

Fried sunflower oil diet – Related histological study on mandible changes of growing rats

Romina De Lucca¹,  0000-0002-4785-6020

Vanesa Macri²,  0000-0001-8084-5676

Melina Sosa De Lucca²,  0009-0009-9630-225X

Juliana Rodriguez¹,  0000-0002-2922-5807

Verónica Miksztoicz^{2,3},  0000-0003-2104-8495

Silvia Friedman²,  0000-0003-4666-9036



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Resume

Objectives. To evaluate the histological changes of dental and paradental tissues in growing rats fed a SFOx diet.

Methods. Male Wistar rats (21±1 days old) (n=18) were assigned at weaning to one of three diet groups for 8 weeks: those fed a commercial diet (C), a sunflower oil (SFO) diet or a SFO diet which was repeatedly heated (SFOx); both mixed with a commercial rat chow at weight ratio of 13% (w/w). At wk=8, animals were euthanized by an intramuscular injection of anesthesia and hemimandibles were removed to perform histological studies. Sections oriented in mesio-distal direction were obtained and stained with H & E. Histological observations were performed under brightfield microscopy. Interradicular bone volume (BV/TV%) and periodontal ligament (PDL) thickness were determined by an image analyzer.

Results. Significantly decreased interradicular bone volume (%) in SFO and SFOx groups compared C group was observed (SFOx:38±3 = SFO:43±2 < C:55±5; p < 0.05). Likewise, periodontal ligament thickness was lesser (SFOx:330±30 = SFO:300±20 < C:450 ±20um; p<0.05). In SFOx group, areas of dentinal root resorption were evident.

Conclusion. SFOx consumption leads to dentin resorption and decrease interradicular bone volume, probably due to an overproduction of reactive oxygen species and an increase in macrophage activity of dental and paradental tissues.

Key words. Diet, mandible, histology

¹Cátedra de Histología y Embriología, Facultad de Odontología, Universidad de Buenos Aires.

²Cátedra de Bioquímica General y Bucal, Facultad de Odontología, Universidad de Buenos Aires.

³Instituto de Investigaciones Biomédicas (UCA-CONICET). Laboratorio de Patología Cardiovascular Experimental e Hipertensión Arterial.

Autor de correspondencia: rominadelucca@yahoo.com.ar