

How poker machines create addicts and rob them blind

October 27 2015, by Charles Livingstone

Australians lose [A\\$20 billion](#) on gambling every year, \$11 billion of which goes on poker machines in pubs and clubs. Why, then, are pokies so attractive? And why do we spend so much on them?

Ubiquity is one reason. The high intensity – the rapid speed of operation and relatively high stakes of betting up to \$10 per "spin" – is another.

But there's also a more insidious mechanism at work here: the basic characteristics of poker machines, combined with constantly refined game features, stimulate the brain in a way that, in many cases, leads to addiction with symptoms similar to those [associated with cocaine use](#).

Poker machines cultivate addiction by teaching the brain to associate the sounds and flashing lights that are displayed when a punter "wins" with pleasure. And since the pattern of wins, or rewards, is random, the "reinforcement" of the link between the stimuli and pleasure is much stronger than if it could be predicted.

Into the machine

Poker machines, invented in the late 19th century, were originally mechanical, usually with three reels and a fixed and limited number of [symbols](#) available for display on the win line. Contemporary pokies are fully computerised. Usually housed in a retro-designed box, they refer to the old-fashioned simplicity of their predecessors. But they are as chalk

and cheese compared to their mechanical forebears.

Today, the gambling machine industry employs an army of engineers, programmers, composers and graphic designers to produce increasingly sophisticated games and machines, with more ways of persuading people to part with their cash.

At the heart of the modern pokie is a series of random number generators. These are constantly operating and, when the button is pushed, the answer is instantly known. Each number corresponds to a "reel" symbol – pokies still appear to have reels that roll around when the button is pushed, but this is an illusion.

In Australia, unlike some other jurisdictions, the order of symbols on each of the visual reels must be constant, but the number of symbols can be different on each reel. This includes winning symbols.

Old, mechanical pokies had a limited number of "stops" because of the limitations of physical space. Electronic pokies have no such limitations. And the difference is profound. A mechanical pokie with three reels, 20 symbols on each reel, including one prize symbol, would have winning odds of $1/20 \times 1/20 \times 1/20$, or one in 8,000.

A contemporary pokie will often have major prize odds of one in 10 million or more. The number of symbols on each reel is not limited by physical space, so the odds of a major win can be tweaked by limiting the number of winning symbols on certain reels.

A five-reel game may have two winning symbols on each of the first three reels, each of 60 symbols in total. The last two reels may have only one winning symbol, with 80 total symbols. This configuration would produce odds of $2/60 \times 2/60 \times 2/60 \times 1/80 \times 1/80$, equal to one in 230,400,000.

This maths is at the heart of machine design. A slot game is just a spreadsheet. But it's a spreadsheet with a lot of enhancements.

Tricking the brain

These configurations will regularly produce "near misses". These occur when winning symbols appear on some lines, but not all. Experimental work has revealed that the brain stimulus produced by such "[near misses](#)" can be almost as significant as those produced by a win. The level of reinforcement is thus dramatically increased, without any need for the machine's operator to actually pay out.

Current pokies also allow multiline bets, whereby users can select all available lines to bet on in a single spin. Mechanical machines were limited to a single line of three reels. Pokies now allow users to bet on 50 or more lines, [configured from](#) the video display of five reels and three lines.

The line across the middle is one such line, as are those above and below that line. But patterns of symbols are available in bewildering arrangements, combining lines and reels and multiplying the minimum bet by many times. A one-cent credit value game can thus be configured to allow at least a 50-cent minimum bet per spin if 50 lines are selected.

Most regular users [report](#) that their preferred style of use is "mini-max" – that is, the minimum bet with maximum lines. In a strange way, this reveals risk-averse behaviour. There's nothing worse than seeing a win come up on a line you're not playing, as a regular pokie user once explained to me.

But regular users will also increase their stakes when they can. This is to provide for the possibility of bigger payouts, or in some cases because they believe – incorrectly – that doing so will increase the chances of a

win.

Pokies also allow the credits bet per line to be multiplied, often by up to 20 times. Thus, a one-cent machine becomes a device capable of allowing bets of \$10 per spin. Each spin can take as little as three seconds.

For this reason, the Productivity Commission [calculated](#) that such machines could easily average takings of up to \$1,200 per hour. But this is an average, and it's not uncommon to observe people spending \$400 or more on poker machines in as little as ten minutes.

Machines that accept banknotes allow significant amounts to be "loaded up". In New South Wales, pub and club pokies can accept \$7,500 at any one time.

The other capability provided by multiline poker machines is a phenomenon known as ["losses disguised as wins"](#). This allows users to experience a reward from the game even when they've actually lost money.

If you bet on each of 50 lines at one cent per line and win a minor prize on one line (say, 20 credits), for instance, the machine will provide suitable reinforcement – sounds, lights and sometimes a congratulatory message – and acknowledge the credits won. But you've actually lost 30 cents.

This allows the amount of reinforcement delivered to the user to be magnified significantly – often doubled. Thus, the user feels like they're winning quite regularly. In fact, they're losing.

So what does all this stimulation do? Brain chemicals, particularly dopamine, are central to this process. Brain imaging [has shown](#) in recent

years that the pattern of dopamine release that occurs during a gambling session is strikingly similar to that of cocaine and other addictions.

Poker machines are essentially addiction machines that have been developed over a long period of time to be as attractive to their users as drugs are to theirs.

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