#COVID_OPS

METHODS & PRINCIPLES FOR PROGRAMMING

A BROAD OVERVIEW OF PROGRAMMING VARIABLES AND WAYS TO OPTIMIZE YOUR TRAINING

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QUICK BACKGROUND

ODU

BS/MS (EXERCISE SCIENCE)

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RRSC

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LV RAIDERS

Future Head Strength Coach

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- "The delicate balance between performance and rehabilitative training"
- High level athletes (Tactical Pop.)
- Tremendous physical demands (Special Forces/Spec Ops)
- Expansive injury histories

RUDE-ROCK STRENGTH

- Began as a hobbyist thing to keep me occupied
- Becoming something more…?
- Our goal is simple- provide valuable and informative content to those who can benefit
- Joint venture with my lovely wife Nicole.

RUDE ROCK

STRENGTH & CONDITIONING

WHAT TO EXPECT

- Big picture items/programming 101
  - 6 Laws of Conventional Strength Training
- My pillars of programming
- The importance of the assessment
- Applications to different athletes/populations
- Layering your training to specify and optimize.

SOME CONTEXT

- Please recognize that I work under reasonably unique circumstances; including high training frequency/contact hours w/ my athletes.
- My athletes are also inherently injured, so some of my applications are a bit unorthodox by virtue
- I only work in one-on-one setting. So, keep that in mind throughout. (*Programming for 1 on 1 vs. group is VASTLY different)

BIG PICTURE ITEMS

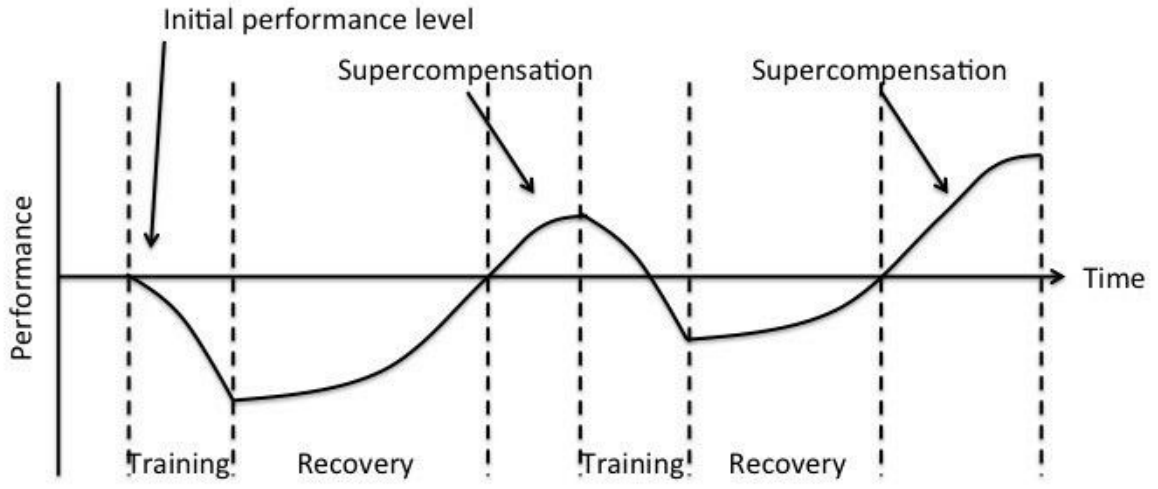
CONVENTIONAL LAWS OF STRENGTH TRAINING

1. **Law of individual difference (Individuality)**
   - That which gets emphasized gets improved
2. **Accommodation principle (Tedium)**
   - Training should progress from general to specific
3. **Progressive overload principle (Overload)**
   - No overload, no growth. That simple.
4. **General Adaptation Syndrome (Rest)**
   - Shock, resistance, exhaustion
5. **Use/disuse principle (Reversibility)**
   - Don't train, no gain.
6. **Law of dynamic correspondence (Specificity)**
   - Athlete-driven model and outcome

Seyle, 1946; Siff 2003; Zatsiorsky & Kraemer 2006)

CREATING ADAPTATION THROUGH OVERLOAD

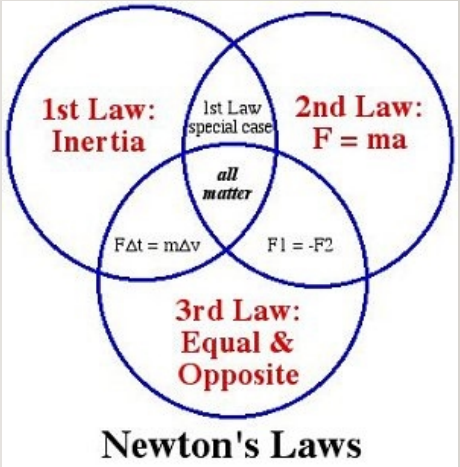
SUPERCOMPENSATION



Classic periodization model: A training load followed by recovery results in increased performance (supercompensation).

OTHERS TO CONSIDER

1. **Newton's three laws**
   - **1st**: Law of inertia (object in motion)
   - **2nd**: F = M x A
   - **3rd:** Equal & opposite
2. **Sherrington's Law**
   - Disinhibition of antagonist muscle
3. **Bilateral Deficit**
   - Several theories on this, my belief is neuromuscular
4. **Post activation potentiation**
   - Another one with several theories, my belief is neuromuscular/biochemical
5. **Biotensegrity**
   - Only tension and compression in tensegrity structures (Levin)
6. **Action-perception coupling (Myszka)**



(MY) PILLARS OF PROGRAMMING

Pillars of Effective Programming

- You're never married to anything.
- The right program is the best program.
- Your program is only effective as your ability to coach it.
- Always have a plan, always know that plan is going to change.
- Take explicit notes.

