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Kindling

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Changes to the brain through slow kindling are considered enduring and can potentially lead to spontaneous, chronic seizures. Mechanisms involved in kindling models are thought to be potential targets for neurotherapeutic interventions.

Definition

An animal model for complex partial seizures in which repeated mild and short electrical stimulation of the brain generates seizures of increasing behavioral involvement and neural excitability. The models' founder, Graham Goddard, noted that limbic structures, especially the hippocampus and the amygdala, were particularly susceptible to kindling over the course of stimulation delivered every 12–24 h for weeks. This model, named the kindling model for epileptogenesis, formed the basis of the animals used in epilepsy research until 1990s, when alternate models (i.e., post status epilepticus) gained popularity. Behaviorally, the development of the seizure begins with a limited number of neural circuits involved, but additional neural circuits are increasingly engaged and excitable until the seizure advances to convulsions. The increasing duration of the seizures indicates that the brain's ability to resist seizure activity becomes weakened, and the threshold for the incitement of future seizures is reduced.

Cross-References

- [Epilepsy](#)
- [Plasticity](#)
- [Seizure](#)
- [Status Epilepticus](#)

References and Readings

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