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The Effect of Naringin on Early Spheno-occipital Growth as Measured by the Width of the Hypertrophic Zone during Endochondral Ossification

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Objective: To assess the effect of the flavonoid naringin on the early growth of spheno-occipital synchondrosis by measuring the width of the hypertrophic zone in an in vitro mouse model.
Materials and methods: Experimental protocol was approved by the University of Hong Kong's Committee on the Use of Live Animals in Teaching and Research. Fifty 1-day old BALB/c mice were randomly assigned to experimental or control groups, each group divided into five time frames (6, 24, 48, 72 and 168 h). After sacrifice, dissection, and culture in experimental or control medium, sections of the specimens underwent immunohistochemical staining, and measurements were taken at the hypertrophic zone to assess its width.
Results: Data analysis showed a significant difference between experimental and control groups, with wider zone width by 168 h ($p < 0.001$).
Conclusions: Naringin enhances the growth of the spheno-occipital synchondrosis through delay of chondrocyte hypertrophy to allow enhanced proliferation of chondrocytes.