PILLARS OF PROGRAMMING

1. **You're never married to anything.**
   - Try a lot of different methods/styles/etc., keep what sticks, scrap what doesn't.
   - The whole goal is to be adaptive and accommodating.
2. **The best program is the one that's right for the athlete.**
   - Individualization is often discussed, but how often is it really applied?
3. **Your program is only as effective as your ability to coach it**
   - I consider the "intangibles" of coaching (i.e. developing rapport, strong communication, etc.) to be the mortar where the program itself is the bricks- the two can and are mutually exclusive.
   - If all it took was an excel sheet, none of us would have a job.
4. **Always have a plan, always know that plan will change.**
   - There's no perfect ratio for this, some do better emphasizing planning, others feel constrained by it. Either way, you have to do some work on both ends.
5. **Take explicit notes.**
   - One of the most critical mistakes of young coaches is not seeing the value/importance of note taking. This becomes even more true when you start working with a large volume of athletes.

AS SIMPLE AS POSSIBLE…

PERIODIZATION 101

- **Linear vs. conjugate**
  - Linear programs introduce moderately and progress chronologically
  - Conjugate programs are developed around constant fluctuating variables
  - I believe each have their place; linear better suited for young/novice/group athletes, conjugate more appropriate for higher level athletes.
- **Weekly vs daily undulation**
  - **Linear (weeks 1-3)**: Muscular endurance/Musc-End/Musc-End
  - **Weekly Undulating (wks. 1-3)**: Hypertrophy/Strength/Power
  - **Daily Undulating (days1-3**): Hi Volume/Hi Intensity/Dynamic Effort
- **Conditioning**
  - **Aerobic Capacity**: Long-slow distance, continuous (20-60 min.)
    - **55-75% MHR**
  - **Lactate Threshold**: Interval or combination of predominant energy systems (2:1 work:rest)
    - 75-90% MHR
  - **Max VO2**: Hi energy, short burst intervals, long rest periods (1:4-6 work:rest)
    - 85%+ MHR

❖ **It all boils down to managing variables (time), and being flexible**

- There's no perfect program. It does not exist. Your goal is to apply the best program to your athletes to the best of your ability.

STEP 1: GET **IN SHAPE** TO TRAIN

- **Establish a sufficient aerobic base (<60 bpm).**
  - Don't confuse this for "becoming a runner", tons of ways to improve cardio
  - The aerobic system has several (important) implications beyond sport
  - Think in terms of capacity and robustness
- **If you are too tired to train hard, your training sucks no matter what it is.**
  - An improved aerobic capacity will allow even predominantly anaerobic athletes to saturate and optimize their training.
  - Consider repeatability, training frequency, and duration.
  - "Fatigue makes cowards of us all, so make fatigue hard to find."
- **Improved aerobic function = improved ability to recover**
  - We put a tremendous emphasis on recovery… but does your training even demand you to recover?
  - If you want to truly train hard, you MUST recover as intently.
  - Consider effects on sleep, hydration, cardiac function, circulation, immune function, cognition, and nervous system.
- **You don't need to train your aerobic system as often as you'd think…**
  - Several studies (INCLUDE HERE) have shown that the aerobic system has a residual training window of ~30 +/- 5 days.
  - That means, if you get in good enough shape to run a 6 min mile, you theoretically wouldn't need to do shit for a month and still be able to retain that.

STEP 2: GET **BIG** MUSCLES

- **The technical term here is hypertrophy…**
  - The primary benefit or goal of hypertrophy training is to increase the cross-sectional area (CSA) of the muscle. This creates greater muscular density, with increased amount of actin-myosin bridges. More bridges = more opportunity for contraction.
- **Lesser discussed benefits of hypertrophy:**
  - It's not all about blasting pecs and biceps…
  - Increased tendon/ligamentous thickness... THINK ABOUT ENERGY STORES…!
  - Increased number of muscle fibers
  - Neuromuscular adaptations…?
- **Nuts & Bolts**
  - Hi volume (6-12 reps) / moderate intensities (60-80%) / moderate rest (60-90 sec)
  - "Hypertrophy training should look very fluent, machine-like"
  - Pairs very well with eccentric tempo emphasis
- **Nuanced**
  - Overload methods (i.e. chain/band, releasers, flywheel)
  - Partial ROM/exaggerated ROM

STEP 3: MAKE BIG MUSCLES **STRONG**

- **What good is muscular growth if it isn't functional?**
  - Remember, athletes aren't body builders, at the end of the day, performance in sport is priority A/B/C
  - Think both in isolated and global terms
- **Develop a general, foundational strength**
  - This is a very athlete/population specific component. But in any case, basic general strength must be established before any aggressive training methods are applied.
  - "Fatigue makes cowards of us all, so make fatigue hard to find."
- **Nuts & Bolts**
  - Low rep volume (1-5 reps) / hi intensity (85% +) / long rest (3+ min)
  - Strength phases should be grueling, demanding, and enduring for both the muscular and CNS systems
  - Pairs well with isometric emphasis
- **Nuanced**
  - Positional strength
  - Contrast methods (potentiation/overspeed/ballistic)
  - Overload

STEP 4: MAKE STRONG MUSCLES **FAST**

- **This is your muscular power phase**
  - Just as different load intensities create different neuromuscular adaptations (i.e. 55% vs. 85%) the same can be said for varying speed!
  - Don't confuse power work for something that's only appropriate for high level athletes.
- **Intent drives adaptation**
  - Huge piece of the pie that's often missed, make sure the athletes know what outcome you're looking for
  - Power work should look and feel nearly effortless. We should feel sharp and crisp on every rep.
  - You should feel recharged, not depleted, after a power phase
- **Know your population, power training is a very relative thing**
  - When you think about power, it should extend beyond cleans, jerks, and MB throws
  - Consider multidirectional applications
- **Nuts & Bolts**
  - Low rep volume (1-5 reps) / low intensity (<60%) / long rest (3+ min) / SPEED!!
  - Power work should stimulate, but not exhaust the CNS.
  - Pairs well with reactive emphasis
- **Nuanced**
  - Ballistic movements
  - Contrast methods (potentiation/overspeed/ballistic)
  - Oscillatory/perturbation

STEP 5: REST, RINSE, WASH, REPEAT

- **Deload doesn't mean 2 weeks of being a lazy ass**
  - Deloads are a necessary part of training, but only when they are earned and there is more training to follow
  - Consider this a window to not just unwind from previous training cycle, but also begin prepping for the next
  - Use the time to include uncommon movements/training parameters, go outside the box a bit, and emphasize fun, low impact, low intensity options. Literally anything is fair game.
- **Utilize time**
  - Putting less emphasis on the training itself means there's opportunity to place emphasis elsewhere
  - Consider items like sleep hygiene, nutritional panel, stress management
- **External modalities**
  - Everyone has their own beliefs and preferences… do you.
  - There is "research" to validate or disclaim on just about everything out there.
  - Consider items such as soft tissue therapy, float tanks, chiropractic, dry needling, etc. to occupy the reduced training time.

