# **Nuss Procedure rehabilitation protocol**

| **Weeks 1-8** |
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| **Precautions** |
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* No side lying or prone lying
* No log rolling
* No bending, twisting, straining
* No heavy lifting (≤ 10 lbs)
* Limit sitting to no more than 30 minutes at a time
* No carrying backpack
* No physical education class
* No contact sports

| **Exercises**: first 4 weeks |
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* Diaphragmatic breathing
* Standing shoulder stretches to improve reaching mechanics
* Pec minor stretches
* Postural retraining
  + Scapular retraction with depression
  + Pelvic rocks
* **Manual therapy:** glenohumeral and scapulothoracic joint mobilizations

| **Exercises**: beginning 4 weeks ***after*** surgery | |
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| * **Cardio** | * **Core exercises** |
| * + Walking briskly twice a day for 15-20 minutes each | * + Posterior pelvic tilt + lower abdominal progressions |
| * + May also use the treadmill at 3% incline for 20 minutes/daily, stationary bike, and/or elliptical training | * + Quadruped cat/camel, bird dog |
| * **Scapular strengthening & retraining** | * + Lower trunk rotations |
| * + Theraband rows | * **Lower Extremity Strengthening** |
| * + Theraband extension | * + Bridging |
| * + Theraband bilateral external rotation | * + Mini squats |
| * + Dynamic hug, ceiling punches | * + Resisted side stepping |
| * + Theraband horizontal abduction | * **Manual Therapy** |
| * + Shoulder shrugs (upper) | * + Gentle soft tissue massage to scapular and rotator cuff muscles for spasm |
| * **Rotator cuff strengthening** |
| * + Active shoulder ROM |
| * + Scaption |
| * + Sidelying external rotation with towel roll |
| * + Theraband internal/external rotation |

# **Nuss Procedure rehabilitation protocol**

| **Weeks 8-16** |
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| **Precautions** |
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* No contact sports

| **Exercises** |
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* **Cardio**
  + Continue walking, biking or elliptical
* **Shoulder and scapular strengthening**
  + Prone exercises on table or exercise ball
    - Full-can
    - Row
    - Horizontal abduction at 90° abduction with ER
    - Extension with ER
  + Push-up plus
  + Lat pull downs
  + Bent-over rows
  + Resisted diagonal patterns, PNF D1/D2, scapular PNF
  + Rhythmic stabilization in various positions/ROMs
* **Core/abdominal strengthening**
  + Plans/side-planks + variations (progress upper extremity weight-bearing as tolerated)
  + Abdominal crunch
  + V-sit trunk rotations with a medicine ball
* **Lower extremity strengthening**
  + Squats: progressing to single leg and unstable surfaces
  + Lunges: progressing to 3 planes of motion, walking lunges +/- trunk rotation
* **Progress functional and sport-specific training as tolerated**
  + Deceleration hops: progressing to plyometric jumping
  + Speed and agility exercises

| **Modified return to physical education class:** 8 weeks; no contact sports |
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| **Unrestricted return to aerobic activity:** 16 weeks |
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| **Unrestricted return to sports:** 6 months |
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| This guide is being provided for you to give to your Physical Therapist, in case they would like a Pectus focused Physical Therapy Rehabilitation Plan to follow. |
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