



Triton[®] Traction

Dosimetry Guidelines

FDA cleared indications

- Pain relief related to
 - Protruding and herniating discs
 - Degenerative disc disease (DDD)
 - Facet joint disorders
 - Spinal root impingement
 - Degenerative joint disease (DJD)
 - Hypomobility
 - Compression fractures

Back and Neck Pain – Causes

- Back and neck pain is related to different causes
 - Active support system failure (muscle strain/injury)
 - Structural support system failure (Ligament, disc injury)
 - Chronic conditions usually have failure of both systems: structural damage and muscle imbalance

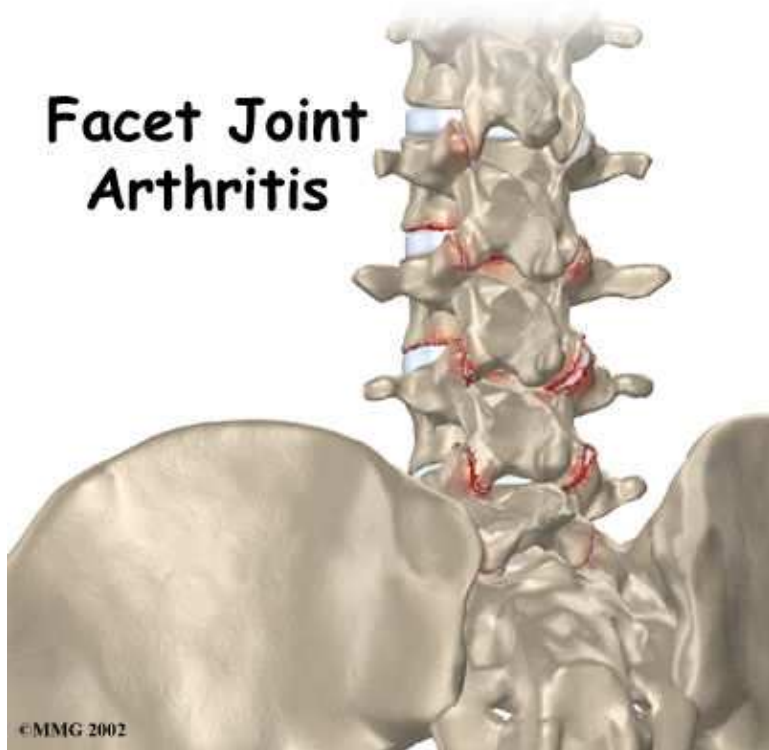




Sources of Back and Neck Pain



Facet Joint
Arthritis

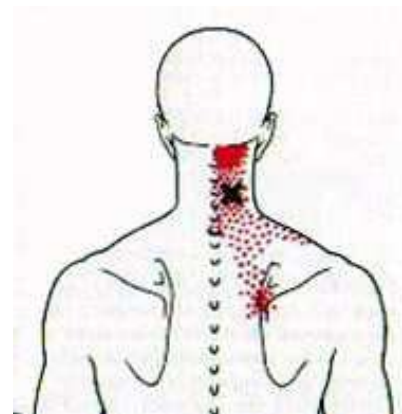


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facet joint



nerve root



muscle

Goals of Mechanical Traction

- Mechanical effects
 - Stretch ligaments, muscles
 - Relax musculature
 - Decrease intradiscal pressure
 - Widen intervertebral foramen
- Physiological effects
 - Relief nerve root compression
 - Possible disc retraction
 - Mobilize joint and muscle
 - Improve blood flow
 - Decrease pain



Traction Parameter Adjustments

- Traction parameter set depends on
 - Type of injured tissue
 - What is Goal of treatment
 - pain relief,
 - decompression,
 - stretch
 - increase circulation
 - reduce inflammation
 - Acuity of lesion
 - Phase of Healing cycle



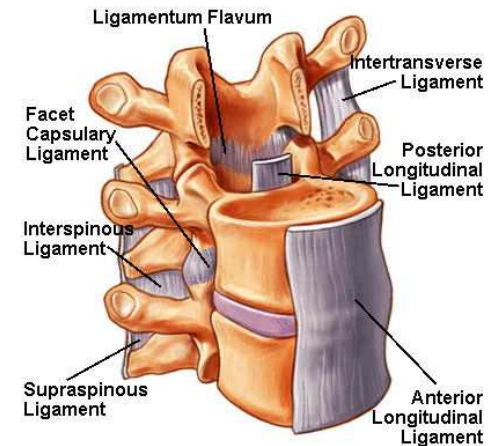
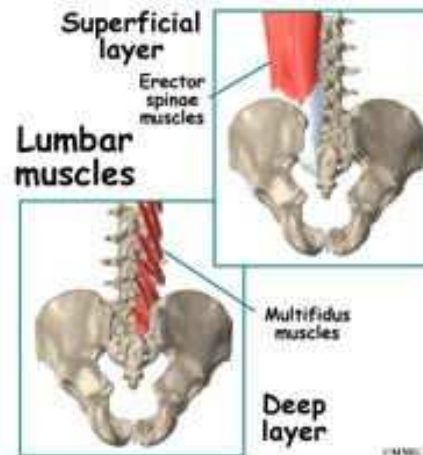
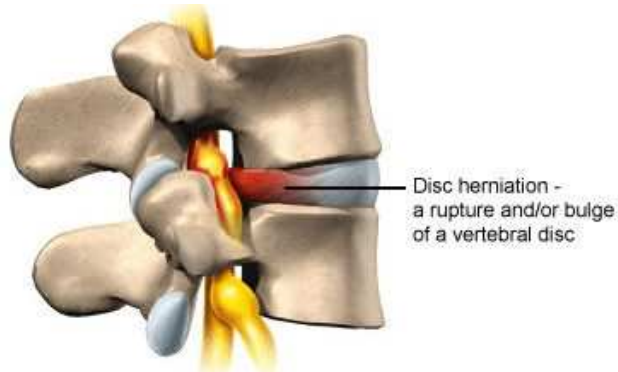


