PHYSICAL REHABILITATION: FINDING A FIT WITH YOUR PRACTICE

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“Rehabilitate” - re·ha·bil·i·tate
  o to restore to a former capacity: reinstate
  o to restore to a former state
  o to restore or bring to a condition of health or useful and constructive activity

re- "again" + habitate "make fit"

Goals of Rehabilitation Therapy
  o Restore the ability to perform activities of daily living after injury, illness or surgery
  o Manage the effects of chronic disease, including weakness and pain
  o Support the patient and maximize healing or abilities within the individual’s potential
  o Maintain quality of life and promote the human-animal-bond

Rehab is becoming standard of care
Increasing awareness/demand from owners
Your patients need rehab, your clients want it

Example conditions - Orthopedic
  o Cruciate disease – surgical or conservative
  o Coxofemoral disease – esp. OA, FHNE/FHO
  o Fractures (diaphyseal femoral fractures)
  o Elbow dysplasia
  o Biceps tendinitis
  o Gastrocnemius tear
  o Osteoarthritis
  o Sports injury
  o Limb loss/amputation +/- prosthetics

Example conditions - Neurologic
  o IVDD – surgical or conservative
  o Degenerative myelopathy
  o Brachial plexus injury
  o Inflammatory neuropathies (during recovery)

Example conditions - Other
  o Dental
  o Myopathies/myositis
  o Oncologic pain and supportive care
  o Wound management
  o Obesity

Conditions Rehab can’t fix
  o Loss of limb function due to neuronal death
  o Conformational abnormality/ies
o Chronic nonunion due to inadequate fracture stabilization or infection

o Medial patellar luxation without surgical correction

o Joint derangement (failure of more than one structure)

o Mature contracture

o Complete tendon rupture without surgical correction

Response of tissues to injury or disease
Injury/OA/surgery → Pain/weakness
   +/- immobilization (iatrogenic)
   +/- activity restriction → DISUSE

Sequelae of disuse:
o Muscle atrophy
o Soft tissue fibrosis
o Decreased joint fluid viscosity
o Thinning/softening of the articular cartilage
   (Weight gain)
   (Increased pain)

Tools of Rehabilitation Therapy
Any modality or activity that achieves our goals through:
o Pain control
o Reduction of inflammation or edema
o Improved tissue strength, mass or function
o Prevention or delay of further injury or disease

Use of Cold (“cryotherapy”)
Most useful during the peracute and acute phases of healing (immediately through ~72 hours)
o Vasoconstriction
o Reduced metabolic rate
o Decreased nerve conduction velocity
o Decreased edema
o Decreased muscle spasm

Use of Heat (“thermotherapy”)
Most useful during the subacute & proliferative phases of healing (after ~72 hours)
o Vasodilation
o Smooth muscle relaxation
o Increased nerve conduction velocity
o Elevation of the pain threshold (gate control mechanism)
o Increased oxygenation of tissues
Increased metabolic rate (cell turnover)
Increased tissue extensibility (stretching)

**Exercise Therapy**
Movement:
- decreases pain
- improves joint health
- decreases edema
- prevents fibrosis/contracture

**Therapeutic exercises**
- PROM
- Supported stands
- Weight-shifting
- STS
- Cavaletts
- Tunnels

**Exercise selection**
- Purpose/goal of the specific exercise
- Musculoskeletal dynamics
- Technique
- Contraindications & Possible complications
- Motivating the patient

**Underwater Treadmill (UWT)**
- Allows movement in a controlled & protected fashion
- Buoyancy
- Resistance
- Increased reaction time
- Reduced risk of falls
- Exaggerated movements – greater ROM
- Hydrostatic pressure

**Considerations**
- Type and degree of injury/debilitation
- Stability and type of surgical repair
- Surgeon preference
- Owner compliance
- Goals of therapy
- Patient temperament
- Patient size
- Physical access
  - IV lines
  - U-cath
  - Bandages/splints/casts
  - Mobility devices
- Level of staff support
- Knowledge
- Experience
- Physical demands
- Time demands

Other Tools
- Laser
- Electrical stimulation
  - Neuromuscular electrical stimulation (NMES)
  - Transcutaneous electrical nerve stimulation (TENS)
- Acupuncture
- Extracorporeal shock wave
- Massage
- Stretching
- Joint mobilization
- Carts/harnesses
- Prosthetics
- Orthotics/braces
- Restricting bands
- Booties

Setting the patient/client up for success
- Non-stressful environment
- Avoid fatigue or pain
- Incorporate activities into the current routine
- Minimize novelty
- Use readily available/inexpensive equipment

Accurate & Effective Communication is Essential
- Careful, thorough demonstration (& ideally a written description) of the activities
- What to expect during the exercises
- How often, how many, how much
- Realistic goals for final outcome
- Basic understanding of relevant anatomy
- When to avoid or stop an activity
- Timeline until next appointment or assessment

When does professional rehab end?
- When mobility is restored to a degree that allows for activities of daily living
- When risk of injury or surgical failure is reduced to the level that exercise therapy can be carried out at home
- When pain is controlled
- When ideal body weight is achieved
- When other goals based on objective measures are met

Depends on the patient/condition/client
For some conditions, long-term rehab is indicated
The decision is made jointly, relying heavily on owner input
Measuring Outcomes
Degree of disability & response to therapy
- Pain score
- Radiographic imaging
- Owner assessment (CBPI)
- Muscle mass/girth
- Goniometry
- Video/still images
- Activity monitors
- Weight/BCS
- Behavior (e.g. use of a muzzle)

Pain scale based on palpation
0 - No resentment; normal amount of movement or wriggling
1 - Mild withdrawal; mildly resists
2 - Moderate withdrawal; body tenses; may orient to site; may vocalize / increase in vocalization
3 - Orient to site; forcible withdrawal from manipulation; may vocalize or hiss or bite
4 - Tries to escape / prevent manipulation; bite/hiss; marked guarding of area

When to Refer
- Severe debilitation
- Non-ambulatory patients
- Multiple conditions/multifocal disease
- >50 lbs (20 Kg)
- Certain breeds
- Client limitations
- NWB after the first 7 (3?) days
- Home exercises not sufficient or not effective
- Long-term care

Referring to NC State
- Cost of treatment depends on the condition being treated & the intensity and duration of therapy
- Initial exam fee with periodic reassessments
- Treatment plan is based on our patient assessment, not the diagnosis
- Treatment for chronic conditions will be ongoing
- YES! We treat cats
- Inpatient therapy/boarding is an option
- Fax or provide client a copy of records, including images & a list of medications/supplements
- We occasionally recommend consultation with a specialist, but an effort is made to consult with the primary DVM first
- We do not provide wellness services and refer back for diagnostics, procedures, non-rehab illness
- We will update both client and veterinarian after initial visit and each reassessment
- Updates by phone or email are available ANY time

The First Visit
- Initial assessment takes about an hour
- We prefer owners to be present
- We will occasionally keep the patient for UWT trial or initial treatment same day

**Routine Therapy Sessions**
- Drop-offs
- Mini-sessions separated by rest periods to avoid fatigue
- Reassessments to objectively evaluate the response to therapy are performed at regular intervals, **and** when there is a change in patient status or a new problem is identified or at the request of the client or referring clinician
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