THE CYCLICAL NATURE OF PROGRAMMING

1.) Aerobic Capacity/GPP
(1-3 weeks)
-Unplanned/ undefined in nature
-Emphasis on non-competing
-"Building a base"

2.) Hypertrophy
(2-4 weeks)
-4-6 sets/6-10 reps
-60-80%
-75-90 sec rest
-"Machine Like"

3.) Muscular Strength
(2-4 weeks)
-4-6 sets/1-5 reps
-80%+
-2-4 min rest
-"Exhaustive"

4.) Power
(2-4 weeks)
-3-5 sets/1-5 reps
-<60%
-2-4 min rest
-"Rejuvenating"

5.) Deload
(1-2 weeks)
-Highly variable, multiple factors to consider
-When you work, **work**, when you rest, **rest**.

"NOTHING IS CHANGING EXCEPT FOR EVERYTHING"

IT ALL STARTS WITH THE ASSESSMENT

ASSESSMENT COMPONENTS

- Overall Goals:
  - Conduct a thorough, comprehensive evaluation of the athlete in a timely and professional manner. You want to make them feel welcomed and excited, not intimidated and overwhelmed.
  - Identify the major weaknesses, deficiencies and boundaries.
  - Gather good insight to what training methods they have and haven't had success with in the past. Their input should be valued and applied.
  - Establish thorough plan for training with information collected.

BROAD OBSERVATIONS

- Confidence level
  - Do they look/feel excited or intimidated to be with you? (This should influence your approach)
- Personality type
  - How talkative and transparent are they? Are they more or less expressive?
- Motor control and balance/coordination
- Too soft or too stiff?

MY PROCESS

- Interview & background
- Training and Injury history
- Static assessment
  - Identifying loose relationships
- Table assessment
  - Identifying boundaries and restrictions
- Dynamic assessment
  - Seeing how it all functions organically
- Special populations/considerations
- Testing…?
  - Setting and population-specific
- Keep the goal(s) the goal(s)
  - If it's discussed or observed during the assessment, it's addressed in training
- Mapping it out
  - Be collaborative and transparent with your athletes

HOW IT LOOKS FOR ME

GENERAL INFORMATION

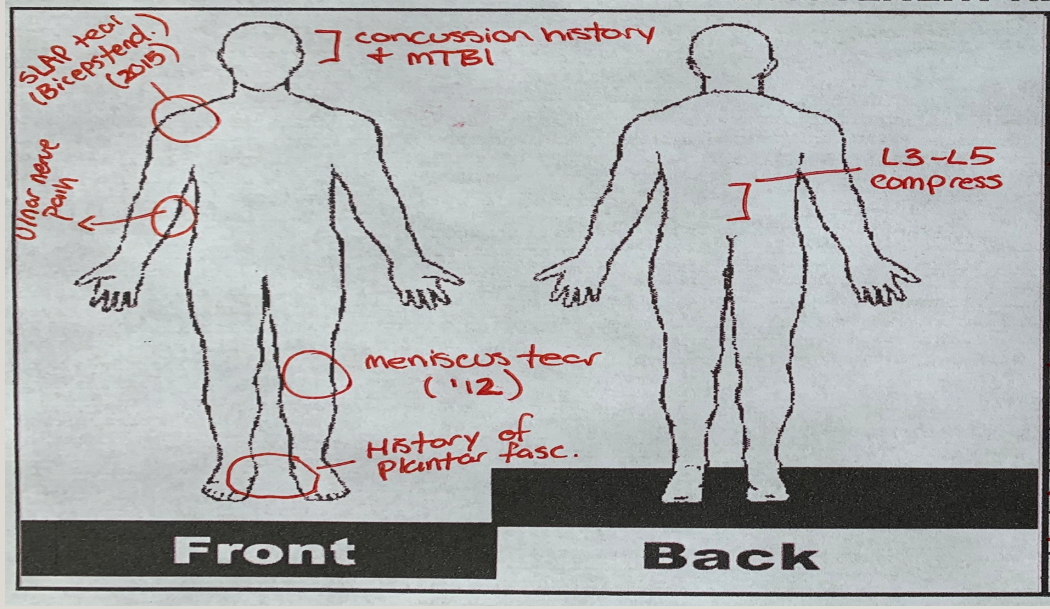
NAME: Hypothetical	AGE: 34	
TRAINING HISTORY: Mod-Hi	HT/WT: 71" / 205	
STRESS LEVEL: Mod.	SLEEP AVG: 4-6	

*→ Has Rx for nerve block → *Uses CPAP

TRAINING GOALS

1.) Improve strength/stab. in repaired shoulder
2.) ↑ Global mobility/stability
3.) ↑ General core strength / ↓ chronic LBP

BIOMECHANICAL MOVEMENT ANALYSIS & INJURY HISTORY



NOTES

- Concussion / mTBI asymptomatic
  → Be mindful of lights / loud music
- SLAP repair healed well, strength still deficient
  → ~3/4 ROM in OH flex. comp. R/L
  → Some accompanying scap. dysfunction
- Ulnar nerve pain impairs grip
  → Causes numbness / tingling
- Lumbar compression causes infrequent spasm
  → ~6 mm spacing
  → Spasms can be problematic; up to 3-5 days
- Meniscus doesn't bother
- Plantar is infrequent, sometimes triggered by exertion
  → wears orthotics