Traction Therapy Goals



Decompression

Relieve pressure on nerve
Decrease disc bulging
Open up foramen



Increase Circulation

Stretch and relax
Tension tissues
Oscillate joint



Anti-inflammatory

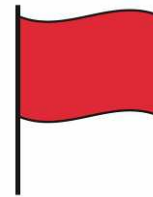
Decrease muscle tone
Decrease inflammation

Patient Selection

- Radiating pain in dermatomal distribution
 - With or without sensory loss
 - With or without decreased strength in key muscles
- Decreased ROM in capsular pattern of restrictions
 - With or without radiculopathy
 - No exacerbation of pain after “trial” of manual traction
 - With or without degenerative spondylotic changes
- Centralization of the pain after “trial” of manual traction is indicator of favorable outcomes of mechanical traction

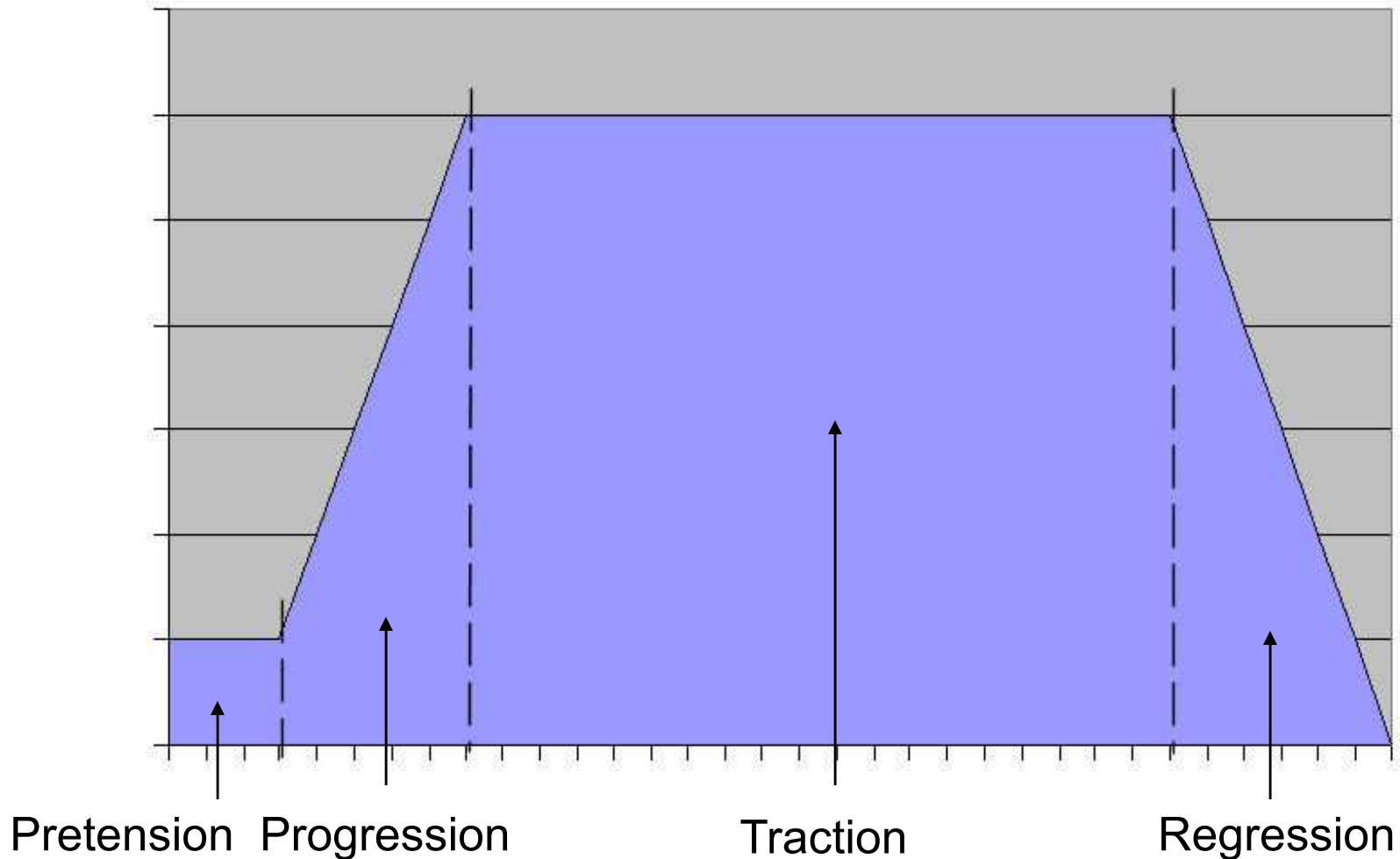
Expected Outcomes of Traction

- Symptomatic relief
 - Decreased back pain
 - Increased ROM
 - Decreased muscle tone
- Functional improvement
 - Increased participation in exercise
 - Increased work tolerance
 - Increased participation in ADLs
- Red flags
 - Pain increases or starts referring
 - Muscle guarding increases





The Four Phases of DTS Therapy



Lumbar Traction Progression

	Week 1	Week 2	Week 3	Week 4	Progression Trend
Symptoms Lumbar Spine	+++ pain Mm spasm	++ pain Mm guarding	+ pain Stiffness, Dec.	Min. pain ↑ ROM	
Pretension	25 lbs, 60 sec	25 lbs, 30 sec	30 lbs, 30 sec	30 lbs, 20 sec	↑ lbs, ↓ time
Rope speed	30%	30%	50%	100%	↑ speed
Progression	Static steps	Static steps	Static steps	Int. or stat steps	↑ movement
- # of steps	6-9	6-8	4-6	3-5	↓ steps
