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The effect of caloric restriction on the mitotic rates of mice

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Caloric restriction has been shown to cause a number of biological changes in animals including the retardation of the aging process. Calorically-restricted animals show an average increase in life span of 30 - 50 %. In the present study we wanted to test the hypothesis that caloric restriction leads to a generalized slowing of mitotic rates in the body that at least in part, underlies caloric restriction's ability to extend lifespan. The subjects in this study were 22 six month old CD-1 male mice that were obtained from the colony of our animal facility. They were group housed from weaning to 4 months of age and then isolated and singly housed for a month before being used in this study. The 11 experimental mice were calorically restricted until they experienced a 20% loss in body weight. The experimental group was given approximately 25% less food than controls but received water ad lib. When necessary, the food ration was adjusted slightly so that their weight was maintained between 80-82% of their initial weight. The control mice were given water and food ad lib and both control and experimental groups were weighed daily. After the weights of the calorically restricted mice stabilized for 3 days, they were injected with bromodeoxyuridine (BrDu) for another 3 consecutive days. They were then sacrificed and their brains, nose, and ears were collected to be assessed by using immunohistochemistry for BrDu. The results of this study are yet to be determined. We will quantify the number of mitotic cells in each tissue as evidenced by BrDu staining.

