Background: In recent years families, especially in the children's growth and development, often use alternative treatments as growing more healthy individuals.

Objective and hypotheses: The purpose of the present study was to examine the hormonal, histomorphometric and immunohistochemical effects of Royal Jelly (RJ), which was a growth supplement commonly used by parents for their children, on growth plate of young rats.

Method: 7-day-old female Sprague-Dawley rats were randomly divided into two groups each containing 15 animals. RJ group was administered 50 mg/kg of RJ for 15 days. At the end of the study, the height of the growth plate and numbers of proliferative and hypertrophic chondrocytes per column were determined. The expression of Ki-67 proliferation, oestrogen and IGF1 receptors of proximal tibial growth plates were investigated. Oestrogen, growth hormone (GH) and IGFI were measured.

Results: Mean weight change in the RJ group was significantly higher than the control group (41.4±7.1 vs 31.5±4.8 g, P<0.001) at the end of the study. Mean change of the tail length measurement was significantly higher in RJ group compared to the control group (3.7±0.6 cm vs 3.6±0.3 cm, P=0.04). Oestrogen levels (708±353 pg/ml vs 582±85 pg/ml, P=0.03) and GH levels (2.8±5.7 vs 1.05±0.6 ng/dl, P=0.04) were significantly higher in RJ group than the control group. Total length of growth plate in RJ group was measured significantly higher than the control rats (5.2±0.1 vs 2.7±0.8 mm, P<0.001). Oestrogen receptor expression on growth plate was stated as 38% in hypertrophic zone and 81.3% in proliferative zone, however; in control group, it was stated as 0% in hypertrophic zone and 14.3% in proliferative zone (P<0.001). In addition, compared with the control group, Ki-67 proliferation staining and IGF1 receptors were highly expressed in growth plate zones (P<0.001 and P<0.001).

Conclusion: Our findings suggested that oestrogen and IGF1 receptors were expressed in the growth plate zones following RJ administration. The RJ was found here at a relatively low dose to have some potential estrogenic effects on growth plate of young rats.