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Influence of diet composition and malocclusion on masticatory organs in rats.

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The present study was undertaken to determine the effects of different dietary consistencies and malocclusion induced by extraction of molar teeth on the masticatory organs of weaning and adult rats, by determining the biochemical properties of masseter muscle, and also Ca and P levels in mandibular bone. Male SD rats, 3 and 20 weeks old, were divided into 3 groups. Group one (G-1) was maintained on a solid diet, and Groups two (G-2) and three (G-3) on a semi-solid diet. Furthermore, the mandibular molar teeth of G-3 rats were extracted. The experimental period was 120 days. The masseter muscle and mandibular bone weights of G-1 in weaning rats were increased significantly in comparison with G-3, but not in adult rats. The CPK activities in weaning and adult rats of G-1 were higher than those in the other two groups. The order of LDH activity in weaning and adult rats was G-3 > G-2 > G-1. G-2 and particularly G-3 showed significantly lower glycogen contents than G-1. The Ca and P contents of the mandibular bone in G-2 and G-3 were lower than those in G-1. These results suggest that a different dietary consistency and malocclusion induced by extraction of mandibular molar teeth have a considerable influence on the development of masticatory organs, mandibular bone and masseter muscle.

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