# **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**
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| * + Walking briskly twice a day for 15-20 minutes each
 | * + Posterior pelvic tilt + lower abdominal progressions
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| * + 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**
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| * + Theraband extension
 | * + Bridging
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| * + Theraband bilateral external rotation
 | * + Mini squats
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| * + Dynamic hug, ceiling punches
 | * + Resisted side stepping
 |
| * + Theraband horizontal abduction
 | * **Manual Therapy**
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| * + Shoulder shrugs (upper)
 | * + Gentle soft tissue massage to scapular and rotator cuff muscles for spasm
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| * **Rotator cuff strengthening**
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| * + Active shoulder ROM
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| * + Scaption
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| * + Sidelying external rotation with towel roll
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| * + Theraband internal/external rotation
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# **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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