- step hold time	12-15 sec	12-15 sec	12-15 sec	12-15 sec	= hold time
Traction	Static	Intermittent	Intermittent	Intermittent	↑ movement
- time	5- 8 min	8-10 min	10-12 min	12-15 min	↑ time
- lbs. max	30-40 lbs	40-50 lbs	50-85 lbs	60-85 lbs	↑ lbs
- max hold time	n/a	45-60 sec	45-60 sec	0-5 sec	↓ hold time
- lbs. min	n/a	20-30 lbs	30-40 lbs	45-65 lbs	↑ lbs
- rest hold time	n/a	30-45 sec	15-30 sec	0-5 sec	↓ hold time
Regression	Static steps	Static steps	Static steps	Static steps	↑ movement
- # of steps	5	5	4	3	↓ steps
- step hold time	30-45 sec	30-45 sec	30-45 sec	30-45 sec	= hold time

Cervical Traction Progression

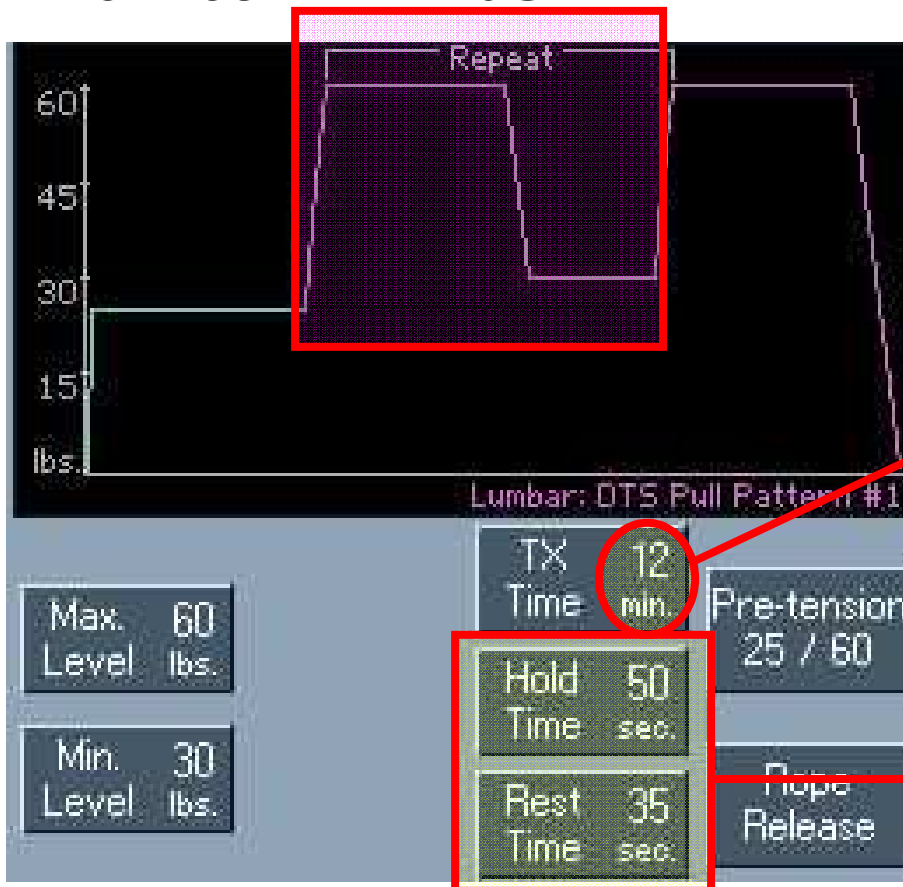
	Week 1	Week 2	Week 3	Week 4	Progression Trend
Symptoms Cervical Spine	+++ pain Mm spasm	++ pain Mm guarding	+ pain Stiffness, Dec.	Min. pain ↑ ROM	
Pretension	10 lbs, 20 sec	10 lbs, 20 sec	10 lbs, 15 sec	10 lbs, 15 sec	= lbs, ↓ time
Rope speed	30%	30%	50%	100%	↑ speed
Progression	Static steps	Static steps	Static steps	Int. or stat steps	↑ movement
- # of steps	3-4	2-3	2-3	2-3	↓ steps
- step hold time	12-15 sec	12-15 sec	12-15 sec	12-15 sec	= hold time
Traction	Static	Intermittent	Intermittent	Intermittent	↑ movement
- time	5- 8 min	8-10 min	10-12 min	12-15 min	↑ time
- lbs. max	10-25 lbs	15-25 lbs	15-30 lbs	15-30 lbs	↑ lbs
- max hold time	n/a	45 sec	30 sec	0-5 sec	↓ hold time
- lbs. min	n/a	10-15 lbs	10-15 lbs	10-15 lbs	= lbs
- rest hold time	n/a	30 sec	20 sec	0-5 sec	↓ hold time
Regression	Static steps	Static steps	Static steps	Static steps	↑ movement
- # of steps	3	3	3	3	= steps
- step hold time	30-45 sec	30-45 sec	30-45 sec	30-45 sec	= hold time

