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Differences between the anesthetic state and natural sleep

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The anesthetic state and natural sleep share many neurobiological features and yet are two distinct states. The hallmarks of general anesthesia include hypnosis, analgesia, akinesia and anxiolysis. These are the principal parameters by which the anesthetic state differs from natural sleep. These properties are mediated by systemic administration of a combination of agents producing balanced anesthesia. The exact nature of anesthetic narcosis is dose dependent and agent specific. It exhibits a relative lack of nociceptive response and active suppression of motor and autonomic reflexes. Surgical anesthesia displays a signature EEG pattern of burst suppression that differs from REM sleep, representing more widespread disruption of thalamo-cortical connectivity, impairing information integration and processing. These differences underpin successful anesthetic action. The differences between natural sleep and anesthetic induced unconsciousness is induced by balanced anesthesia.

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