RESTORATIVE STRENGTH TRAINING FOR TACTICAL ATHLETES

An integrative approach for improving the health & performance of our Warfighter athletes

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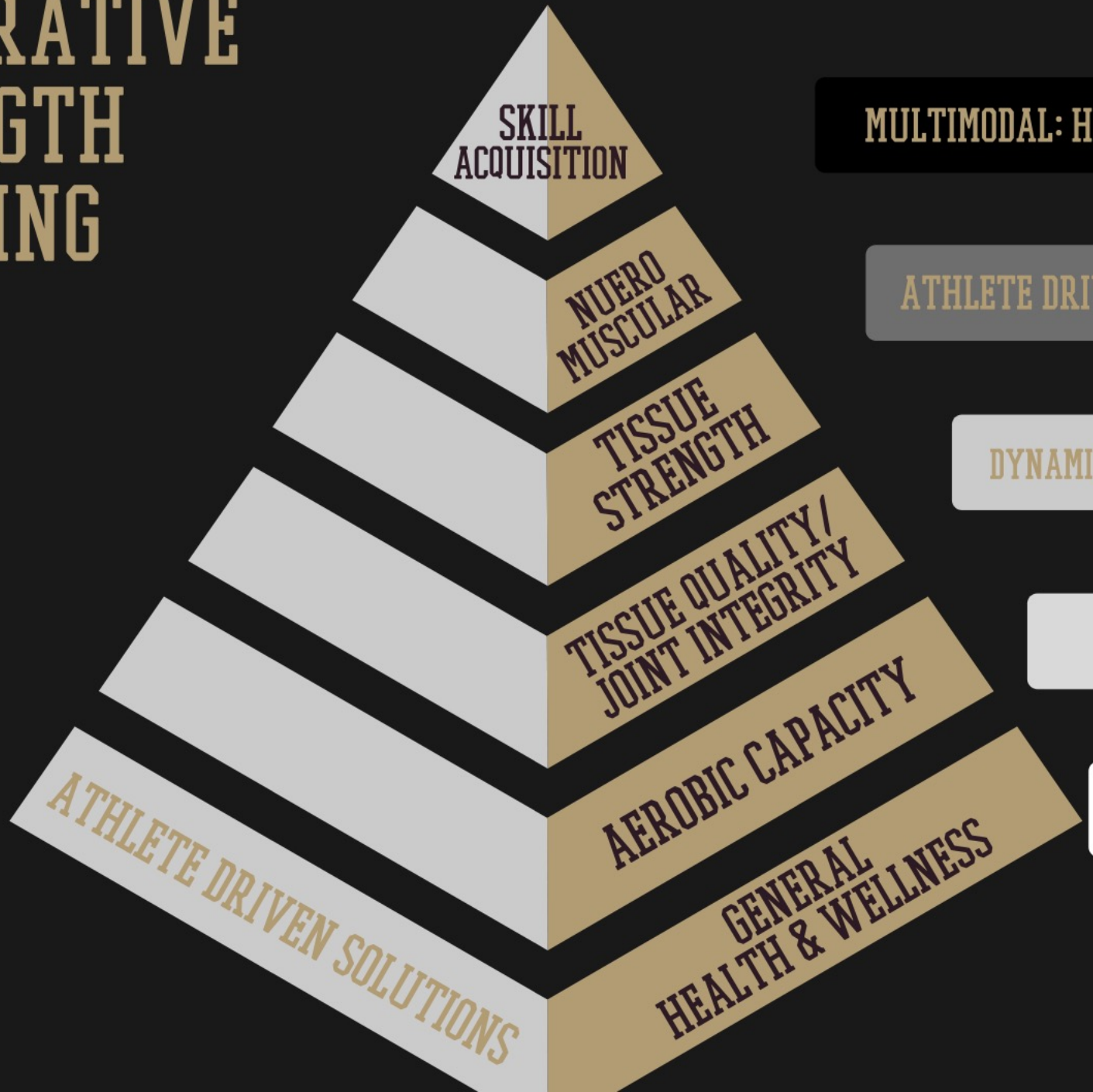
RUDE ROCK