DTS Pull Patterns

- 5 unique preprogrammed pull patterns
- Automatic speed adjustment (with each cycle)
 - From 0 lbs to pretension lbs at 100%
 - From pretension lbs to target max lbs at 50%
 - Continually slows till reaches max lbs
 - From max lbs to min lbs at 50%
 - Repeats slowing progression each cycle of Intermittent traction
 - End of treatment 30% until all force is released

DTS pull #1

Simple Intermittent traction pattern from max to min lbs

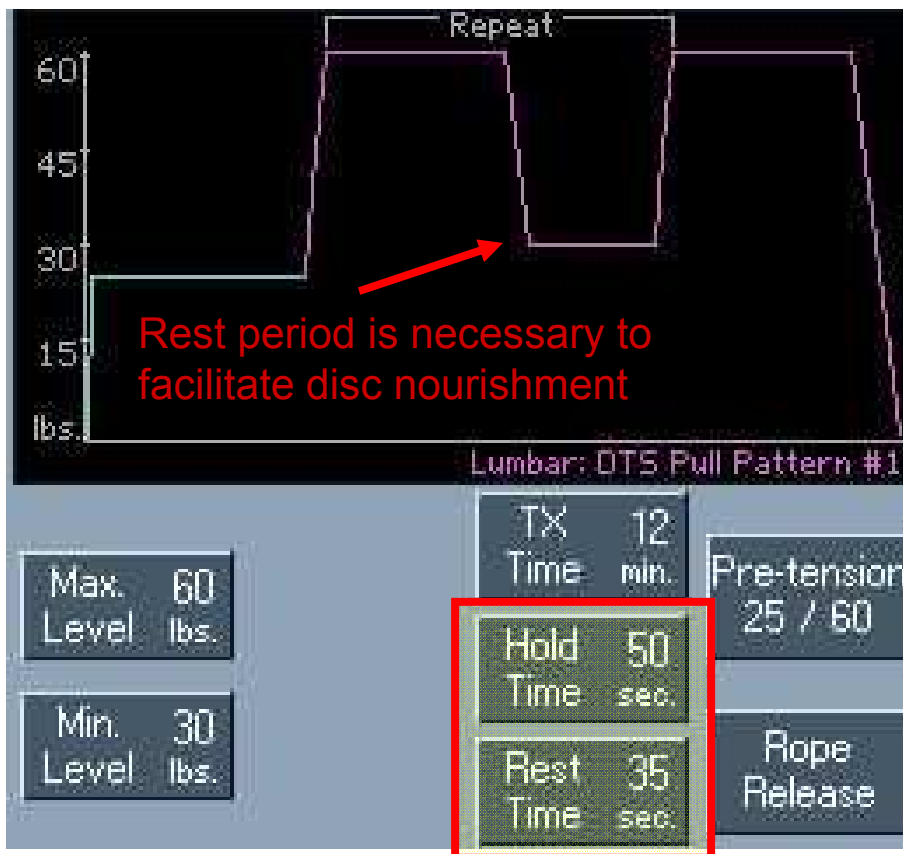


Intermittent traction cycle continues during entire treatment time, using speed slowing progression with each cycle