HOW IT LOOKS FOR ME

Primary Items to Address:	
SLAP repair	-Restoring full active flexion ROM -OH shoulder stability & strength -Clean up accompanying scapular movement -Restore (humeral) internal/external rotation.
Lumbar compressions	-Decreasing chronic low-back pain -Expanding movement capacity -Improving core strength (emphasis on anterior & lateral) and durability. -Improve strength/function of psoas
Ulnar nerve pain	-Decreasing chronic elbow pain. -Improve hand/grip strength & endurance. -Work dexterity (up to tolerance) -Soft tissue where needed
Disrupted gait, poor resting/working posture	-Reduce presence of muscular guarding during gait. -Clean up foot pattern (significant medial drop) by strengthening lower leg/hip -Address non-functional asymmetries where needed.
General motor control, vestibular & proprioceptive function	-Include cognitive task work with gradient complexity in warm-up. -Improve movement capacity spectrum by including variety of primitive patterns. -Include vestibular/proprioceptive drills throughout week.

HOW IT LOOKS FOR ME

Assessment Observation	Training Strategy
Arm drop in shoulder →Likely result of immobilization from SLAP →Excessive hand internal rotation likely due to reattachment being overly taught	-Work to elevate right shoulder girdle by strengthening upper trap -Strengthen external rotators (cuff muscles) to amend excessive internal rotation
Elevation of right side of rib cage →Likely due to muscular guarding for injured shoulder	-Include soft tissue work on internal rotators (pec minor/lat) and strengthen ipsilateral oblique muscles to reset rib cage position
OH flexion deficit in right arm →Right side has ~3/4 ROM compared to left, can get to end-range passively w/o pain	-Introduce OH Movement concepts in weeks 1 & 2, add external load as progress is shown. -Would likely benefit from perturbations and oscillatory methods.
Posture during OH flexion → Forward head posture + rib flare + anterior pelvic tilt + hyperextended knees →Could be natural resting posture that's been exacerbated by injury/lack of activity.	-Strengthen the serratus & anterior core muscles, heavy emphasis on posture mechanics on movement. -Strengthen neck retractors, soft tissue deep cervical flexors, be conscious of cueing head position during movement.
Excessive overpronation during SL balance → Could be consequential of plantar fasciitis history, or weak intrinsic foot muscles	-Soft tissue work on arches (up to tolerance) and work to strengthen foot muscles -Will likely do most training w/o shoes

ESTABLISHING YOUR BOUNDARIES

RED: Predominant emphasis on rehabbing injuries or coming off of surgery.

→ These athletes typically have a low level of general movement capacity, poor or disrupted movement quality, low levels of work capacity/durability, chronic pain resulting in guarding muscle patterns (i.e. hypertonic in several areas, corresponding underdevelopment in several areas).

BLUE: Predominant emphasis on "filling the gaps"

→ These athletes typically have considerable injury histories, but nothing that is currently debilitating. Generally "tight" and often accompanied by insufficient global mobility/stability. Has reasonable work capacity and does not have pressing demand for improving in one particular area.

GREEN: Predominant emphasis on pushing the needle in whatever their current work/sport demands consist of.

→These athletes typically have very big engines, wide spectrum of movement capacity & tremendous endurance/work capacity. Although they appear to be solid, every athlete has weaknesses. Work to exploit those weaknesses & strengthen them both independently & globally.

Sample Programming Based on 'Class':

RED		BLUE		GREEN	
UPPER-STRENGTH	1A.) Landmine Press	UPPER-STRENGTH	1A.) Landmine SA Press	UPPER-STRENGTH	1A.) BB Bench Press
	1B.) KB SA BU Waiter Carry		1B.) Band Pull Apart		1B.) Band Tricep Push-Down
DYNAMIC STRENGTH	1A.) KB Sumo Deadlift	DYNAMIC STRENGTH	*1A.) DB OH FFE SS	DYNAMIC STRENGTH	1A.) Hang Clean
	1B.) Isolated Hip Mobility		1B.) Lateral Broad Jumps		1B.) DB Depth Jumps
LOWER STRENGTH	1A.) DB Goblet Squat	LOWER STRENGTH	1A.) Pit Shark	LOWER STRENGTH	1A.) BB Back Squat
	1B.) Glute Bridge w/ Mini Band		1B.) Sled Drag		1B.) DB Goblet Squat Jumps

***= Dumbbell Overhead Front-foot Elevated Split Squat**

TACTICAL COMMUNITY

~COMMON INJURIES~

- Head trauma
  - Neuromuscular function
  - Vestibular wellness
  - Proprioceptive disruption…?
- Chronic and acute shoulder damage (i.e. SLAP/Cuff tear, biceps tendinopathy)
- Degenerative cervical discs, severe forward head posture is very common (kit, nogs, etc.)
- Repetitive stressors (i.e. shin splints, plantar, disc herniation/compression, banged up hips)
- Hip impingement, arthritis, and labral tear
- Very weak and vulnerable at the foot-ankle complex (i.e. Achilles tendinopathy, disruptive plantar, weak intrinsic foot muscles).

