

# The Art of Hardcore Corrective Training: Ten Lessons to Keep Athletes Healthy

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*Performance and Health*  
ON A WHOLE NEW LEVEL

# I'm Normally a Nice Guy...

- But today, you're in luck.
- In today's world of corrective training, as far as I'm concerned, this glass is half-empty.



“...could pass for the Tin man, although I like your camel analogy better. Hips are extremely immobile. I think you're right about the patellar tendonosis. The lateral inferior pole of the patella was very tender to palpation. The quads were so tight that I question a patella alta. I also questioned a possible plica in his left knee. When I was doing a lateral-medial scrape test I would feel a catch-release under the patella. This actually reduced after doing some ART on the lateral retinaculum. He has negative dorsiflexion in both ankles. I mobilized both taluses. I found a proprioceptive deficit in the right piriformis. This cleared after adjusting L5. I did ART on both lats in four different sites. I actually found more tenderness at the myotendon junction in the left Achilles. Again, I did some ART there. Passive flexion and external rotation of the right hip is limited and accompanied by pain in the inguinal location of the adductor. I did some ART in this area and this is where the fun started. He didn't tap out but this definitely got his attention. I'd like to work with him a couple of times a week over the next few weeks. He seems really motivated.”





**How Would You “Fix” this Athlete?**

# What Makes Michael Hope such a Great Therapist?

- a) Syracuse is a popular vacation spot in June.
- b) His charming internet “beside manner:”

*“I will put you on my list of guys who may fall apart in the future. It’s better than my list of guys who have already fallen apart.”*

*“Thirty percent of all care is placebo. That means a lot of useless shit has made many people rich.”*

- c) He’s really a robot; that’s why he knows *everything*.

# The Answer is D...

He doesn't make ATHLETES feel like PATIENTS, and he can walk a mile in their shoes.

Are we doing more harm than good with the modern-day corrective training approaches?



# Bridging the Gap

- 80% of Americans have lower back pain at some point in their lives; this rate is even higher in athletes.
- Add in Shoulders, Elbow, Hips, Knees, Ankles, etc. – and virtually everyone is affected!
- 26% of patellar tendons in basketball players have symptomatic (7%) or undiagnosed tendinopathy.
- We can't send everyone to PT, so trainers and coaches need to pick up the slack.

# This Isn't Picking Up the Slack...



# The Status Quo: Missing the Boat

- The Inability to Differentiate between Pathology and Inefficiency/Imbalance
- Regurgitation rather than Knowledge-based Theory and Practice
- Overlooking the Important Things: Do “correctly” instead of “differently.”
- “Foo-Foo” Programming: Maximal strength can be corrective!

# The Status Quo: Missing the Boat

- Trainers/Coaches w/out a Frame of Reference

- Criticizing what they don't understand:

band pressdown example

- Not much help from the Medical Profession

- A General Distrust between Clinicians and those in the Trenches: “No squats”



# Step 1: Functional Anatomy

*This isn't a lesson; it's a prerequisite!*

- If you don't have functional anatomy down cold, learn it.
- This goes beyond memorizing muscles' origins, insertions, and actions.
- You need to understand compensation patterns:
  - What happens if a muscle doesn't do its job?
  - What other muscles have to pick up the slack?
  - Correlating symptoms with dysfunction.

