SIGNAL DETECTION

Adding a small amount of noise allows some of the signal to pass the threshold and be sensed. But adding too much noise washes out the signal, and the brain can sense only the noise. Still more noise added to the signal makes most if not all of the signal sensible.

FEEL THE NOISE

1 NO SENSATION
Sensory neurons produce the sense of touch on the sole of the foot. In these cells, signals that are too weak to breach a certain threshold (yellow) are not detected by the brain. But stochastic resonance, a counterintuitive phenomenon whereby noise strengthens a signal, can help the brain sense the signal. Improving sensation at the foot can help people maintain their balance.

2 SOME SENSATION
Adding a small amount of noise allows some of the signal to pass the threshold and be sensed.

3 PEAK SENSATION
Still more noise added to the signal makes most if not all of the signal sensible.

4 DECREASED SENSATION
But adding too much noise washes out the signal, and the brain can sense only the noise.

Mechanical signal
Threshold of sensation