TACTICAL COMMUNITY

~TYPICAL DEMANDS~

- Reactiveness/agility/perceptual movement
- Long distance running under load and carrying/hauling
- Short burst anaerobic speed/strength/power
- Parachute jumps, exposure to G-forces
- Climbs/hikes/terrain (*hypoxic and uneven training considerations)
- Long distance running under load and carrying/hauling
- Fast roping/obstacles
- Preparing for the unpreparable; expected to suppress/conceal pain and injuries

TACTICAL COMMUNITY

~TRAINING CONSIDERATIONS~

- Jack of all trades
- Abnormal requirements, demands, and circumstances
- Head/neck/shoulder wear & tear
- Cognition/balance/vestibular/motor control (neuromuscular function)
- Sympathetic/parasympathetic balance
- Spinal considerations (i.e. axial loading, flexion/extension intolerance, bending, etc.)
- Surgical history and repeat and chronic injuries/stressors
- High energy, highly competitive, high intensity

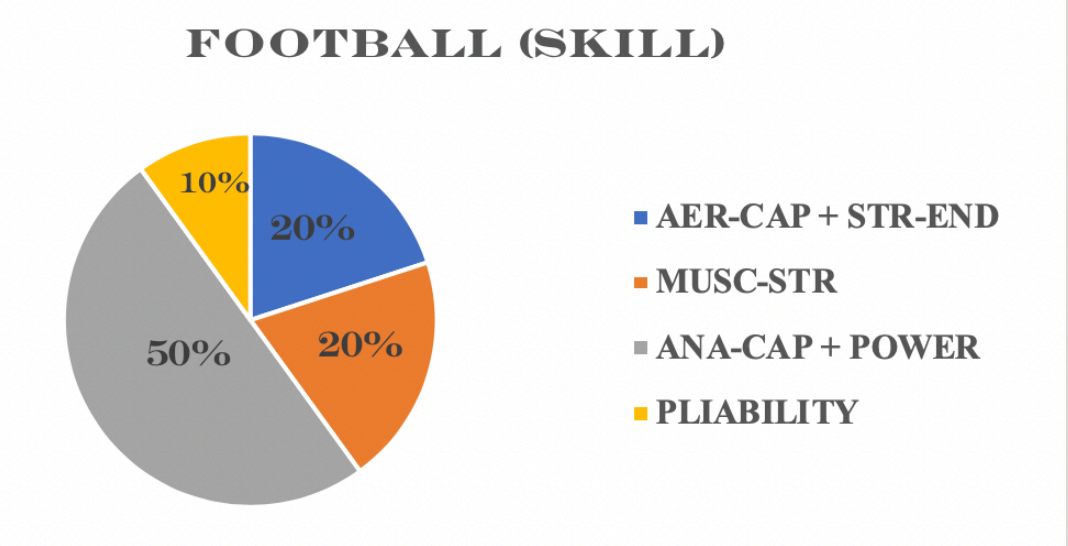
PLANNING YOUR APPROACH

SPECIFICITY AND INDIVIDUALIZATION

- Sport specific training = Demands of sport + weaknesses and deficiencies identified
- Understand timelines and upcoming important dates
- THE ATHLETE LITERALLY GIVES YOU THE ANSWERS TO THE TEST!!
  - Do not over think exercise selection
- Start with general, work to specific
- Don't confuse specificity with skill work
  - They have sport practice for a reason

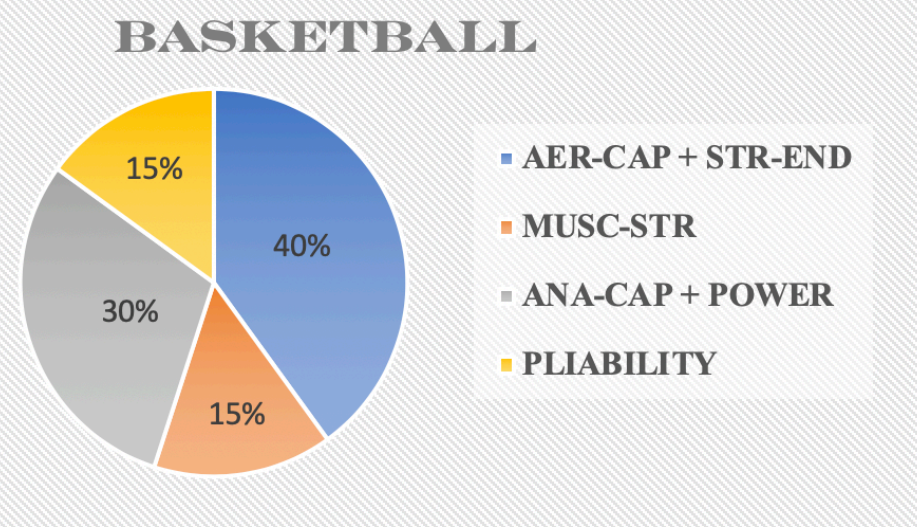
HYPOTHETIC EXAMPLE 1
~FOOTBALL SKILL~

- High school wide receiver (17 y/o)
  - 5'11"/177
- Injury history:
  - Meniscus tear sophomore year
  - Chronic ankle sprains
  - Separated shoulder in middle school
- Assessment findings:
  - Compromised COD mechanics
  - Limited/weak OH flexion
- Testing:
  - 4.84 40-yard dash
  - 28" vertical
  - 315 back squat/ 205 bench/ 185 hang clean



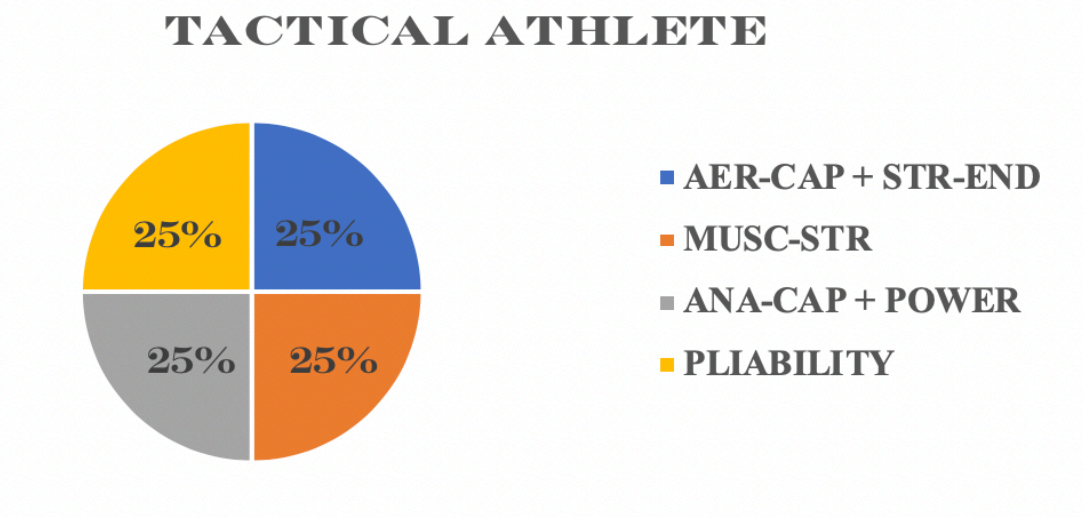
HYPOTHETIC EXAMPLE 2
~COLLEGIATE BASKETBALL~

