Setting Specific Orthopedic Exercise (2013)

Course Outline

As Physical/Occupational Therapists and Physical/Occupational Therapist Assistants we are often looked at or referred to as the experts in exercise therapy.

Exercise therapy may be prescribed or performed with different goals or objectives in mind, including pain control, strength training, coordination improvement etc. to name just a few.

In addition, there are many factors that may influence the outcome of the exercise regimen prescribed/performed. These factors include patient’s compliance, patient’s performance, clinician’s explanation, many disease processes, exercise progression, medication etc.

This course will address these very topics. It will discuss the basics of exercise therapy by reviewing muscular anatomy and physiology and by then addressing how extrinsic factors such as medication, progression etc. will affect the exercise therapy program. Intrinsic factors such as disease processes affecting muscles will be discussed as well.

Furthermore, exercise principles such as open-vs. closed chain, eccentric-->isometric-->concentric will be discussed and practiced as well.

In addition, many of the currently applicable surgical orthopedic and spine protocols will be reviewed, discussed and demonstrated. This course will be 40% lecture and 60 % hand on.

Topics reviewed in this online course

- Muscular anatomy and physiology
- Physiological tissue healing and recovery
- Common diseases and their effect on muscle contractions
- Common medications and their effect on exercise physiology
- The importance of a thorough evaluation
- Different types of exercises with different objectives
- Exercise principles and how they relate to nutrition, pro/regression, repetitions, etc.
Course Objectives:

After attending this course, one will

- Have a sound understanding of current exercise principles and how these may be applied to a variety of surgical and non-surgical patient protocols.
- Have an appreciation of the importance of understanding a proposed pre- and post-operative protocol and non-operative exercise protocols.
- Have an appreciation of the importance of appropriate communication with the referring surgeon.
- Refreshed appreciation of the anatomy and physiology of muscle and connective tissue, and application of this knowledge to build a more effective exercise program.
- Be able to modify/amend/apply exercise principles, based on an existing disease process or medication, and be able to modify based on the patient’s care setting (Hospital, Rehab/Skilled Nursing, Homecare, Outpatient).
- Be able to establish an evidence based/effective exercise program

Timeline:

**8:30-10:00**  Muscular anatomy and physiology
   Muscular anatomy
   Nerve conduction
   - How does a muscle contract?
   - Tonic vs. phasic muscles (function of a muscle)
   - Innervation of a muscle (difference between conscious and subconscious contractions)
   - Muscle types
     - Skeletal muscle (voluntary and involuntary) contractions
     - Cardiac muscle (involuntary) contractions
     - Smooth muscle (involuntary) contractions.
   - Muscle levers, levers of contraction

**10:00-10:45**  Common diseases and their effect on muscle contractions, including Parkinson’s, Stroke, CHF, Cancer, Heart attack, Muscular dystrophy
   MS, ALS, Spina Bifida
10:45-11:00 Break
11:00-12:00 Common medication and their effect on exercise physiology

Understanding the importance of knowing the half-life of a drug
Aspirin, NSAID’s, Pain medication, Chemotherapy, Muscle
relaxors, Flexeril, Skelaxin, Statins, Sinemet/dopamine, Cardiac
function controlling medication, BP controlling medication, HR
controlling medication, Kidney function controlling medication,
Pulmonary function controlling medication

12:00-12:30 The importance of a thorough evaluation
12:00-12:30 Lunch (on your own)
12:30-1:30 Clinical application of different types of exercises with
different objectives
Including Strength, Muscular Bulk, Coordination, Firing Patterns, Endurance,
ROM, stability and mobility

1:30-2:30 Progression of exercise
- Method of observation
- Points of contact
- Open chain vs. Closed chain
- # of repetitions
- Level of resistance
- Point of reference
- Eccentric to isometric to concentric
- Stabilize vs. destabilize

2:30-5:30 Common Protocol Practice and Review. Protocols will not only
include THA, TKA, TSA, PKA, TLIF/PLIF/ALIF/XLIF/Spine
Fusion/DLL/HDLL/ACDF protocols but also Lumbar/Cervical/Shoulder/Knee
stability protocols and other geriatric protocols.

Total minutes proposed: 8:30-5:30 = 9 clockhours, minus 45 minutes break
time = 495 minutes total class time = 9.5~10 CEU’s

References:
- Clinical Orthopaedic Rehabilitation; S. Brent Brotzman, Kevin Wilk,
- References:
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