SEVC SOUTHERN EUROPEAN VETERINARY CONFERENCE
SEVILLE, 23-25 October 2025

FALCONRY MEDICINE

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The Art of Falconry: A Timeless Bond Between Human and Bird

Falconry, often called the "sport of kings," is an ancient practice that dates back thousands of years. At its core, falconry is the art of training birds of prey—such as falcons, hawks, and eagles—to hunt wild game in cooperation with a human handler. More than a hunting method, falconry is a deeply symbolic and spiritual relationship between human and bird, rooted in patience, mutual respect, and an intimate understanding of nature.

Originating in Central Asia over 4,000 years ago, falconry spread across the Middle East, Europe, and eventually to the rest of the world. It was once a symbol of nobility and prestige, practiced by emperors, sultans, and medieval knights. Today, it is still revered in parts of the Middle East and remains a living tradition in various cultures, even as it has evolved into more of a cultural heritage and conservation effort.

The training process involves careful bonding between the falconer and the bird, using food rewards and consistent routines to build trust. Birds are not domesticated in the traditional sense—they remain wild at heart—and this delicate balance is what makes falconry so unique.

Falconry requires dedication, knowledge of avian biology, and a deep respect for the environment. It is recognized by UNESCO as an Intangible Cultural Heritage of Humanity (2010), acknowledging its role in fostering ecological awareness and preserving traditional skills.

Ultimately, falconry is not just a sport—it's a partnership, an ancient dance between instinct and intellect, where both human and raptor play their part in a tradition that has soared through the centuries.

Raptor Medicine

Raptors are apex aerial predators and play an essential role in maintaining ecological balance. However, like all avian species, diurnal and nocturnal raptors are susceptible to a range of diseases. Raptor medicine can be further tailored for wildlife casualties, conservation breeding, commercial breeding and falconry purposed birds. Falconry purposed raptors are used for traditional hunting, biological control (pest control) and recently (since 2004) racing. Various types of racing have been established in the Gulf states but the most popular is the speed race of 400m with multiple categories based on species, sex and age of the falcons. All falconry purposed birds are considered athletes as they need to perform a task with the racing falcons being the top athletes due to their training routine. This presentation highlights the most common and clinically significant diseases affecting human-managed raptors, including viral, bacterial, fungal, and parasitic infections.

Viral Diseases

Avian Influenza (AI)

Caused by *Influenza A* viruses, AI affects multiple bird species, including falcons. Transmission often occurs via ingestion of infected prey. Clinical signs include respiratory distress, neurologic signs, and sudden death. RT-PCR and viral isolation are used for diagnosis. Highly pathogenic strains can be fatal within days.

Paramyxovirus Virus and Newcastle Disease

This paramyxovirus infection presents with respiratory, gastrointestinal, and neurological symptoms. Falcons may contract it from eating infected pigeons or other wild birds. Vaccination programs in captive populations help reduce incidence.

West Nile Virus (WNV)

WNV, a mosquito-borne flavivirus, can cause encephalitis in raptors. Clinical signs include tremors, ataxia, and blindness. Diagnosis is through serology or PCR. Supportive care and vector control are key to management.

Bacterial Infections

***Chlamydophila complex* (Psittacosis)**

A zoonotic pathogen causing avian chlamydiosis, this bacterium can lead to respiratory illness, lethargy, and anorexia in falcons. Transmission occurs via inhalation of aerosolized droppings or feather dust. Diagnosis relies on PCR and ELISA. Treatment typically includes doxycycline.

***Mycobacterium avium* Complex**

Though uncommon, mycobacteriosis presents with nonspecific signs such as weight loss and gastrointestinal distress. Diagnosis is challenging and involves acid-fast staining, culture, and molecular methods.

Fungal Infections

Aspergillosis

Caused by *Aspergillus fumigatus*, this is one of the most frequent causes of morbidity and mortality in captive falcons. It primarily affects the respiratory system, forming granulomas in air sacs. Symptoms include open-mouth breathing and exercise intolerance. Diagnosis includes endoscopy, radiography, and fungal culture. Treatment involves antifungals like itraconazole or voriconazole.

Parasitic Infections

Trichomoniasis

Caused by *Trichomonas gallinae*, this protozoan is often acquired through ingestion of infected pigeons. It results in oral lesions, caseous plaques, and sometimes death. Diagnosis is via wet mount microscopy, and treatment involves metronidazole.