STRENGTH & CONDITIONING

RESTORATIVE STRENGTH TRAINING



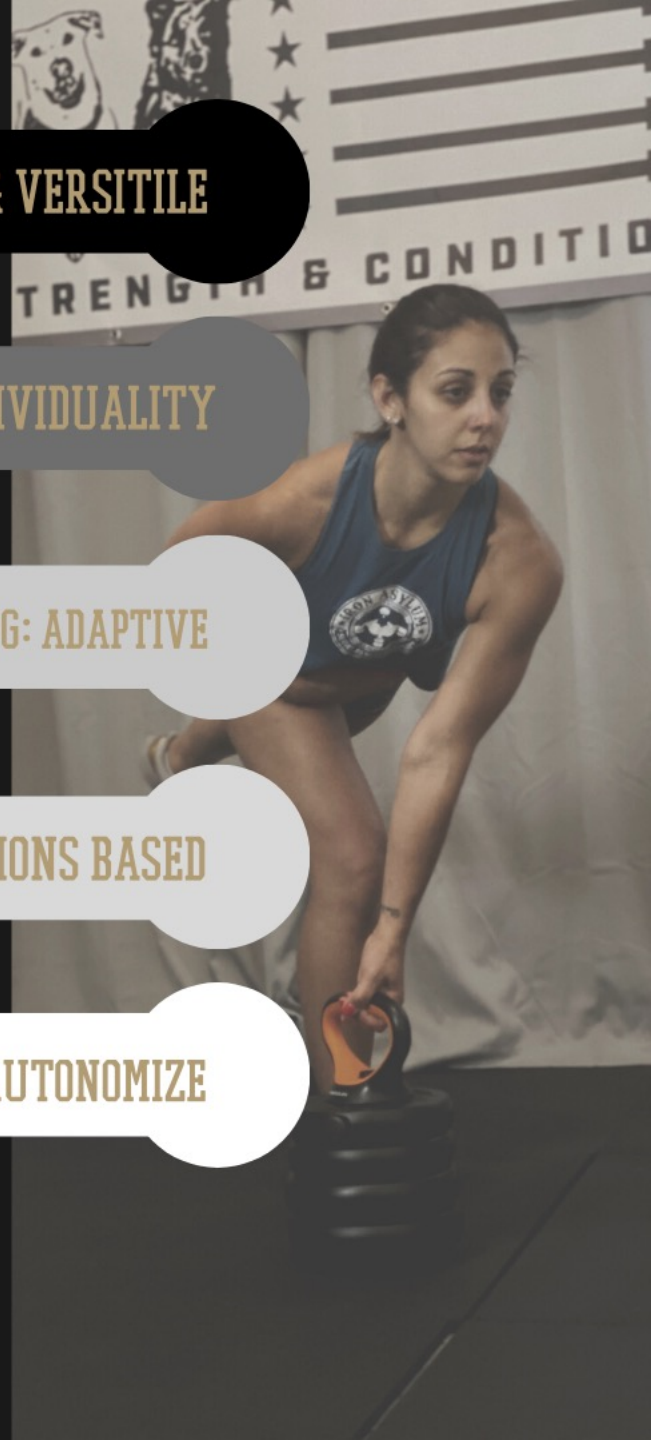
MULTIMODAL: HOLISTIC & VERSITILE

ATHLETE DRIVEN: INDIVIDUALITY

DYNAMIC MODELING: ADAPTIVE

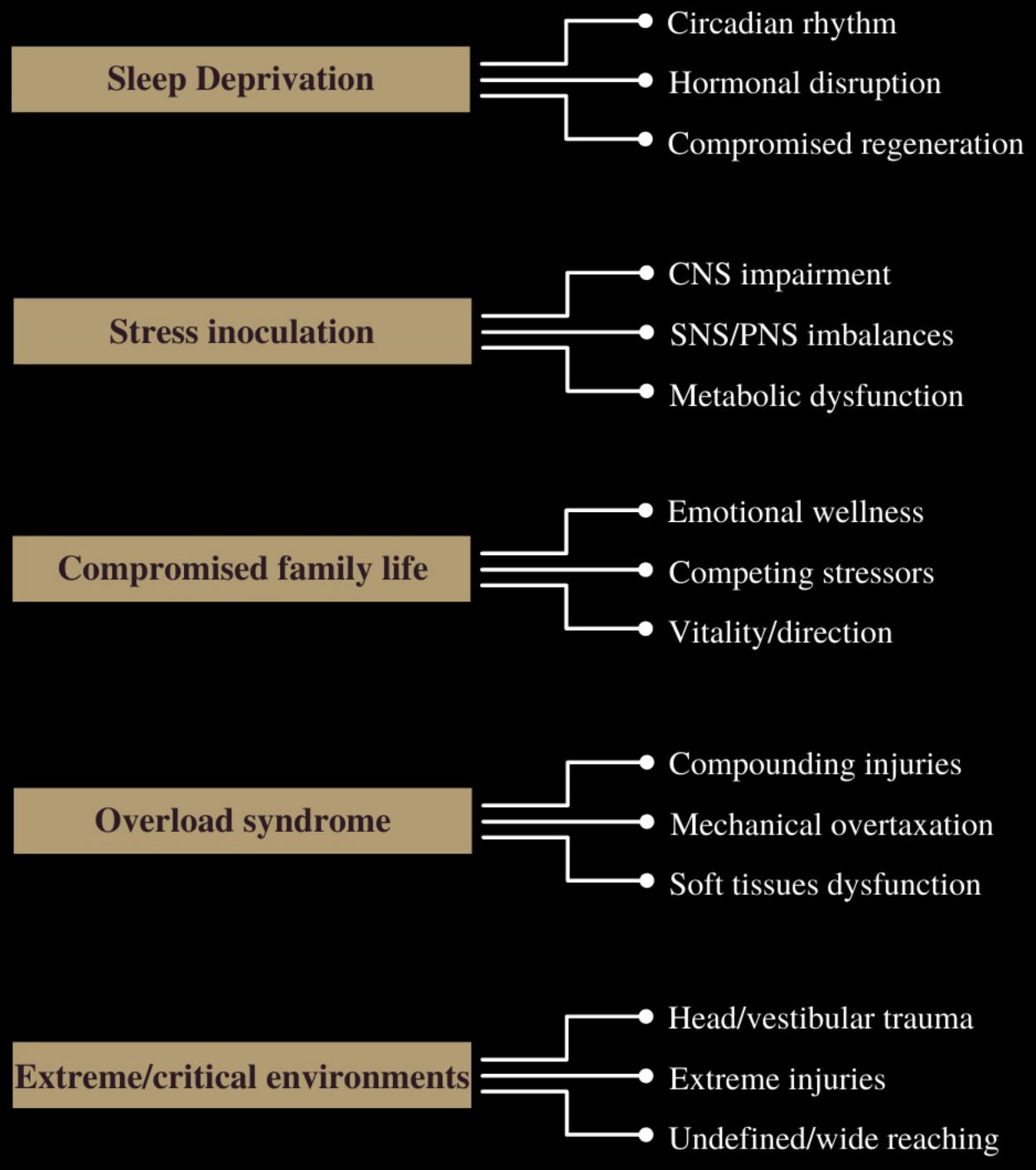
SOLUTIONS BASED

AUTONOMIZE



WHAT COACHES THINK "TACTICAL" MEANS...	WHAT IT REALLY MEANS...
 Always find failure	 Subject matter expert, professionalism
 Stack intensity on top of intensity	 Attentive and interactive
 Pain is something to override or mask	 Precise and thorough with applications
 Loud, screaming, "gamey"	 Able to communicate concisely & clearly
	

