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Symposium

Age-related decline of neural activities in the motor cortex is ameliorated by coenzyme Q₁₀.

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Not only neurological disease but also physiological aging affects brain function. Takahashi et al (2016) found that histological and motor functional alterations were associated with age-related decline of brain mitochondrial function. Aged mice (15-month-old) displayed significant reductions in mitochondrial oxygen consumption rate, coenzyme Q (CoQ) content, vesicular glutamate transporter 1 level in the motor cortex, and motor function compared to young mice (6-month-old). CoQ is a coenzyme, and present in the mitochondria. It is an electron transporter in the respiratory chain involved in ATP production. However, age-related electrophysiological impairments of the motor cortex were poorly understood. In this talk, I will describe how physiological aging affects electrophysiological activities in the motor cortex of mice, and present data to show how exogenous CoQ treatment affects the age-related alteration in the aged mice. I will also discuss the influence of exogenous CoQ treatment on the age-related decline of electrophysiological activities in the motor cortex. Takahashi and our studies suggested that the age-related alterations were ameliorated by exogenous CoQ treatment. Although the relation between central nervous system and age-related motor decline remain to be elucidated, our results may serve as the basis for developing therapy of age-related motor impairment.