Maximum and minimum traction levels are held according to Hold and Rest times

DTS pull #1

Simple intermittent traction pattern from max to min lbs

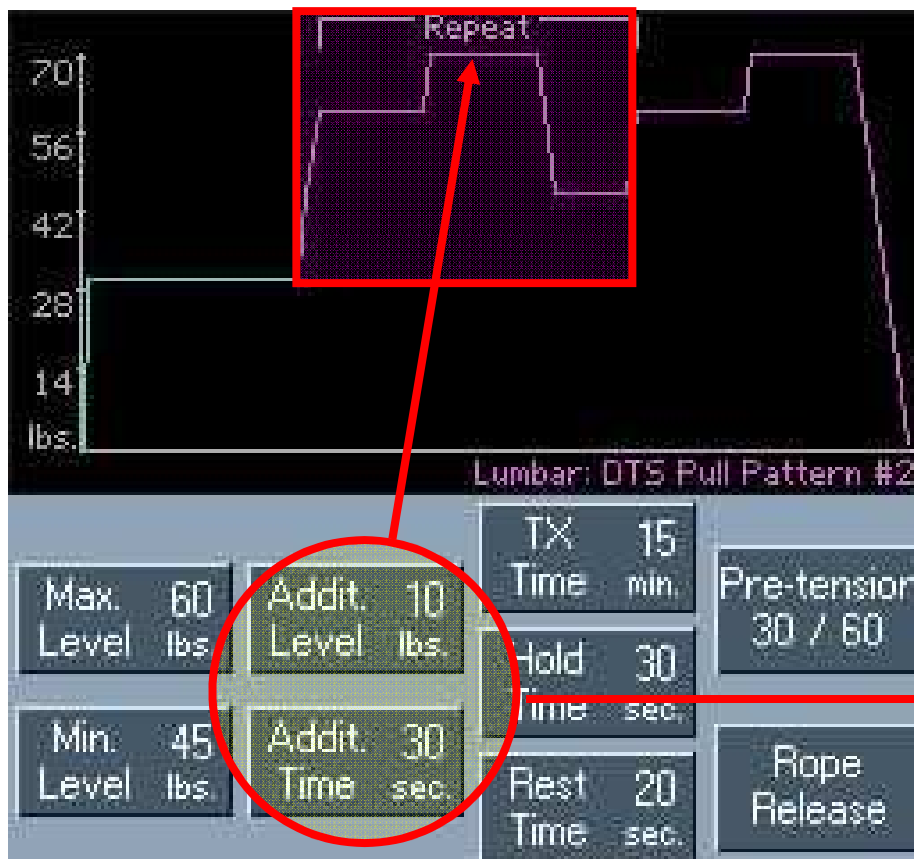


Case study

- Moderate back pain
- Referred pain in buttocks
- Radiology: small disc protrusion
- Minimal protective muscle tone

DTS pull #2

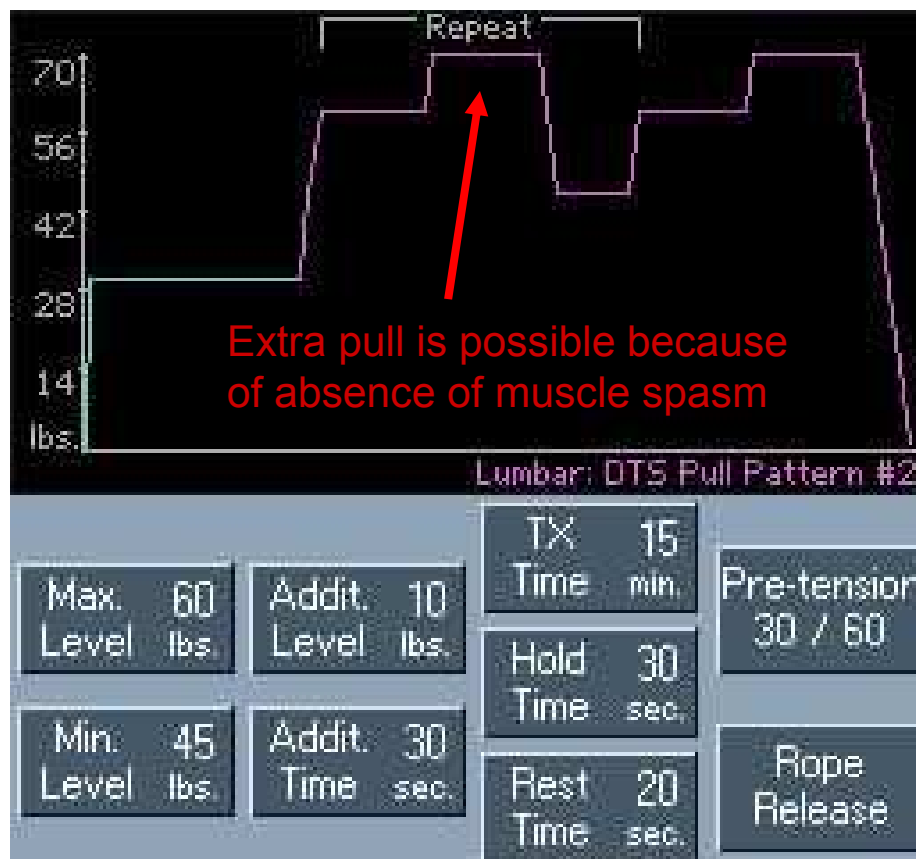
Intermittent traction with an extra force gradient added at the end of the hold time



