PERFORMANCE THERAPY

A GUIDE ON HOW TO PROGRESS REHAB

Hey there!

This resource is bursting with valuable information, and we're excited to share it with you. We just want to make sure everyone understands what you can and can not do with this resource, so here's the deal:

This resource is protected by domestic and international copyright laws. That means you aren't allowed to share it without permission. Unauthorized reproduction or distribution is a big no-no and could lead to some serious legal trouble. We take protecting our intellectual property seriously!

We've put a lot of effort into making this resource as accurate and helpful as possible. However, please keep in mind that it's meant for informational and educational purposes only and shouldn't be taken as professional advice. Things can change, and we can't guarantee the information will always be up to date.

We want you to get the most out of this resource, but we also need to protect our hard work. So, while you're more than welcome to download and use it for your business only, you have a single, personal, limited-use, non-exclusive, and non-transferable license and any other use without our written consent is strictly prohibited. Let's respect each other's rights, okay?

If you have any questions or need permission for something, just reach out to us at adam@adamloiacono.com We're happy to chat!

Oh, and don't forget, any trademarks mentioned in this resource belong to their respective owners and are referenced here for informational or educational purposes only.

By downloading and using this resource, you agree to follow the rules laid out in this copyright notice.

Thanks for being awesome and understanding!

Adam Loiacono | Loiacono Performance Therapy, LLC

PERFORMANCE THERAPY

A GUIDE ON HOW TO PROGRESS REHAB

DENSITY: STRATEGIC LOADING EACH DAY

- **What is Density and why is it important?**
  - Density = Load * Frequency | Load = Volume * Intensity | Frequency = number of days
  - Strategically managing density will progressively load the athlete while mitigating setbacks.

- **What is the difference between High and Low intensity, and why is there no Medium intensity?**
  - High intensity days progress load and accumulate stress in order to encourage adaptations.
  - Low intensity days regress load to allow the body to recover from the stress and develop adaptations.
  - Medium intensity days do not produce enough load to create an adaptation nor have less enough load to allow for recovery to occur.

- **What are Low Threshold Activities and why are they important?**
  - Provide little to no stress to the athlete to encourage recovery on that particular day.
  - An opportunity to focus on motor learning using hand supported or table exercises.
  - Some athletes have a difficult time not "doing" - these activities create "doing" without added stress.

PHASES	DESCRIPTION OF DENSITY	INTENSITY TARGET	VECTOR SAMPLE
I	• ONE DAY OF PROGRESSIVE LOADING • CHOOSE A SINGLE VECTOR • THE NEXT DAY IS LOW THRESHOLD ACTIVITIES	DAY 1: HIGH DAY 2: LOW DAY 3: HIGH DAY 4: LOW DAY 5: HIGH	VERTICAL- HIGH TABLE EXERCISES - LOW LINEAR - HIGH TABLE EXERCISES - LOW LATERAL - HIGH
II	• TWO DAYS OF PROGRESSIVE LOADING • A DIFFERENT VECTOR ON EACH DAY • THIRD DAY IS LOW THRESHOLD ACTIVITIES	DAY 1: HIGH DAY 2: HIGH DAY 3: LOW DAY 4: HIGH DAY 5: HIGH DAY 6: LOW	VERTICAL - HIGH LINEAR - HIGH TABLE EXERCISES - LOW LATERAL - HIGH VERTICAL - HIGH TABLE EXERCISES - LOW
III	• THREE DAYS OF PROGRESSIVE LOADING • A DIFFERENT VECTOR ON EACH DAY • FOURTH DAY IS RECOVERY	DAY 1: HIGH DAY 2: HIGH DAY 3: HIGH DAY 4: RECOVERY DAY 5: HIGH DAY 6: HIGH DAY 7: HIGH	VERTICAL - HIGH LINEAR - HIGH LATERAL - HIGH RECOVERY - LOW VERTICAL - HIGH LINEAR - HIGH LATERAL - HIGH

PERFORMANCE THERAPY

A GUIDE ON HOW TO PROGRESS REHAB

VECTORS: CREATING COHERENCE IN THE PROGRAM

- **What are the 3 primary vectors and why are they important, regardless of injury type?**
  - Linear, vertical, and lateral - or more athletically known as running, jumping, and change of direction.
  - Regardless the injury type, all athletes will have to run, jump, and change direction during rehab.
  - Typically an injury compromises one vector more than the others, but all vectors still need to be addressed.

- **What are the primary muscles & movement associated with each vector?**
  - Vertical - quadriceps, gastrocnemius, and soleus - jumping.
  - Linear - hamstrings, gluteus maximus, and hip flexors - sprinting.
  - Lateral - adductor group, abductor group, and obliques- change of direction.

- **What is coherence?**
  - The process of being logical and consistent.
  - Simplify and prioritize exercise selection based on a target goal - the vector.
  - Each exercise and decision needs to directly relate to and/or integrate with one another.

- **How to create coherence using vectors?**
  - Selectively choose a single vector for a single day of rehab.
  - Consider what the primary movement is for that vector and the associated muscle groups.
  - Write the program to begin with the System (the movements) and end with the Parts (the joints & muscles).