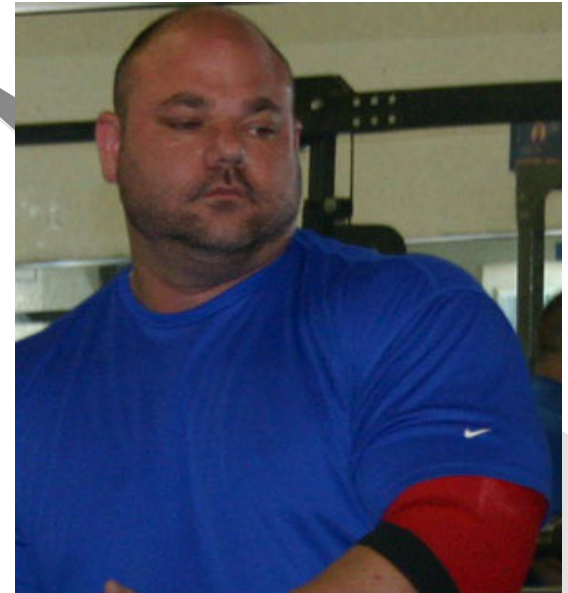
# Step 2: Prevention

## **Part I: Avoid Cookie Cutter Programs**

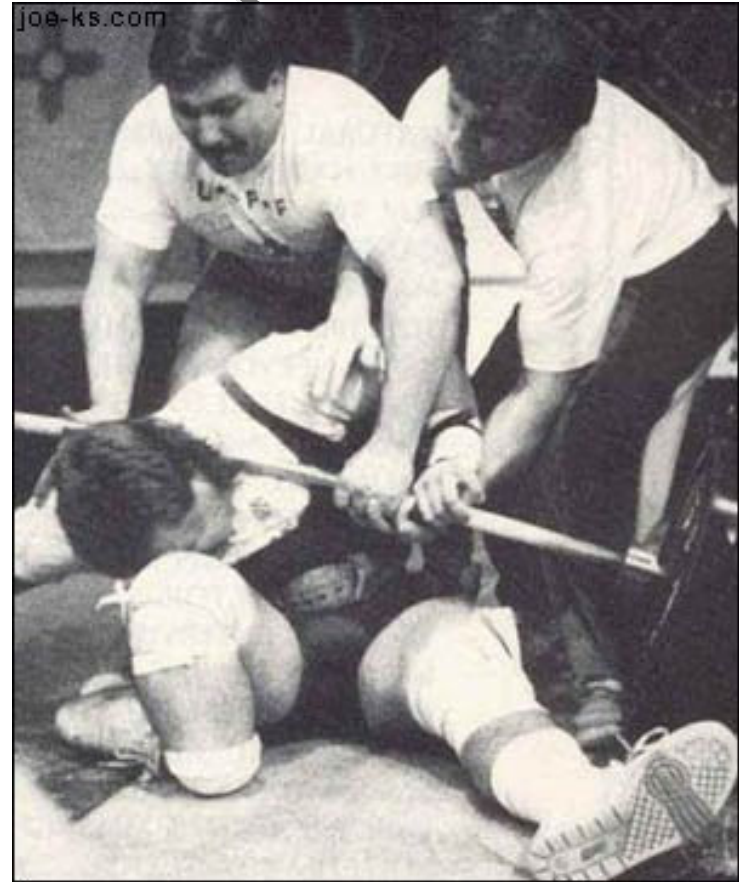
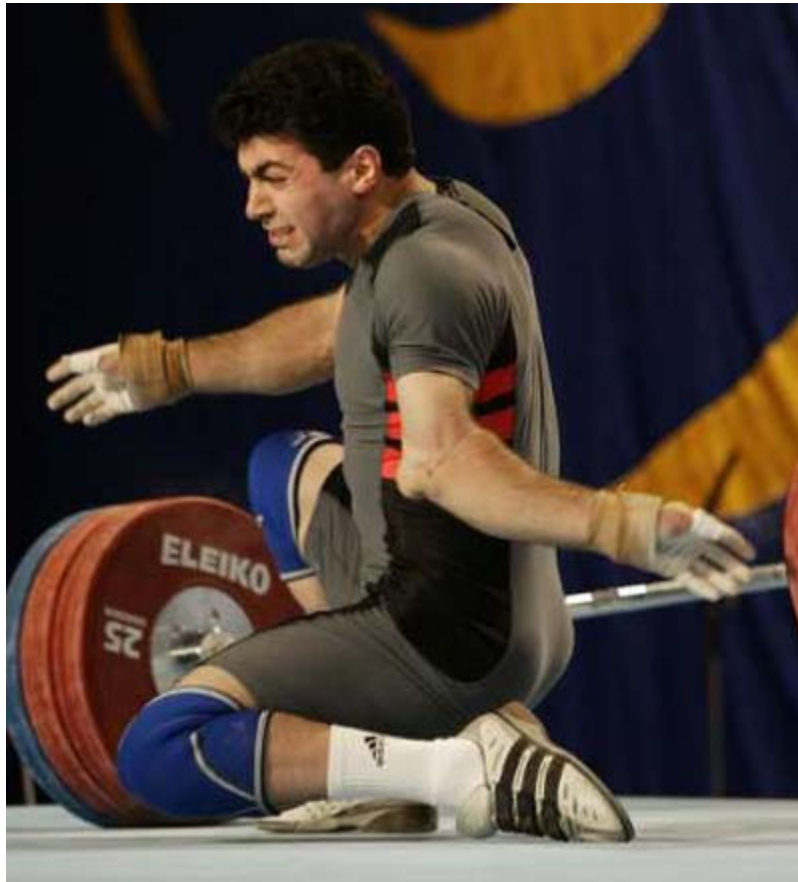
- Most Lack Structural Balance
- Don't take into account the training age of the individual
- Cannot account for individual injury history
- What looks good on paper often hurts in the real world!

# A Hypothetical Case Study...

- The “Old” Dave Tate decides that he wants to improve his vertical jump. Logically, he seeks out a pre-made program from one of his favorite online “gurus.”
- He finds one that has him doing: jump squats, vertical jumps, depth jumps, split-squat jumps, and power cleans (among others).
- What do you think is going to happen to Dave?



If he's LUCKY, only this...



# You Guessed it...

He's going to get a stress fracture or patellar tendinosis, and, in turn:

- a) Turn bodybuilder on us
- b) Have a lot of injury-imposed downtime to play with his balls!



# Lesson #1

Fit the program to the lifter – not vice versa. The best way to correct dysfunction is to prevent it. If you're blindly following cookie-cutter programs, stop.