Extra force gradient lbs and hold time

DTS pull #2

Intermittent traction with an extra force gradient added at the end of the hold time

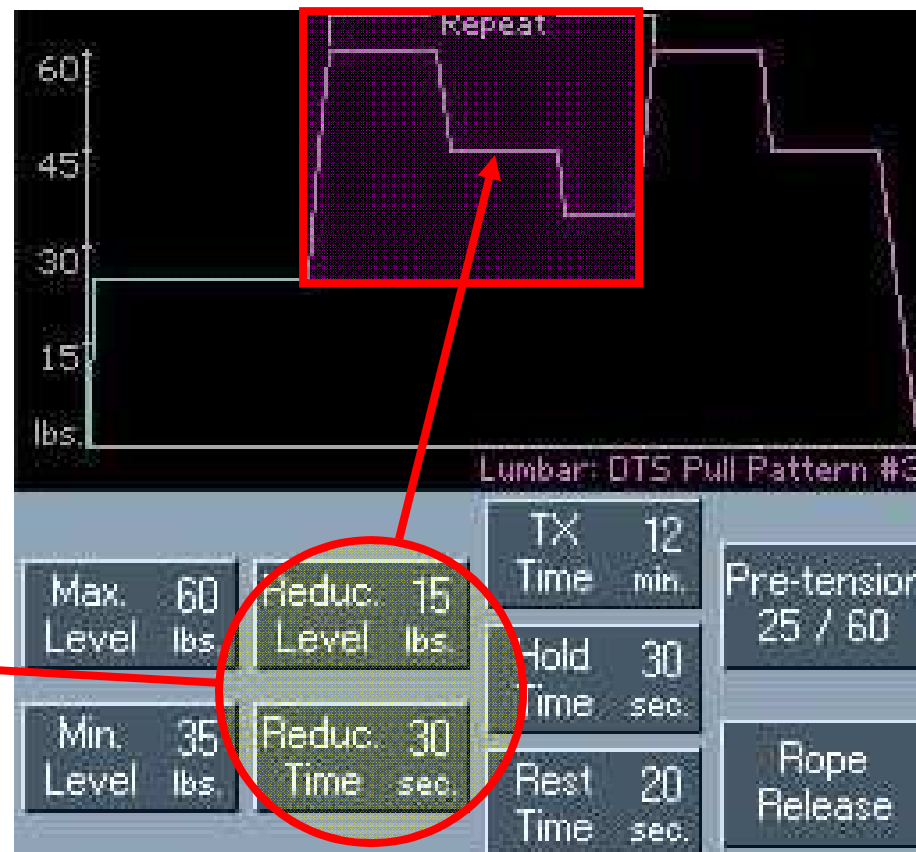


Case study

- Minimal to moderate back pain
- Referred pain in buttocks and/or LE
- Radiology: small to moderate disc protrusion
- No protective muscle tone
- Decreased lumbar ROM

DTS #3

Intermittent traction with a declining force gradient added at the end of the hold time

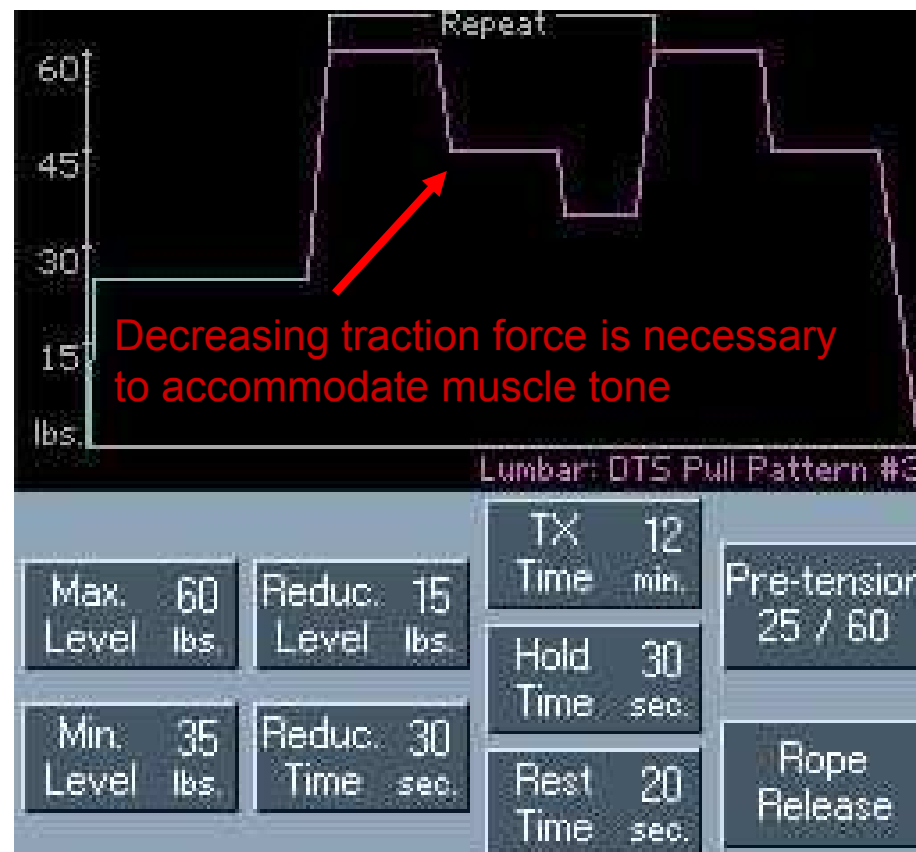


Declining force gradient lbs and hold time

Intermittent traction with a declining force gradient added at the end of the hold time

