal in the participants, much more so than losses (even though the participants are not gaining any credits during a loss or LDW). This is thought to be because of the lack of positive reinforcement for a regular loss by the flashing lights and sounds that are present for both a win and LDW.

**KEYWORDS:** arousal, gambling, heart-rate deceleration, skin conductance, slot machines

**URL:** [www.ncbi.nlm.nih.gov/pubmed/25117847](http://www.ncbi.nlm.nih.gov/pubmed/25117847)