Lesson One Embedded Videos

Transcript

**Experiences build brain architecture**
<https://www.youtube.com/watch?v=VNNsN9IJkws>

00:07

A child's experiences during the earliest years of life have a lasting impact on the architecture of the developing brain.

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Genes provide the basic blueprint, but experiences shape the process that determines whether a child's brain will provide a strong or weak foundation for all future learning, behaviour, and health.

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During this important period of brain development, billions of brain cells called neurons send electrical signals to communicate with each other.

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These connections form circuits that become the basic foundation of brain architecture.

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Circuits and connections proliferate at a rapid pace and are reinforced through repeated use.

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Our experiences and environment dictate which circuits and connections get more use.

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Connections that are used more grow stronger and more permanent. Meanwhile, connections that are used less fade away through a normal process called pruning.

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Well-used circuits create lightning-fast pathways for neural signals to travel across regions of the brain.

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Simple circuits form first, providing a foundation for more complex circuits to build on later.

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Through this process, neurons form strong circuits and connections for emotions, motor skills, behavioural control, logic, language, and memory during the early critical period of development.

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With repeated use, these circuits become more efficient and connect to other areas of the brain more rapidly.

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While they originate in specific areas of the brain, the circuits are interconnected. You can't have one type of skill without the others to support it.

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Like building a house, everything is connected and what comes first forms a foundation for all that comes later.

# **Neuroplasticity**

<https://www.youtube.com/watch?v=ELpfYCZa87g>

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Not so long ago, many scientists believed that the brain did not change after childhood. That it was hard-wired and fixed by the time we became adults but recent advances in only the last decade now tell us that this is simply not true.

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The brain can and does change throughout our lives: it is adaptable, like plastic hence neuroscientists call this 'neuroplasticity'. How does neuroplasticity work?

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If you think of your brain as a dynamic, connected power grid, there are billions of pathways, or roads, lighting up every time you think, feel or do something.

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Some of these roads are well travelled: these are our habits, our established ways of thinking, feeling and doing.

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Every time we think in a certain way, practice a particular task or feel a specific emotion, we strengthen this road.

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It becomes easier for our brains to travel this pathway.

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Say we think about something differently, learn a new task, or choose a different emotion

we start carving out a new road - if we keep travelling that road our brains begin to use this pathway more, and this new way of thinking, feeling, or doing becomes second nature.

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The old pathway gets used less and less and weakens. This process of rewiring your brain by forming new connections and weakening old ones is neuroplasticity in action.

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The good news is that we all have the ability to learn and change, by rewiring our brains.

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If you have ever changed a bad habit or thought about something differently you have carved a new pathway in your brain and experienced neuroplasticity first-hand.

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With repeated and directed attention towards your desired change you can rewire your brain.