A BATTLE OF ATTRITION



COMMON INJURIES

HEAD & NECK

- *Concussion/TBI*
- *Degeneration*
- *Fusion*
- *Forward head posture*

SHOULDERS

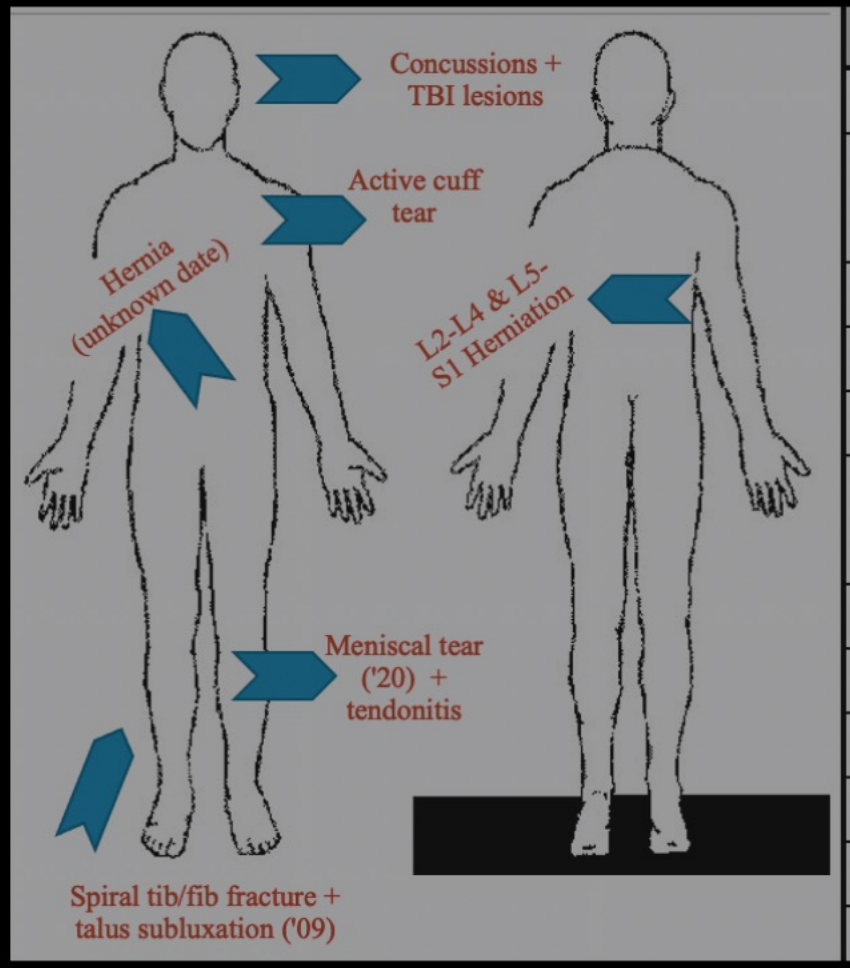
- *SLAP tears*
- *Cuff tears*
- *Arthritis & impingement*

SPINE

- *Compression*
- *Degeneration*
- *Fusion*
- *NSLBP/ undiagnosed*

HIPS & LEGS

- *Impinge/arthritis*
- *Ligament damage*
- *Achilles tendon*
- *Plantar*



NOTES
**54 scar points/lesions identified
-Has history of severe back spasms/cramping.
-Undocumented labral tear (L shoulder)
-('R) ankle/foot have been problematic
-Infrequent migraines/cognitive fatigue
-Training is redundant and does not accommodate for injuries
-Shoulders are generally weak OH
-Poor force transfer in foot/ankle complex
-Has slight trunk extension intollerance

DISTORTED PERSPECTIVE OF TRAINING

Believe they are compromised

Prioritize and emphasize what they can do.
"I'm not what I used to be."

Frequently met with failure

Establish new baselines, modify goals.
Expectation Reset

Treated as fragile/brittle

Never accept defeat.
It's not about if but how.

1.) GENERAL HEALTH & WELLNESS

THE ABILITY TO TRAIN HARD IS INEXTRICABLY PREDICATED ON THE ABILITY TO RECOVER WELL.

"Take away any of the surrounding variables and very little changes. Take away sleep, and all the variables become compromised."
-Alex Oliver

SLEEP HYGIENE

Hygiene:

- Must be routinized
- Bedtime within1-2 hours/7 days/week
- No heavy food/drink (2 hour window)
- No Bluelight (1 hour window)
- Breathing/meditation

Factors:

- Quality of mattress/pillow
- Space comfort
- Dark room
- Quiet noise
- Cool (<70)
- Bluelight exposure

Tools & Tech:

- Eye mask
- Nasal strip
- Scents/oils
- Trackers (Whoop, Oura)

