

## **The Melody of the Immature Brain**

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The rhythm and melody of a piece of music can only be successfully performed by an orchestra if each note is precisely timed and if the "voices" of the individual instruments are synchronized. The brain can also be considered an orchestra, in which the various regions of the brain represent the "instruments" and the nerve cells with their electrical activity represent precisely timed notes.

As in an orchestra, these elements must coordinate and synchronize their components to create a meaningful "melody". This creates oscillations in the brain, which can be recorded using EEG measurement techniques and represent an energy-efficient strategy for organization, communication and information processing within the brain. In humans and animals, oscillatory brain activity is already present very early in life.

We investigate how this activity during early childhood development determines cognitive abilities in adult life and which cognitive impairments are caused by altered early childhood activity. Considering that the causes of some devastating psychiatric disorders in adult life are identified in childhood, these research results open up the perspective for new development-based therapeutic interventions.