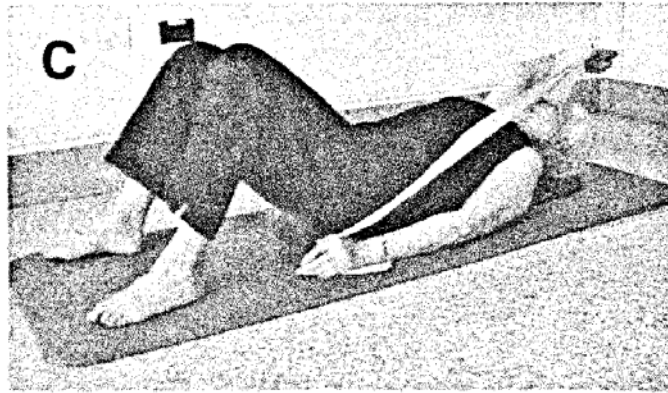
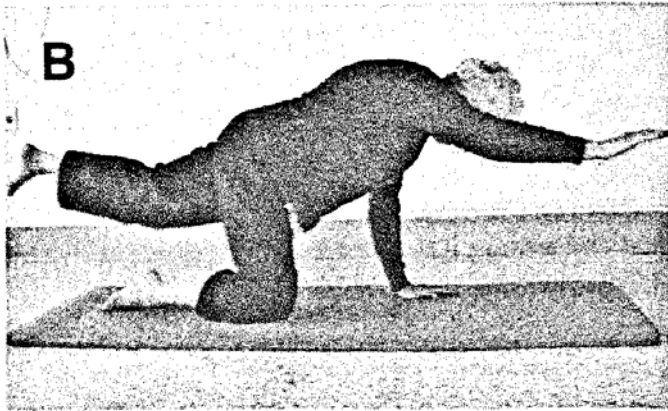
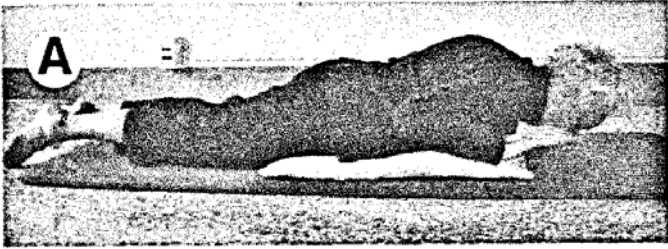


Kyphosis exercise protocol with Thera-Band (From Katzman WB et al. 2007, APMR)

APPENDIX 1: EXERCISE INTERVENTION

Exercise	Intensity/Duration	Target
Warm-up (5min) Shoulder, chest, upper back ROM	10 repetitions - active Active range of motion	Increase heart rate before stretch and strengthen exercises
Strengthening (20min) Prone trunk lift to neutral Quadruped arm and leg lift	3 sets of 8 repetitions, 0-5lb (0-2.3kg) or Thera-Band Arms by side → "W" position by shoulders → fists by ears Ankle and wrist cuff weights	Thoracic and lumbar spine extension, scapular strengthening Lower trapezius, spinal extension, multifidus, and transverses abdominus stabilization
Bilateral shoulder flexion performed supine on roller Side-lying thoracic rotation	Thera-Band resistance Thera-Band resistance	Lower trapezius, spinal extension, multifidus, and transverses abdominus stabilization Thoracic extension, rotation strength, and mobility
ROM exercises (15min) Chest stretching and diaphragmatic breathing, supine on roller Prone hip extension Supine straight-leg raise Quadruped thoracic extension and chest stretch	Passive 30s hold Combine with shoulder flexion exercises Passive: stretch strap ×1 bilaterally Passive: stretch strap ×1 bilaterally Passive: ×3	Lengthen pectoralis major; expand ribcage and anterior chest wall Lengthen iliopsoas and quadriceps Lengthen hamstrings and gastroc-soleus Increase thoracic spine extension and lengthen anterior chest wall musculature
Postural alignment (15min) Postural correction	Active Standing, eyes open, eyes closed	Recognition and integration of sensory cues for correct alignment
Exercise	Intensity/Duration	Target
Neutral spine sit → stand	Seated on gym ball: 10 repetitions	Recognition and integration of correct sensory cues during functional activities
Cool-down (5min) Wall push-ups Overhead arm wall slides Calf stretching at wall Home postural alignment	Active Body weight as resistance ×10 Lift arms from wall end range ×10 Passive 30s hold ×1 Postural correction at least 3×/day	Scapular stabilization Lower trapezius muscles Gastroc-soleus muscles Integrate improved postural alignment into ADLs

**APPENDIX 2: EXERCISE INTERVENTION: SELECTED
EXTENSION STRENGTHENING EXERCISES**



(A) Prone trunk extension to neutral with arms in W position, (B) quadrupedal alternate extension, (C) supine on roller with resisted shoulder flexion.