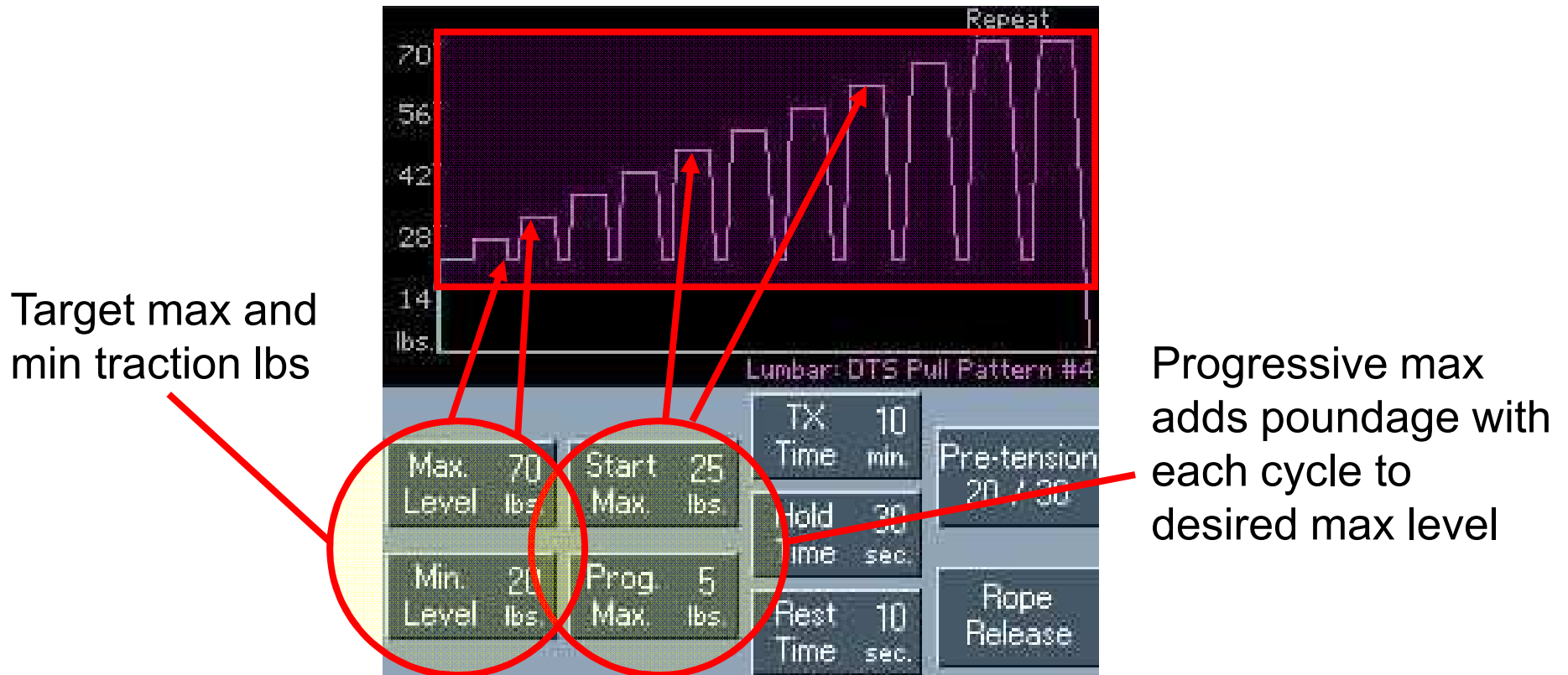
Case study

- Moderate to significant back pain
- Moderate protective muscle tone/spasm
- Radiology: moderate disc protrusion / herniation



