

EU researchers with a dream: unveiling the mysteries of sleep

Voice-over 1:

Night has fallen across Milan. Most of the city's one and a half million souls are fast asleep. But in a lab in the University La Statale, a number of experiments are underway and Luca is the volunteer. These neurophysiologists share a common dream - to discover the elusive mechanisms of sleep. Researchers send electromagnetic signals to Luca's brain cortex and record his responses. These responses will help us unravel the mysteries of sleep.

Marcello Massimini:

We spend one third of our life sleeping, on average eight hours a day, and this is done by all animals, from flies to human beings. Sleep is surely something that has been selected by evolution, something that is needed, that it is fundamental.

Voice-over 1:

23.05, Luca is wide awake. He has sixty-three electrodes connected to his head and a small infrared camera will record his eye movements.

Marcello Massimini:

Why do we sleep? We still don't know. That is what we are trying to discover with these experiments.

Voice-over 1:

23.15, an interactive map of Luca's brain is set up.

Marcello Massimini:

There are several hypotheses. The first suggests that sleep is needed to consolidate memories. We live, we learn, but these are somehow disconnected, not sufficiently fixed in our brain... sleep helps these experiences bed into our brain.

Voice-over 1:

23.30, Luca's cortex receives electromagnetic stimulation.

Marcello Massimini:

There is another hypothesis, which is more general, more interesting, that says sleep is the price we pay for our brain's capacity for learning.

Voice-over 1:

23.31, the electromagnetic stimulation continues while the scientists measure, record and analyse the brain's responses.

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