EXERCISE EXAMPLES FOR EACH VECTOR

THE SYSTEM - MOVEMENTS		
VERTICAL	**LINEAR**	**LATERAL**
SINGLE LEG SQUAT	REAR FOOT ELEVATED SINGLE LEG SQUAT	LANDMINE LATERAL SQUAT
SPLIT SQUAT	FORWARD LUNGE	LATERAL LUNGE
BILATERAL SQUAT	SLED PUSHING	LATERAL SLED DRAGS
TRAMPOLINE JUMPS	DEADLIFT	CARIOCA MEDICINE BALL TOSS
BOX DEPTH JUMPS	SPRINTS	5-0-5 DRILL
THE PARTS - ISOLATED JOINTS & MUSCLES		
SUPINE SINGLE LEG PRESS	SEATED LEG CURLS	CABLE HIP ADDUCTION/ABDUCTION
SEATED LEG EXTENSION	NORDIC HAMSTRING	COPENHAGEN GROIN
BILATERAL SEATED CALF RAISES	SINGLE LEG HAMSTRING SLIDES	GROIN SLIDES
SINGLE LEG CALF RAISES	SUPINE HIP THRUSTS	LATERAL BAND WALKS
REVERSE NORDICS	CABLE HIP FLEXION	SIDE PLANK

ADAMLOIACONO.COM

PERFORMANCE THERAPY

A GUIDE ON HOW TO PROGRESS REHAB

PRINCIPLES: THE FOUNDATIONS FOR DECISION MAKING

- **What are Principles and why are they important?**
  - A Principle is a guiding belief or truth that provides the foundation for a system and/or a decision.
  - Principles are important because they eliminate the noise and create consistency in decision making.
  - The purpose of a Principle is to encourage a repeatable process that uses logic and contextual factors.

- **How come the progressions are not specific exercises?**
  - Thousands of exercises exist and not every exercise is appropriate for everyone.
  - Exercise selection is a variable decision that is dependent on the athlete, the available equipment, and the desired outcome for that movement.
  - The use of a framework and principles creates endless possibilities that are unique and relevant to both the athlete and the practitioner.

- **How to use Principles to create progression in the rehab plan?**
  - Several Principles exist in the table below - some can be combined while others may need to be isolated.
  - Start by choosing one Principle and follow the Framework for progression.
  - Combine a 2nd or 3rd Principle to further increase the complexity or progression during the rehab plans.

GUIDING PRINCIPLE	PROGRESSION FRAMEWORK
WHOLE BODY MOVEMENT ACTION	ISOMETRIC -> PULSES -> TEMPO -> DYNAMIC -> VELOCITY
LOCAL JOINT ACTION	ISOMETRIC -> RESISTED CONCENTRIC -> RESISTED ECCENTRIC
EXTERNAL LOADING AS % OF BODYWEIGHT *REFERENCE THE FORCE-VELOCITY CURVE*	BODYWEIGHT -> 50% -> 75% -> 100% -> 150%
VELOCITY *REFERENCE THE FORCE-VELOCITY CURVE*	0.5 M/S -> 0.75 M/S -> 1.0 M/S -> 1.3 M/S
NUMBER OF JOINTS INVOLVED	OPEN CHAIN -> CLOSED CHAIN
POSITIONAL DEMANDS - CONSIDER THE FOLLOWING... *DEMANDS OF GRAVITY **NEURODEVELOPMENT MODELS ***DEGREES OF FREEDOM IN MOVEMENT	 REDUCED GRAVITY BEFORE NORMAL GRAVITY - EX: HALF KNEELING BEFORE SPLIT STANCE MORE GROUND CONTACT BEFORE LESS GROUND CONTACT - EX: QUADRUPED BEFORE STANDING LESS DEGREES OF FREEDOM BEFORE MORE - EX: LEG PRESS BEFORE BARBELL BACK SQUAT
RANGE OF MOTION	PASSIVE -> ACTIVE ASSISTED -> ACTIVE -> RESISTED -> RESISTANCE ASSISTED / OVERSPEED
TISSUE TARGET	MUSCULAR -> TENDON
JUMPING	LONG GROUND CONTACTS / EXTENSIVE -> SHORT GROUND CONTACTS / INTENSIVE
RUNNING	MARCHING -> SLED PUSH -> SKIPPING -> RESISTED RUNNING -> SPRINTING

PERFORMANCE THERAPY

A GUIDE ON HOW TO PROGRESS REHAB

FORCE-VELOCITY CURVE: PROFICIENTLY MANIPULATE LOADING

- **What is the Force-Velocity Curve and why is it important?**
  - A fundamental concept in biomechanics displaying the inverse relationship between force and speed.
  - Maximal force production is produced with slow speeds, and maximal speed is produced with low force.
  - The Curve is important because it guides loading parameters for exercise selection for coaches & therapists.

- **The Force-Velocity Curve is usually only discussed in Strength & Conditioning, how is it relevant to Rehab?**
  - Force, also known as Strength, is the foundation for all athletic movements.
  - When an injury occurs, Force deficits exist immediately during the healing and protection phases.
  - Adhering to principles from the Curve and progressing along the Curve during rehab will restore the strength deficits.
  - Ignoring the Curve during rehab most often results in compensatory strategies or secondary injuries because certain athletic qualities were not adequately restored.

- **How to use the Force-Velocity Curve during Rehab?**
  - Identify where on the Curve the athlete has a deficit relative to their sport.
  - Create a block in the rehab program to address this particular quality.
  - Most starting points of the rehab plan will begin within Max Strength and finish within Max Speed.