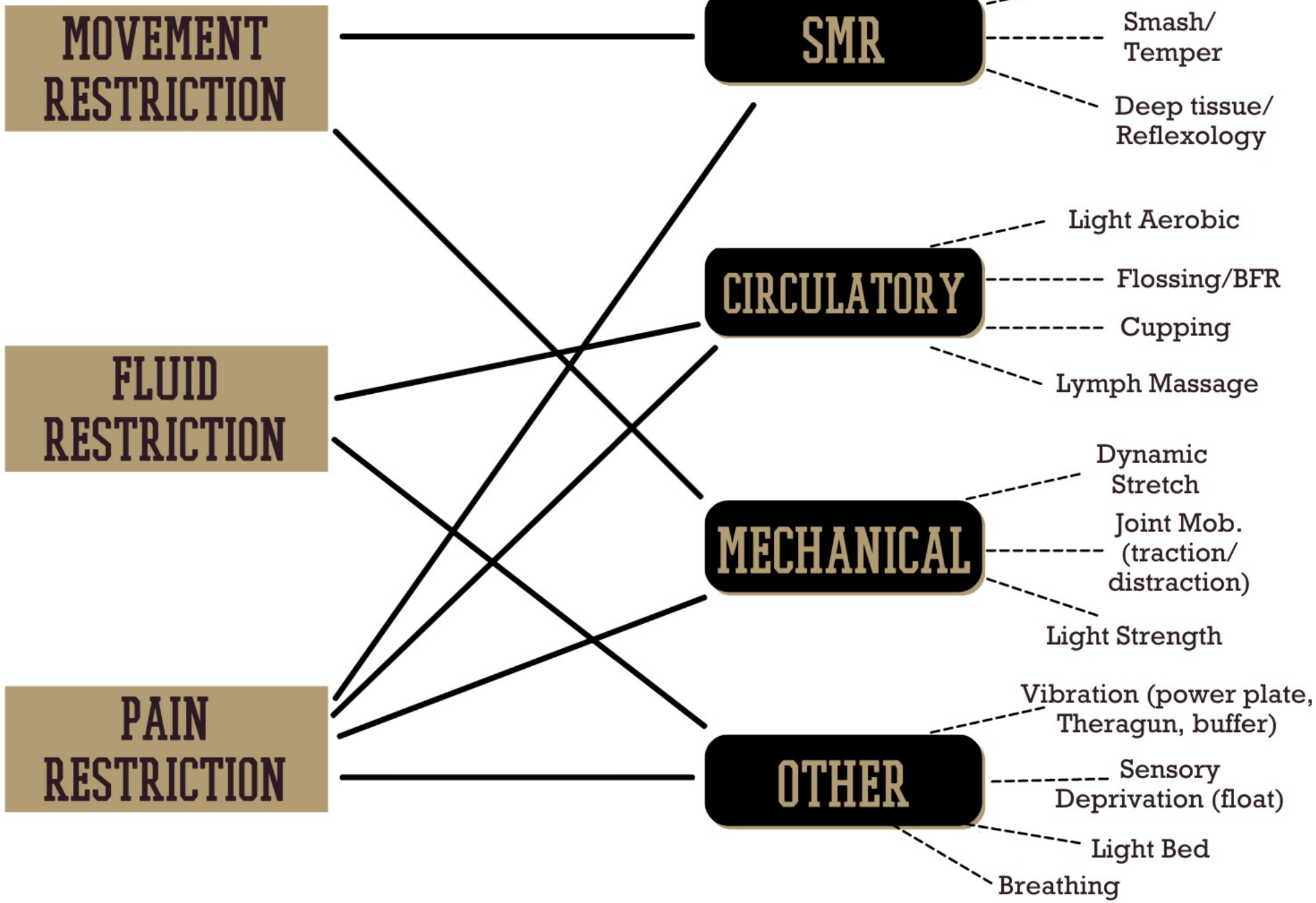
Goals:

- 7-9/night(never <5/>10)
- 90+ min. REM
- Earlier down, earlier up
- +1 Sundays

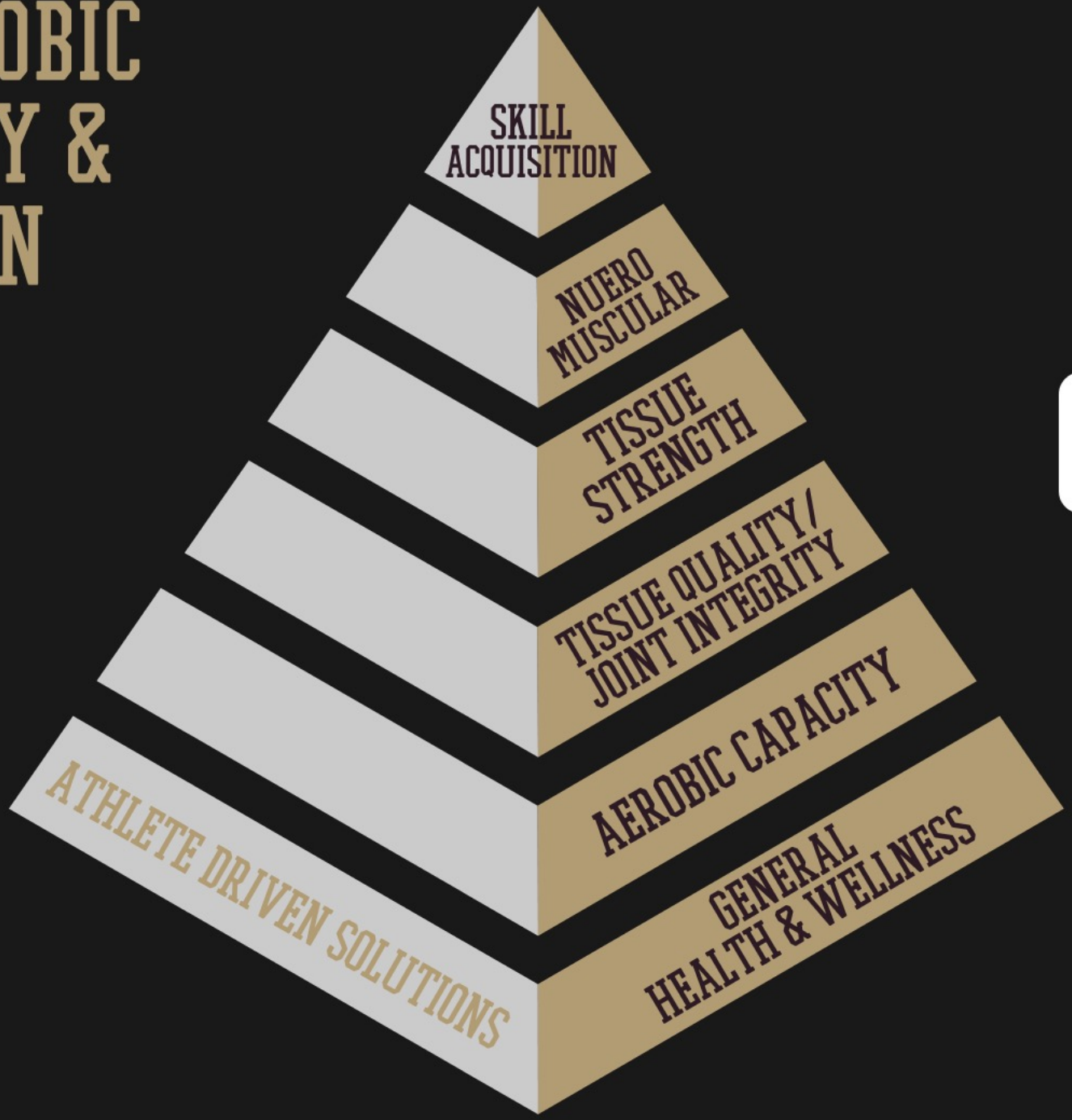
HABIT. PRACTICE. CONSISTENT.

Screenshot from a daily Oura Ring report.