- Division I shooting guard (Junior- 20 y/o)
  - 6'5"/197
- Injury history:
  - Achilles rupture (high school)
  - Patellar tendinopathy (intermittent)
  - Adductor strain (last season)
- Assessment findings:
  - Excessive anterior pelvic drop + overpronation
  - Weak anterior trunk and hamstrings
- Testing:
  - 8'9" broad jump
  - 34" vertical
  - 365 back squat/ 245 bench/ 225 hang clean



HYPOTHETIC EXAMPLE 3
~TACTICAL ATHLETE~

- Special Forces Operator (27 y/o)
  - 5'10"/208
- Injury history:
  - Concussion/TBI
  - SLAP tear
  - L4-L5 Lumbar fusion
- Assessment findings:
  - Compromised balance/stability
  - Impaired/weak OH flexion
  - Trunk flexion intolerance



SPORT VS. TACTICAL ATHLETES

Trait	Sport Athlete	Tactical Athlete
Annual training calendar	Defined off-season	No off-season
Training focus	Refined, specific, linear	Broad, non-specific, non-linear
Training emphasis	Improve necessary skills to enhance skill required in sport	Improve robustness and durability. Rehab injuries w/o compromising strengths
Injuries	Most often acute or situational	Most often chronic development. Can be wide reaching, complicated and severe
Exposure to head trauma	Common in some sports via acute direct blow.	Very common, direct blow + blast radius exposures
General wellness (i.e. sleep impairments, malnutrition, emotional management)	Highly variable, also depends on age/level. Typically have control or influence. Rx pain abuse can be prevalent at higher (professional) levels	Often compromised due to demands of work. Sleep deprivation and disruption are wildly common. Psycho-emotional disorders also prevalent

LAYERING YOUR TRAINING

TIME BLOCKS

- Best change I've made to my programming
  - Time blocks in lieu of set prescription allows the coach and athlete to govern the intensity of training
  - Has worked particularly well with remote programming
- Autoregulatory
  - Don't live and die by an excel sheet
  - You want to facilitate, not hinder
- Not an AMRAP
  - Goal is never to "do as many as you can"

WEEK 3: POW-END

20 MIN	EXERCISE	VOLUME	INTENSITY	LOAD
1A.)	BB Sport Clean	x4	75%	
2A.)	Hex Bar Deadlift 6-SEC ECCENTRIC	x2	55%	
2B.)	Kneeling Jump	x2	-	-
3A.)	BB Stop Rows	x8	-	
3B.)	DB Pullover w/ SL Glute Bridge	x8	-	
3C.)	Mini-Band SL Reverse Hyper	x8	-	-

~REST RANGES FOR THIS MESOCYCLE ARE 1-3 MIN~

TEMPOS

- The best progression most are missing
  - Eccentrics, isometrics, combos
  - Reactive, explosive, oscillatory
- Finding the weak links in the chain
  - Everyone has them, where do they exist?

BENEFITS OF ECCENTRIC TRAINING	BENEFITS OF ISOMETRIC TRAINING
Increased stimulus to muscle fibers resulting in increased biological adaptations	Increased motor unit recruitment, which is the number of muscle fibers that fire during muscular contraction
Helps to remodel muscle and tissue (consideration for rehabilitative-based training)	Also increased/improved rate coding, which is the speed at which muscle fibers are recruited (results in increased muscular tension)
Improved neuromuscular synchronization of the afferent/efferent neural pathways, while desensitizing GTO inhibition.	Change in muscle fascicle length; once adequate muscular strength has been achieved
Able to tolerate greater force, while also expending less metabolic energy	Joint-angle specific training can potentially augment more specific neural adaptations
Stressing muscle fibers and tendons with slow, concentrated movements is essential for deceleration mechanics	Where eccentrics improve force absorption, isometrics now improve athlete's ability to withstand greater forces
Accentuated tissue remodeling due to forceful tearing of myosin heads	Increases stretching of tendons, which maximizes the stretch-shortening cycle

INTRASET AND WARM-UP

- Intraset work
  - Maximize your time
  - Highlight/address specific weaknesses
- Warm-Up
  - Set the tone for the day; coaches must require athletes to be conscious!
  - Address specific needs for daily training

Components of an effective warm-up:

-Increase body temperature/circulation
-Increase muscular activation
-Stimulate CNS
-Increase joint viscosity and synovial fluids
*Athletes should hardly be able to tell where the warm-up ends and the training starts

