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Equipotentiality

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Definition

Equipotentiality – a notion developed by Karl Spencer Lashley (1890–1958) positing that all areas of the brain are equally able to perform a task. This contrasts with the theory of localization, according to which neurocognitive functions are specifically referable to discrete areas of the brain; hence, damage to restricted regions would be expected to produce selective cognitive deficits. Equipotentiality theory, however, hypothesized that the severity of cognitive dysfunction was directly related to the total amount of tissue damage. For example, memory functioning was thought to be diffusely distributed throughout the cortex rather than related to defined circuits

or pathways. Under this theory, intact areas of the cortex could assume responsibility for discrete cognitive functions following injury. The theory did allow, however, for localization related to sensory and motor processes. The related concept of “mass action” posited that cognitive functions are equally and widely distributed across brain areas and that the entire cortex participates in cognitive functioning.

Cross-References

► [Karl Lashley](#)

References and Readings

- Lashley, K. S. (1929). *Brain mechanisms and intelligence*. Chicago: University of Chicago Press.
Lashley, K. S. (1930). Basic neural mechanisms in behavior. *Psychological Review*, 37, 1–24.