NAVIGATING YOUR RECOVERY

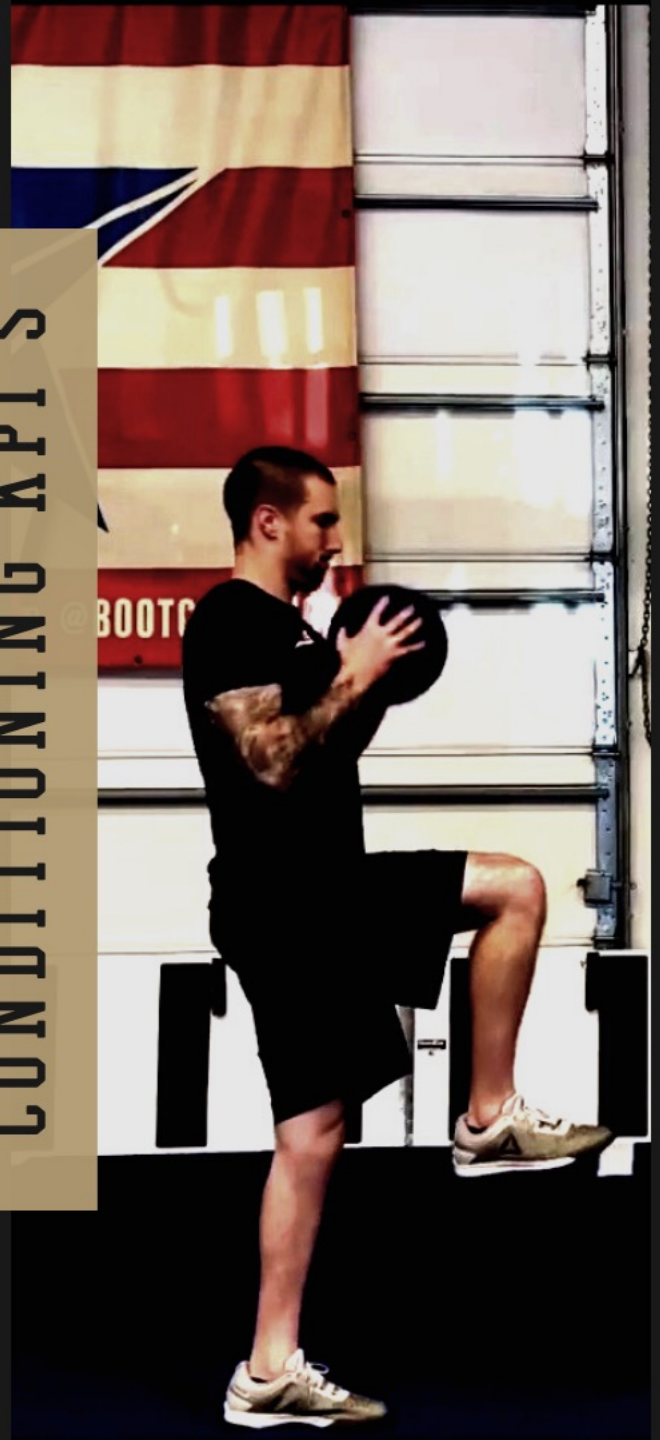


2.) AEROBIC CAPACITY & FUNCTION



MAKE FATIGUE HARD TO FIND.

CONDITIONING KPI'S



RESTING/WORKING HR

- RHR > 60 bpm = aerobic demand
- WHR > 140 bpm or > 2 min. to return to baseline = aerobic demand
- RHR = Basic function
- WHR = Basic efficiency

HRV

- Highly individualized metric, depends heavily on age/ health history
- Numbers/scores also vary by device or company
- PNS/SNS Balance
- DC Potential = 9-45 mV /1-3 min.

CAPACITY

- Presence of operational fatigue (WHAT MATTERS MOST)
- Standardized testing (WHAT MATTERS LESS)
- More limited by volume or intensity?
- Volume deficit = aerobic
- Intensity deficit = anaerobic

INDIVIDUALAITY

- Physiological and bioenergetics are highly individual; focus on age/state/path
- If specific demand is present, specific should be applied
- If not, specificity doesn't apply with conditioning

STRATIFYING THE CONDITIONING APPROACH

	RED	BLUE	GREEN
AEROBIC *(>30 SEC)*	**80%**	**40%**	**10%**
MIXED *(30-15 SEC)*	**10%**	**20%**	**10%**
ANAEROBIC *(<15 SEC)*	**10%**	**40%**	**80%**
	APPLICATIONS • *1-3 DAYS/WK.* • *10-40 SEC.* • *3:1 1:3 WORK:REST*	**MODES** • *FUNCTIONAL STRENGTH CIRCUIT* • *UNILATERAL BASED* • *CONCEPT OR SLED*	**PARAMETERS** • *TIME INTERVALS* • *NASAL BREATHING (ROB WILSON)*

CONDITIONING SPECTRUM

	Conditioning Spectrum	Aerobic		Mixed	Anaerobic	
**Note: Primary emphasis should be placed on general capacity and efficiency skills.*		Aerobic Capacity	Aerobic Efficiency	Mixed	Anaerobic Capacity	Anaerobic Power
		VO2, Workload	RHR, CO2/02		Average Velocity	Peak Velocity

	Conditioning Spectrum	Aerobic		Mixed	Anaerobic	
**Note: Primary emphasis should be placed on building on sufficient base w/ skill introduction.*		Aerobic Capacity	Aerobic Efficiency	Mixed	Anaerobic Capacity	Anaerobic Power
		VO2, Workload	RHR, CO2/02		Average Velocity	Peak Velocity

	Conditioning Spectrum	Aerobic		Mixed	Anaerobic	
**Note: Primary emphasis should be placed on refining peak and repeat burst efforts.*		Aerobic Capacity	Aerobic Efficiency	Mixed	Anaerobic Capacity	Anaerobic Power
		VO2, Workload	RHR, CO2/02		Average Velocity	Peak Velocity

3.0 JOINT INTEGRITY & TISSUE QUALITY

THE HUMAN SYSTEM IS THE MAGNIFICENT OUTCOME OF MULTIPLE INDIVIDUAL STRUCTURES PERFORMING SPECIALIZED FUNCTIONS WHILE COALESCING AS ONE.

