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What Is Canine Exercise Therapy?

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Canine exercise therapy, also known as *therapeutic exercise*, or *physiotherapy*, is an essential component of veterinary rehabilitation. It involves structured physical activities designed to improve muscular strength, flexibility, balance, coordination, endurance, and specific tasks in dogs recovering from orthopedic, neurological, or age-related degenerative conditions (McCauley and Van Dyke 2018, pp. 177–207; Millis and Levine 2014, pp. 484–506). Exercise therapy is also instrumental in improving performance and conditioning of canine athletes and working dogs. As veterinary care advances, the integration of exercise therapy into treatment plans has become increasingly recognized for its role in reducing pain, improving function, and preventing secondary injuries.

Principles of Canine Exercise Therapy

Exercise therapy in dogs is based on key principles of rehabilitation science, including progressive overload, specificity, and adaptability (Kirkby-Shaw et al. 2020). These principles ensure that therapeutic exercises are tailored to the individual dog's condition and progress according to stage of healing to maximize recovery.

- 1) **Progressive overload:** Gradual increases in intensity, duration, or complexity of exercises to promote musculoskeletal adaptation.
- 2) **Specificity:** Exercises targeting specific muscle groups or movement patterns to address a dog's particular injury or condition.
- 3) **Adaptability:** Adjusting therapeutic exercises based on the dog's response and progress to optimize outcomes while minimizing injury.

For more details on how to progress an exercise program in dogs see Chapter 6.

Benefits of Canine Exercise Therapy

Therapeutic exercise offers numerous benefits, including:

- **Pain reduction:** Controlled exercise reduces pain and lameness related to osteoarthritis, improves weight-bearing, and promotes healing (Greene et al. 2013; Skou et al. 2018).
- **Improved mobility and function:** Strength training and proprioception exercises enhance gait and balance, which are crucial for postsurgical and neurologic rehabilitation (Millis and Levine 2014, pp. 506–525, 609–627).
- **Enhanced cardiovascular health:** Aerobic exercise improves circulation, oxygen delivery to muscles, and overall stamina in canine athletes (Millis and Levine 2014, pp. 162–179).
- **Prevention of muscle atrophy and enhanced strength:** Guided exercise improves muscle mass and strength and helps prevent atrophy of muscles in immobilized or senior dogs (Frye et al. 2022).

Common Exercise Therapy Techniques

A variety of evidence-based techniques are used in canine rehabilitation, including:

- **Hydrotherapy:** Underwater treadmill and swimming exercises reduce joint loading while enhancing strength and endurance and reducing inflammatory biomarkers in dogs with osteoarthritis (Marsolais et al. 2002; Nganvongpanit et al. 2014).
- **Passive range of motion (PROM):** Gentle stretching and passive movement of joints to maintain flexibility and prevent stiffness.
- **Strength training:** Exercises such as sit to stands, incline walking, and backward walking improve muscular stability.
- **Neuromuscular re-education:** Coordination and proprioceptive exercises to restore normal movement patterns after nerve or spinal cord injuries and promote longevity in dogs with degenerative myelopathy (Kathmann et al. 2006). See Chapter 14 for treatment of neurological conditions.

Clinical Applications and Evidence

Canine exercise therapy is widely applied in postsurgical recovery, osteoarthritis management, and neurological rehabilitation. A systematic review of rehabilitation strategies for dogs recovering from postcranial cruciate ligament surgery has demonstrated that the greatest evidence supports therapeutic exercises (Alvarez et al. 2022). Following guided fundamental principles of rehabilitation exercises helps ensure optimal recovery and performance in canine companion animals and athletes.

Conclusion

Canine exercise therapy is a vital component of veterinary rehabilitation and promotes recovery, reduces pain, and enhances mobility in dogs with various injuries or disabilities. The integration of tailored exercise programs into veterinary practice continues to evolve as new research and technology advances. Future studies should focus on evidence that supports ideal protocols for different canine musculoskeletal conditions to further improve therapeutic outcomes.

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