



## Musculoskeletal Disorders

# RECOVERY FROM ORTHOPEDIC INJURIES



Whether due to trauma, play, sport, or work, a pet may suffer an orthopedic injury, such as a bone fracture or a ruptured cranial cruciate ligament.

Utilizing targeted nutrition as part of a multimodal management plan can improve recovery from orthopedic injuries. Nutrient needs should be continually reassessed during the recovery process to support optimal healing.

### Key Messages

- Diets containing key nutrients can support recovery from orthopedic injuries:<sup>1</sup>
  - The omega-3 fatty acids eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) have anti-inflammatory activity.
  - Increased levels of protein may support muscle strength and recovery. To guard against local muscle atrophy from disuse or denervation, muscle condition in the affected limb(s) should be monitored throughout the recovery period.
  - Other important nutrients include glucosamine, a building block of cartilage that helps support cartilage and joint health, and antioxidants, e.g., vitamin E, that may reduce oxidative stress and associated tissue damage.
  - In Purina-funded research, a therapeutic diet containing increased levels of EPA, DHA, protein, antioxidants, and glucosamine, fed to dogs either alone or combined with physical rehabilitation, improved several measures of lameness and led to more rapid recovery of weight bearing after surgical repair of a ruptured cranial cruciate ligament.<sup>2</sup>
  - Cruciate injuries and other orthopedic injuries often increase the risk and worsen progression of osteoarthritis. In the above study, the therapeutic diet or rehabilitation were associated with improved radiographic osteoarthritis scores, indicating less progression. The combination of diet and rehabilitation had the best effect.<sup>3</sup>

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## Key Messages (continued)

- Maintenance of lean body condition is important in pets recovering from orthopedic injury. Both overweight and underweight conditions should be avoided.
- **However, regardless of body condition score, ensure that pets recovering from critical traumatic injury, e.g., a motor vehicle injury, consume sufficient nutrition during recovery.** A feeding tube or other nutritional support may be needed.
- In an otherwise healthy overweight or obese pet with an orthopedic injury, weight loss reduces the extra mechanical stress placed on the skeletal system.
  - For overweight pets (Body Condition Score of 6 or 7), feed a therapeutic joint mobility formula with moderate levels of fat for gradual weight loss.
  - For obese pets (Body Condition Score of 8 or 9), feed a weight loss diet with more restricted levels of fat. Following weight loss, transition to the joint mobility formula for weight maintenance.
- Since obesity can worsen lameness, consider a delay in doing elective orthopedic surgery until an obese pet has lost weight. Physical rehabilitation after surgery will be better tolerated after weight loss.
- To protect a pet in a strenuous rehabilitation program or one with a poor appetite from becoming underweight, feed a more energy-dense diet. For those less active during recovery, feed fewer calories to avoid weight gain.

## References

1. Raditic, D. M., & Bartges, J. W. (2014). The role of chondroprotectants, nutraceuticals, and nutrition in rehabilitation. In D. L. Millis & D. Levine (Eds.), *Canine rehabilitation and physical therapy* (2nd ed., pp. 254–276). Saunders. doi:10.1016/B978-1-4377-0309-2.00015-6
2. Baltzer, W. I., Smith-Ostrin, S., Warnock, J. J., & Ruaux, C. G. (2018). Evaluation of the clinical effects of diet and physical rehabilitation in dogs following tibial plateau leveling osteotomy. *Journal of the American Veterinary Medical Association*, 252(6), 686–700. doi: 10.2460/javma.252.6.686
3. Verpaalen, V. D., Baltzer, W. I., Smith-Ostrin, S., Warnock, J. J., Stang, B., & Ruaux, C. G. (2018). Assessment of the effects of diet and physical rehabilitation on radiographic findings and markers of synovial inflammation in dogs following tibial plateau leveling osteotomy. *Journal of the American Veterinary Medical Association*, 252(6), 701–709. doi: 10.2460/javma.252.6.701

The Purina Institute aims to help put nutrition at the forefront of pet health discussions by providing user-friendly, science-based information that helps pets live longer, healthier lives.