DTS #4

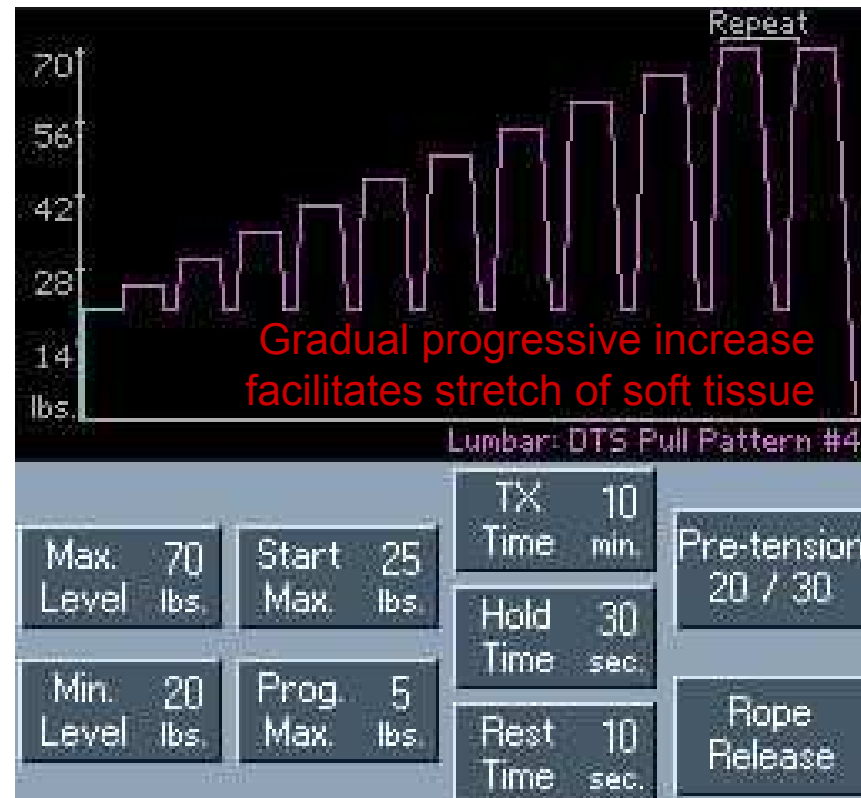
Intermittent traction increasing in phases to max lbs, similar to PROM, (progressive range of motion), PNF patterns



Intermittent traction increasing in phases to max lbs, similar to PROM, (progressive range of motion), PNF patterns

Case study

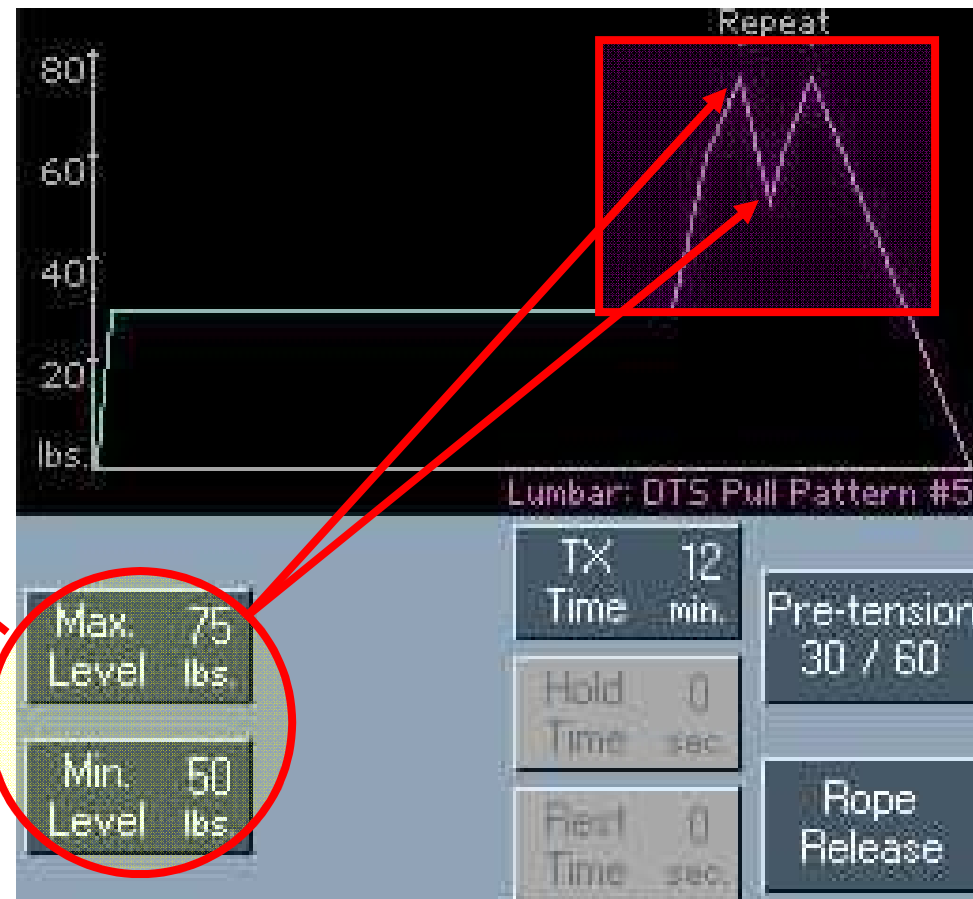
- Moderate to significant back pain
- Minimal protective muscle tone/spasm
- Moderate ROM decrease in lumbar joints and soft tissue
- Poor posture



DTS #5

Intermittent traction cycle without any hold or rest time, very slow Oscillation

Traction force changes smoothly from max to min lbs (automatically adjusting motor speed)



Intermittent traction cycle without any hold or rest time

Case study

- Moderate back pain
- No or minimal protective muscle tone/spasm
- Significant ROM decrease in lumbar joints and soft tissue
- Decreased circulation