CONNECTIVE TISSUE

FASCIA

- Interwoven throughout entire body
- Elastic, fibrous, hydrodynamic tissue
- Global sensory receptor

-Multiplanar movement
-Challenge proprioception
-Integrated movements

LIGAMENTS

- Shear tolerance
- Joint receptors (position/angle/speed)
- Tensile strength

-Time under tension
-Challenge mechanoreceptors
-Positional integrity

TENDONS

- Eccentric lengthening/loading
- GTO desensitization
- Mechanical stiffness

-Elastic capacity (stretch-release)
-Extensibility
-Force capacity

MOBILITY | STABILITY | FLEXIBILITY

AROM =

Tissue strength +

Local ROM +

Motor Control

PROM =

Tissue extensibility +

Capsular laxity +

Fluid dynamics

AROM VS PROM

GOALS

-Address based on individual need

-Consider sport/task demands

-Close gaps between strengths/weaknesses

-Ratios and signatures

STABILITY

-Byproduct of strength

-Position/situation specific

**Don't confuse with balance!

FLEXIBILITY

-Consider resting and working lengths

-Avoid long duration, static applications

**Stretching is a neurologcial endeavor!

RESTRICTIONS

Intolerance

-Pain or true discomfort

-Prior/present injury

*Avoid/respect

Deficit

-Localized weakness

-Lacking ROM/standard

*Attack ASAP

FASCIA TRAINING

GENERAL PRINCIPLES

- *Multiplanar*
- *Variable speed*
- *Rhythmic/dynamic actions*
- *Contralateral-based*
- *Accommodating stimulus*
- *Soft tissue/SMR*

Distinctions

-Biotensegrity
-Collagenous matrix
-Interconnected system
-Non-Newtonian properties

Big 4

-Elasticity
-Plasticity
-Viscosity
-Remodeling

Layers

-Superficial
-Deep
-Subserous
-Visceral

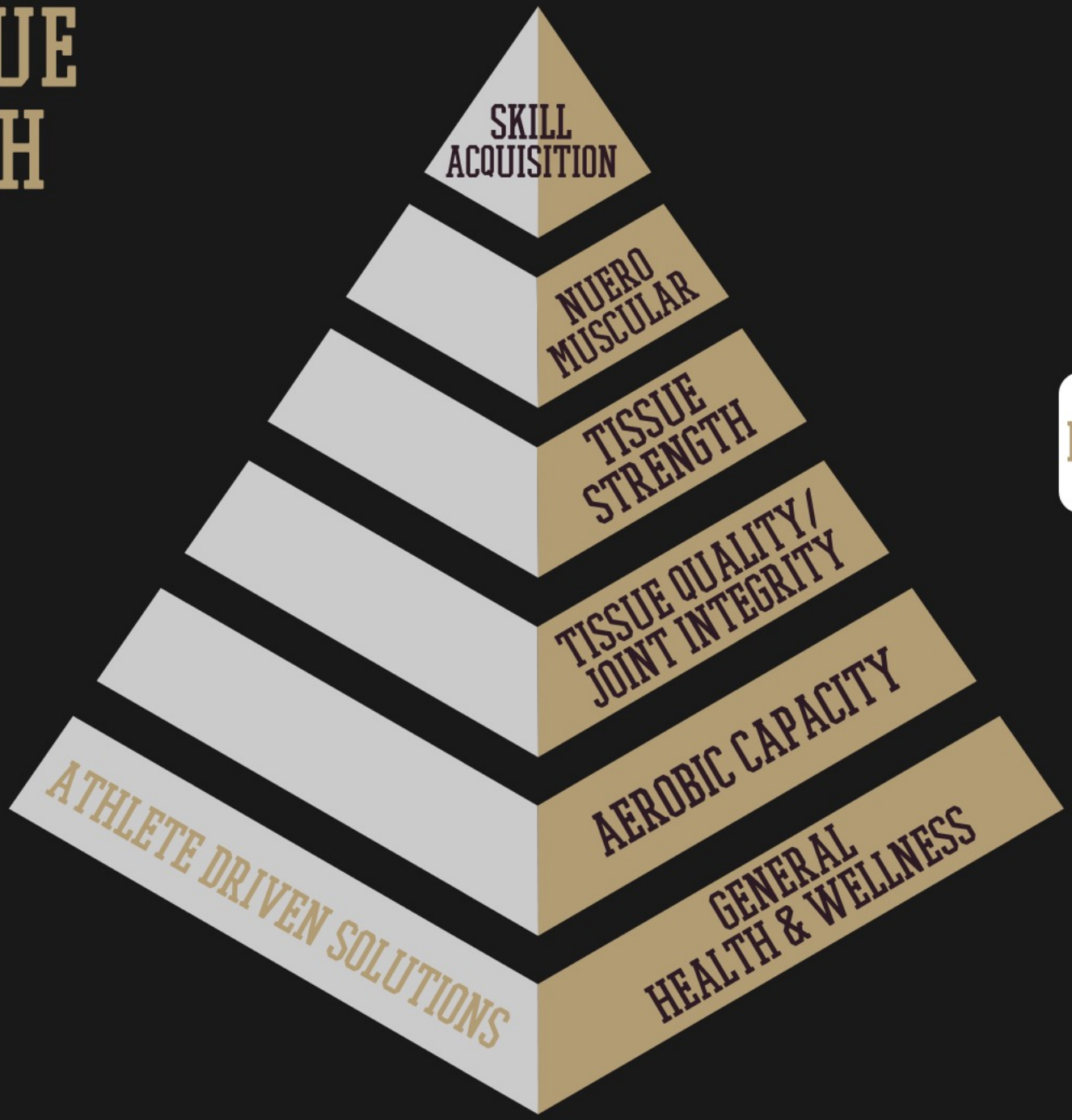
Unknowns

-Contractile properties
-Toxin filtration
-Emotional memory
-Movement coordination
-Fascial memory