ACCESSORIES

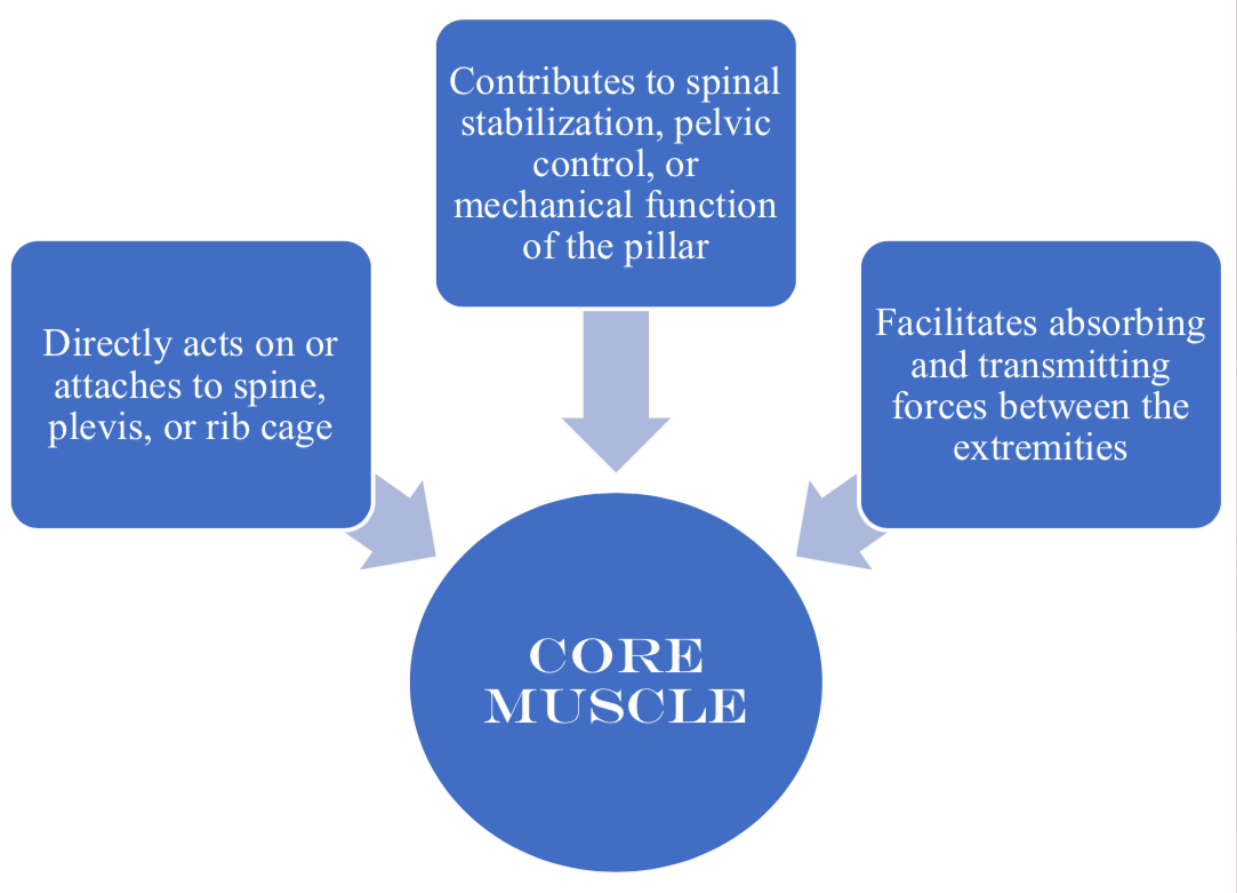
- Most athletes need to do most of the same shit
  - 75% of training across spectrums should look reasonably similar
  - The remaining 25% outweighs the 75% in a lot of cases
  - Time of year/season, training age, biological age
- Accessory blocks are where individualization is emphasized
  - Address specific weaknesses
  - Constant layering/progressions

HOW I APPLY OFFSET METHODS

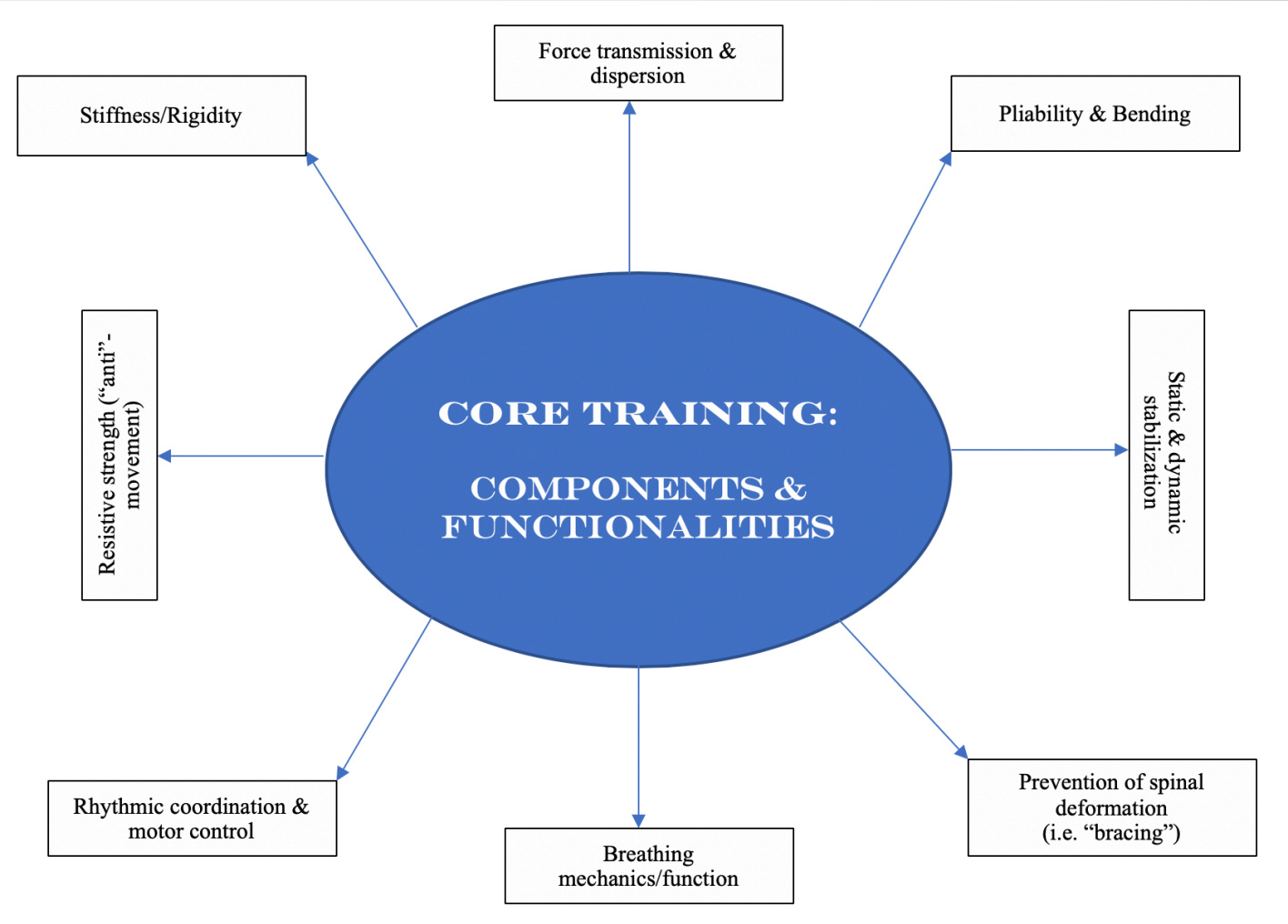
Population	Reason	Application/Emphasis
Injury/Rehab	When coming off injury or surgery, there can be a manifestation of unusual muscular imbalances throughout the body. I believe if not addressed, the underdeveloped tissues become atrophied due to bigger muscles becoming overly dominant. This can lead to obvious long-term consequences, such as inefficient gross compensatory patterns.	-Band offset loading -Band impulse/perturbation -DB/KB Uneven loading (selective movements)
Strength Layering	For some athletes, offset loading can have several benefits for improving overall strength. I've also seen several cases where sampling this in strength programming transfers directly to conventional lifts. My belief is that it helps improve fascial slings, joint capsules, and stabilizer muscles.	-DB/KB uneven loading -BB offset (static load) -BB offset (band load)
Non-Functional Imbalance	Along similar lines to those addressed with injury/rehab, I believe offset loading has great value for improving non-functional imbalances. Primarily, I believe it's due to the inherent demand for multiplanar stability & contraction.	-Band offset loading -Band impulse/perturbation -DB/KB Uneven loading (selective movements)

