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Lubricin expression in an osteoarthritis rat model with Mediterranean Diet and mild physical activity to prevent cartilage degeneration

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Osteoarthritis (OA) is a common musculoskeletal disorder characterized by slow progression and joint tissue degeneration [1]. Mediterranean Diet includes olive oil (OO), which have been shown to possess anti-inflammatory properties [2]. Regular and adequate physical activity reinforces joints, decreases bone loss and may be useful in the control of pain in patients with arthritis [1]. Lubricin is a chondroprotective glycoprotein and it serves as a critical boundary lubricant between opposing cartilage surfaces [1]. Its decreased expression predisposes to cartilage degeneration such as OA. The aim of this study was to evaluate the role of diet based on OO in conjugation with physical activity, on inflammation and on expression of lubricin in articular cartilage of rats, after injury. In this study we analyzed lubricin and interleukin-1 expression in cartilage and synovial fluid, by using histomorphometrical, morphological and biochemical analysis. The effects of anterior cruciate ligament transection decreased drastically the expression of lubricin and increased the expression of interleukin-1 in rats, while after physical activity and OO, the values returned to a normal level compared to the control group. With our results we can confirm the importance of the physical activity in conjugation with OO diet in medical therapy to prevent OA disease in order to preserve the articular cartilage and then the entire joint.

References

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Keywords
Articular cartilage, Olive oil, Mediterranean diet, Lubricin, Physical activity, Osteoarthritis.