MOVEMENT SPECTRUM

	Movement Spectrum	Foundational Motor Control		Mobility/Stability	Proprioception/Balance	
**Note: Primary emphasis should be placed on teaching movement awareness.*		Movement Literacy	Movement Capacity	PROM VS AROM	Dynamics	Plyos
		How well can they perform basic	How much "basic" applies	Relationship	Open chain movement	Open chain w/ speed
	Movement Spectrum	Foundational Motor Control		Mobility/Stability	Proprioception/Balance	
**Note: Primary emphasis should be placed on expanding movement pool and efficiency.*		Movement Literacy	Movement Capacity	PROM VS AROM	Dynamics	Plyos
		How well can they perform basic	How much "basic" applies	Relationship	Open chain movement	Open chain w/ speed
	Movement Spectrum	Foundational Motor Control		Mobility/Stability	Proprioception/Balance	
**Note: Primary emphasis should be placed on refining movement quality and speed.*		Movement Literacy	Movement Capacity	PROM VS AROM	Dynamics	Plyos
		How well can they perform basic	How much "basic" applies	Relationship	Open chain movement	Open chain w/ speed

4.0 TISSUE STRENGTH



HOW STRONG IS STRONG ENOUGH?

PROPERTIES OF STRENGTH

Muscular

-Contractile

-Eccentric

-Isometric

FOUNDATIONAL

DEVELOPMENTAL

Ligamentous

-Time under tension

-Position-specific

-Shear tolerance

ADVANCED

Tendinous

-Eccentric force

-Elastic strain

-Reflexive strength

PEAKING

Fascial

-Global integration

-Tensile force (reciprocating)

-Elasticity

Ultimately expression of strength requires proficiency, timing, and capacity from multiple systems operating in tandem.

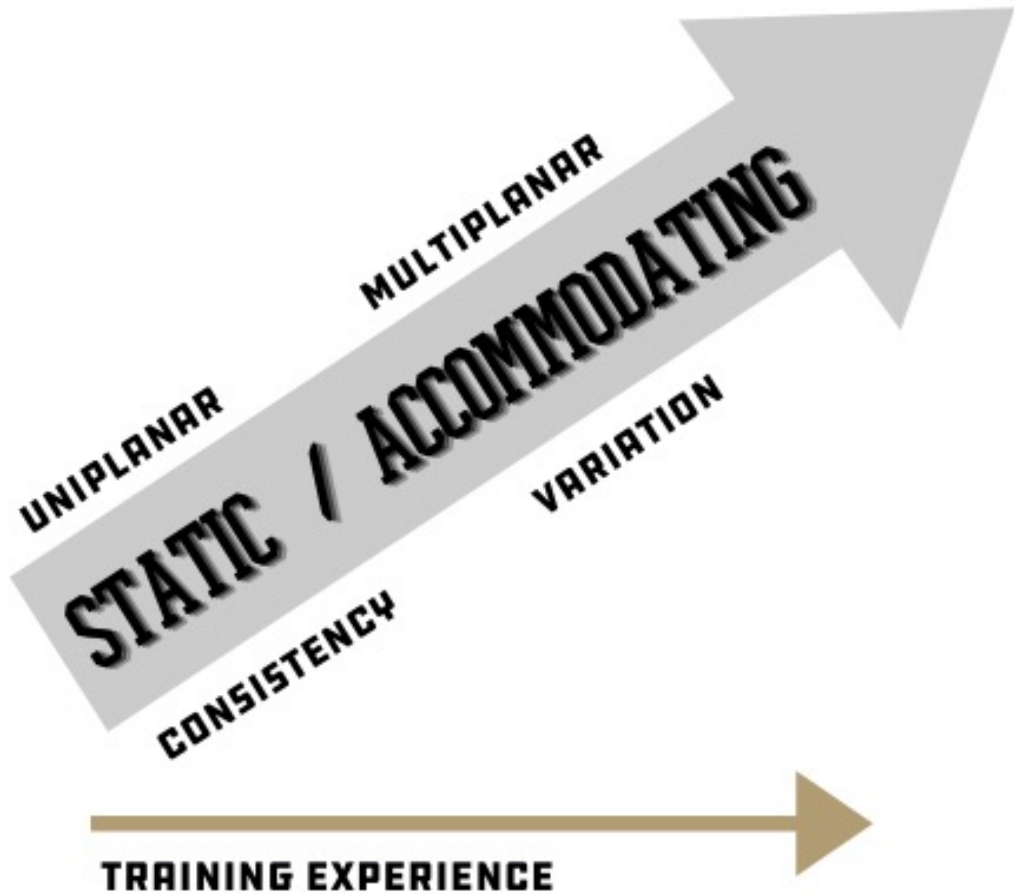
DEMANDS:

- BASIC/COMPOUND
- HIGH DEGREE OF STABILITY
- PREDICTIVE
- STRUCTURED

SIMPLE/ COMPOUND

GOALS/OUTCOMES:

- HYPERTROPHY
- FOUNDATIONAL STRENGTH
- WORK CAPACITY



DEMANDS:

- COMPLEX/COMBINATION
- LOW DEGREE OF STABILITY
- REACTIVE/CHAOTIC
- UNPLANNED/ UNSTRUCTURED (FREE FLOWING)

DYNAMIC/ MULTIVARIANT

GOALS/OUTCOMES:

- SPEED
- SKILL
- PROPRIOCEPTIVE

STRENGTH SPECTRUM

**Note: Most training intensities will be low, with more emphasis on volume for skill acquisition*	Strength Spectrum	**Foundational Strength**		**Hypertrophy**	**Strength-Power**	
		Strength Endurance	Base Hypertrophy	Developmental Hypertrophy	Strength	Speed-Strength
		<60%	60-70%	70-80%	>80%	<60%
**Note: Training intensities will be more variable, emphasis shuold be on low values in baseline*	Strength Spectrum	**Foundational Strength**		**Hypertrophy**	**Strength-Power**	
		Strength Endurance	Base Hypertrophy	Developmental Hypertrophy	Strength	Speed-Strength
		<60%	60-70%	70-80%	>80%	<60%
**Note: Training intensities will be focused on developing true strength and power capacities.*	Strength Spectrum	**Foundational Strength**		**Hypertrophy**	**Strength-Power**	
		Strength Endurance	Base Hypertrophy	Developmental Hypertrophy	Strength	Speed-Strength
		<60%	60-70%	70-80%	>80%	<60%

5.0 NEURO MUSCULAR FUNCTION

ULTIMATELY, THE NERVOUS SYSTEM IS THE JUDGE, JURY, AND EXECUTIONER OF MOVEMENT.

