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Caffeine on brain Acetylcholine

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Caffeine, the cerebral stimulant, has been reported to prolong the electrically induced afterdischarges in a neuronally isolated cerebral cortex (Maiti and Domino, 1960, 1961) and has often been used experimentally for producing epileptic seizure. Further, caffeine has got antiacetylcholinesterase properties on striated muscle (Nachmanson and Schueeman, 1945).

Hence, the acetylcholine content of the brain of rats was extracted at various times after the administration of caffeine in moderate doses and assayed biologically using fish intestine and toad's rectus preparations.

Caffeine in doses 1 μ g./Kg. increases the content of acetylcholine of the cerebral cortex by as much as 20% by an action probably due to an inhibition of brain acetylcholinesterase. The time-course of the increased acetylcholine corresponds roughly to that of the pharmacological effects and this increase is counteracted by pretreatment of atropine. The evidence does not preclude the possibility of action of caffeine on the membrane of critical receptor sites of the cerebral cortical neurones apart from its direct anticholinesterase action.