

Neuroplasticity

Psychology

How the brain changes with experience, and the evidence for it.

The brain's capacity to reorganise structure and function in response to experience, learning or injury — through synaptic change, cortical remapping and, in some regions, new neurons.

MECHANISM

LTP, pruning, remapping

LIFELONG

yes, reduced

- Maguire: London taxi drivers show a larger posterior hippocampus.
- Cortical remapping follows limb loss, producing phantom sensations.
- Synaptic pruning removes unused connections during development.
- Long-term potentiation strengthens frequently used synapses.
- Plasticity is greatest in development but continues throughout life.
- Recovery after stroke depends on it.

LOOK FOR IT

Musicians show enlarged motor representation for the trained hand, proportional to years of practice.

'Neurons that fire together wire together' — Hebb's rule, and the basis of long-term potentiation.