Helminthiasis

Falcons may host various nematodes (e.g., *Capillaria*, *Ascaridia*) and cestodes (e.g., *Raillietina*). Symptoms vary by parasite load and location but may include weight loss, diarrhea, and weakness. Routine fecal exams help in diagnosis. Deworming protocols use praziquantel, ivermectin, or fenbendazole.

Nutritional and Metabolic Disorders

Metabolic Bone Disease (MBD)

Primarily affecting young or improperly fed captive falcons, MBD results from calcium, vitamin D3, or phosphorus imbalances. Signs include bone deformities, weakness, and fractures. Radiographs aid diagnosis. Treatment includes dietary correction and supplementation.

Gout

Both visceral and articular gout can occur due to dehydration, renal failure, or high-protein diets. Clinical signs include swollen joints and lethargy. Diagnosis is via blood uric acid levels and necropsy findings. Management includes hydration, dietary changes, and allopurinol in some cases.

Disease Prevention and Management

Maintaining optimal husbandry practices is critical to disease prevention in falcons. This includes proper housing, nutrition, hygiene, regular health checks, and quarantine of new birds. Vaccination (where applicable), vector control, and biosecurity measures also reduce disease risk. In falconry settings, screening prey for pathogens is essential.

Falcon Sports Medicine: Optimizing Health and Performance

Falcon sports medicine is a specialized branch of avian veterinary care focused on the health; performance, injury prevention, and rehabilitation of falcons used in falconry and aerial sports. As high-performance athletes, these birds are subject to unique physical stresses, including musculoskeletal strain, soft tissue injuries, and respiratory demands. The integration of sports medicine into falconry improves not only the bird’s welfare but also their performance and career longevity.

Falcons, particularly species such as the Peregrine (*Falco peregrinus*), Gyrfalcon (*Falco rusticolus*), and Saker Falcon (*Falco cherrug*) as well as their hybrids are used both for hunting and racing. These athletic birds reach speeds over 380 km/h in a stoop and require exceptional cardiovascular, musculoskeletal, and neuromuscular function. Falcon sports medicine seeks to support these physiological demands through preventive care, precise diagnostics, and performance-optimized treatment.

Exercise Physiology and Conditioning

Aerobic and Anaerobic Demands

Falcons rely on both aerobic endurance and anaerobic bursts during flight. Training must be structured to gradually increase cardiovascular capacity, improve muscle strength, and prevent fatigue-related injuries.

Training Techniques

Popular conditioning methods include:

- **Lure flying** for sprint conditioning.
- **Remote control airplane-assisted flight** for high-speed low flight
- **Telemetry** to monitor flight effort and detect early fatigue or overheating.

Heart rate, wingbeat frequency, and post-flight lactate levels can serve as indicators of fitness progression.

Common Sports-Related Injuries

Musculoskeletal Injuries

- **Wing sprains and shoulder injuries** from mid-air collisions or improper landings.
- **Wing fractures**
- **Muscle strain**, particularly of the pectoral muscles (flight muscles).
- **Muscle overexertion or myopathy**
- **Keel trauma** due to repeated impact or insufficient padding during tethering.

Tendinopathies

Chronic overuse may lead to inflammation or degeneration of tendons, especially in the carpal and elbow joints.

Foot and Talon Injuries

- **Bumblefoot (pododermatitis)** from poor perching or
- **Talon fractures** or abrasions from catching prey or lure impacts.

Respiratory Stress

High-performance flight increases demand on the air sac and pulmonary systems, predisposing birds to:

- Airsacculitis (fungal, bacterial, mixed).
- Fungal infections like aspergillosis if conditioning is poor.
- Heart disease (infracts, congestive heart failure)

Thermography

Infrared thermography is a non-invasive method to detect inflammation or poor circulation in muscles and tendons.

Blood Analysis Monitoring

- **CBC**
- **Lactate levels** post-exercise to assess anaerobic stress.
- **CK (creatine kinase)** as a marker of muscle damage.
- **Electrolyte panels** to monitor hydration and recovery.

Nutritional Support

High-performance falcons require:

- **Lean protein diets** for muscle recovery.
- **Vitamin E and selenium** to reduce oxidative stress.
- **Omega-3 fatty acids** for anti-inflammatory support.
- **Vitamin products**

References

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