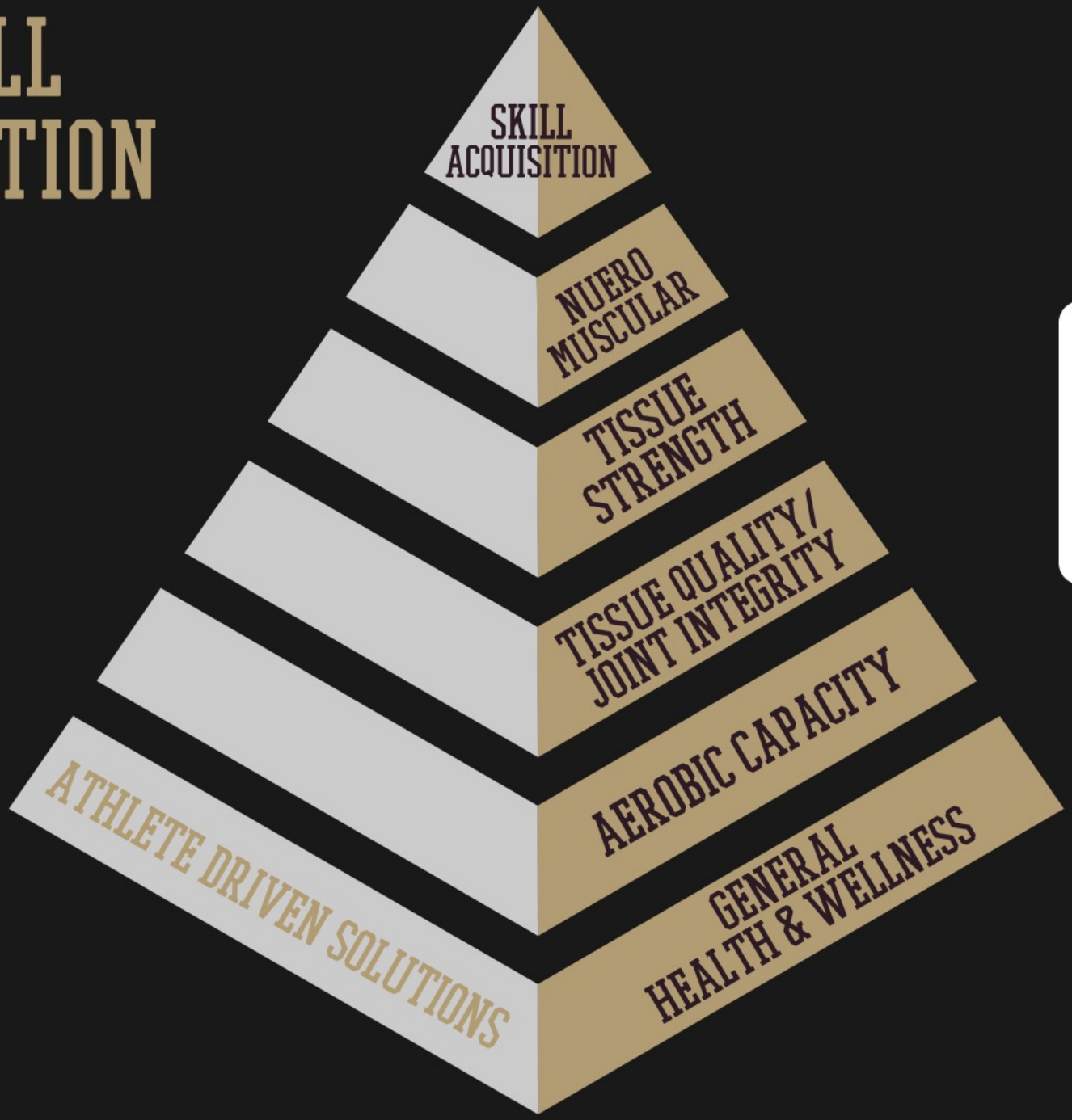
RHYTHM APPLICATIONS

Low Level Plyos	Basic rhythmic & motor function	Skips/hops/bound	Multi-directional should be encouraged
Extensive Plyos	Extensive = <75%	Low box drills	Low amplitude force transfer
Med Ball Throws	Kinetic sequencing	Velocity expression	Movement summation

FORCE APPLICATIONS

Lift Sub-maximal Weights (Fast)	Speed-Strength <55% | >0.85 m/s	Modified Olympic variations	Accelerated variations
Intensive Plyos	Intensive = >75%	Rebound/ reflexive	Overspeed plyos
Sprint/COD	Teach fundamentals	Accelerate before decelerating	Linear before COD

6.0 SKILL ACQUISITION



DEVELOP THE PHYSICAL TRAITS THAT THE TACTICAL SKILLS REQUIRE AND THE ENVIRONMENT DEMANDS.

OPTIMIZING THE ATHLETE

TACTICAL/OPERATIONAL

- Leave the true skill work to the experts.
- We're looking to develop the physical qualities/traits needed to perform their job
- *"How can I improve what's not being addressed?"*

MOTOR SKILL & COORDINATION

- Movement literacy & spectrum
- Information and sensory processing
- Vestibular and kinesthetic proficiency

SKILL ACQUISITION

AVAILABILITY & DURABILITY

- The ultimate skill the established Operator can posses, is the skill of injury, pain, and stress management.

PRIMARY TAKEAWAYS

Distinguishable differences between tactical & conventional athletes.

Health, wellness, sleep and stress are non-negotiable foundations to success.

Injuries are the ultimate limiting factor. Your job is to provide actionable solutions to present problems.

Individualization & scaling are a must! Close the gap between strengths & weaknesses.

Training should be treated with reciprocity; make the athlete feel a part of their outcome.

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