TRAINING THE CORE

- Create a comprehensive definition and stop using "core" with quotations.
- It's a real thing, it needs to be a part of training



WHAT DOES THE CORE ACTUALLY DO?



CORE TRAINING
-SIMPLE PROGRESSIONS

1
- **Change the lever (moment arm)**
- Short lever (i.e. arms close to body) to long lever (arms fully extended)

2
- **Change the angle**
- This can be achieved by either changing the position of the body, or the base of the equipment being used

3
- **Change the position/stance**
- Progressing from 1/2 kneeling to tall kneeling, split stance to bilateral, bilateral to single-leg

4
- **Change the tempo**
- Adding in eccentric, isometric, or reactive tempos. (Also, adding pertubations and/or oscilatory methods)

LAYERING YOUR CORE WORK

Stage 1: Robustness-Global

- Wide spectrum of movements, globally fatiguing with intent
- Everything is smooth, controlled, and heavily coached
- Provides great opportunity to identify specific weaknesses
- Most exercises will be static and performed in ½ kneeling position

Stage 2: Simplicity-Isolated

- Deemphasize focus of fatiguing, refined movement selection
- Concentration on strengthening weaknesses identified in stage 1
- Predominantly uniplanar, unidirectional
- Exercises are still mostly static; introduce tall kneeling and bilateral positions

Stage 3: Complexity-Global

- Expand exercise selection, movements become more task oriented and layered
- Concentration on exposing new weaknesses
- Predominantly multiplanar, multidirectional, multi-segmental
- Exercises become more dynamic; introduce unilateral and combo positions

Stage 4: Synergy-Isolated/Global

- Heavy emphasis on synergistic core movements
- Concentration on refining previously developed patterns with new/different stimuli
- Introduction to untrained vectors; movement specificity becomes illuminated
- Exercises focused on proprioceptive tasks, velocity, bending

NUANCED CORE TRAINING METHODS

Method	Examples	Theory	For Who
Perturbation and Oscillatory	Water bucket Carry Band Inertia	It is believed that fascia specifically responds to this type of external stimulus. I also feel this has prudence for neuromuscular benefits such as inter and intramuscular coordination.	Athletes who are overly “stiff” or “tight”. Can also be helpful for athletes who struggle with basic motor control and force transfer.
Offset and Unbalanced	Offset RDL Offset Water bucket OH Carry	I’ll be perfectly honest in stating that there is literally no research on this. At least none that I could find. Anecdotally, this is a premier way to emphasize the anterior and posterior fascia chains or “slings”. This has wide-reaching benefits to performance and function.	Athletes who lack proficiency with rotational and/or bending movements. Also valuable for athletes with significant muscular imbalances. Personally, I feel offset has value for anyone, but that’s a discussion for another time.
Impulse Management and force tolerance	Pendulum Throws Lat Rope Slam	This is predominantly a way to emphasize proprioception and kinesthetic awareness, which is sensing how your body orients in space. I also believe this is a good way to emphasize the deep core muscles such as the transverse and multifidi.	Athletes who lack the ability to create tension or stiffness in certain positions. Athletes with poor lumbo-pelvic control would be a common example.

BRINGING IT ALL TOGETHER

MAIN TAKEAWAY POINTS

- 6 Conventional Laws of Strength Training
  - Do not try to outsmart what has been proven
  - If overload is not present, adaptation will not occur
- Anecdotal evidence shouldn't be belittled
  - Some things work despite "what research says"… don't be afraid to venture
  - I'm aware of the contradictions I live by…
- You're never married to anything
  - Try a bunch of different programming styles... Keep what sticks, ditch what doesn't
  - Different shit works for different people, and that's perfectly ok.
- Programming is cyclical, and never static
  - You're just managing variables and making informed decisions
- The athlete will give you the answers to the exam!
  - Being thorough in your assessment results in being effective in your coaching
- Once foundational elements have been established, look to venture out
  - If all it took were basics, none of us would have a job
  - Progression with reason

THANK YOU FOR YOUR TIME! I HOPE YOU WERE ABLE TO GET SOMETHING OUT OF THIS.

PLEASE BE SMART, AND STAY SAFE DURING THESE TIMES OF UNCERTAINTY

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