# Step 2: Prevention

## Part II: Learning to Program for Yourself

### Factors to Consider

- Goals
- Training and Chronological Age
- Injury History, Existing Imbalances, Structural balance
- Scheduling
- Equipment Availability
- Deloading
- Training Environment and Partners
- Mobility, Soft-tissue, Passive Flexibility, Cardiovascular, and Recovery Work

# A Structural Balance Crash Course: The Upper Body

<b>Scapular Retraction</b>	<b>Scapular Protraction</b>
All Rowing (upright rows excluded)	All Bench Pressing
Rear Delt Flyes	All Flyes
Face Pulls	Pushups
<b>Scapular Depression</b>	<b>Scapular Elevation</b>
Scapular Wall Slides	Shrugs
Prone Trap Raises	Upright Rows
Behind-the-Neck Band Pulldowns	Cleans and Snatches
Prone Cobras to 10&2 (held for time)	Seated DB Cleans
Straight-Arm Lat Pulldowns (strict!)	Cuban Presses
<b>Humeral External Rotation</b>	<b>Humeral Internal Rotation</b>
All External Rotation Variations	Bench Pressing
Seated DB Cleans	Pullups/Pulldowns
Cuban Presses	Front Raises
Rear Delt Flyes	Pushups
Prone Trap Raises	Overhead Pressing
Prone Cobras (held for time)	All Internal Rotation Variations

# A Structural Balance Crash Course: The Lower Body

<b>Hip Dominant</b>	<b>Quad Dominant</b>
Deadlift variations	Front Squats
Good mornings	Olympic Back Squats
Pull-throughs	Hack Squats
Glute-Ham Raises	Trap Bar Deadlifts (+/-)
Reverse Hypers	Pistol Squats
Single-Leg Movements w/Long Stride	Single-Leg Movements w/Short Stride
Back Extensions	Leg Extensions
Kneeling Squats	Leg Presses
Box Squats	

# A Structural Balance Crash Course: Take Home Points

- If you're healthy and don't have any imbalances, balance the left and right columns.
- Most people need more of the LEFT column exercises.
- Do more single-leg work.

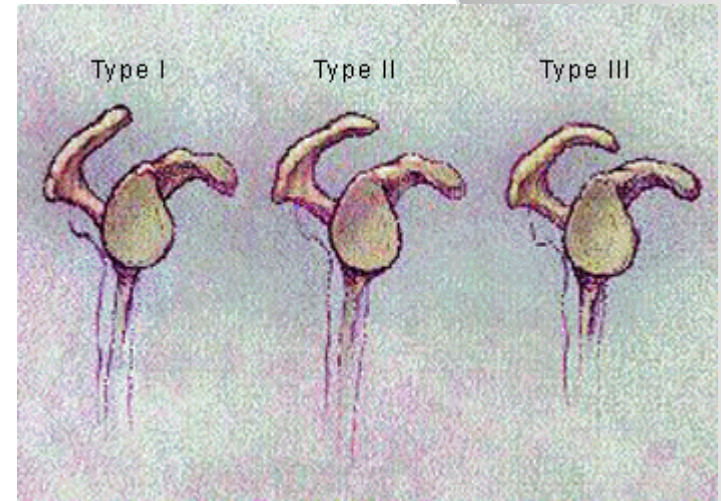
# Lesson #2

Learn to program for yourself. Establish a small group of people who will give you honest feedback on your programming ideas, and then use your intuition when it comes to modifying things on the fly.

# Step 2: Prevention

## Part III: Some exercises just aren't worth it.

- Upright Rows
  - Combine maximal internal rotation with flexion/abduction
- Overhead pressing in certain populations
  - Risk increases with age
  - Acromion Morphology
  - Faulty Scapular Alignment
  - Some athletes' shoulders are already beaten-up enough!



# Step 2: Prevention

## **Part III: Some exercises just aren't worth it.**

### – Sit-ups

- High compressive forces
- Encourage lumbar spine ROM when it really needs stability

### – *Hyperextensions*

- Encourage lumbar spine ROM when it really needs stability
- “Lower back” weakness isn't as common as people seem to think.

# Lesson #3

Some exercises just aren't worth it. Don't bother with them; there are better options available to you.

# Step 3: Determining What to Do in the Meantime

## **Part I: Gather all the information.**

- Aggravating exercises
- Nature of the pain
- History of previous injury
- Daily activities/occupation: what imbalances are typical in their sport or occupation?
- Any diagnostic testing that's been done
- Get them moving in a controlled environment.

# Lesson #4

You can never have too much information.  
Ask a lot of questions.

# Step 3: Fixing What's Wrong

**Part II: It's not always *what* you're doing; it's often *how* you're doing it.**

- Deadlift/Pull-Through/Back Extension lockouts
- Box Squats
- Single-leg Movements
- Bench Presses
- Seated Rows
- Rotational Training: Are they ready?

This is preventative *and* corrective.

**Bad Deadlift Lockout:  
Lumbar Hyperextension**

**Good Deadlift Lockout:  
Full Hip Extension/Posterior Pelvic Tilt**

**Bad Box Squat:  
Quad-Dominant**

**Good Box Squat:  
Hip-Dominant**

**Bad Box Squat:  
Incomplete Hip Extension**

# Common Single-Leg Pitfalls

- Short-striding it
- Coming up on the toes
- Leading knee caves in
- Lumbar hyperextension
- Incomplete hip extension
- Insufficient depth
- Partial side-step

**Bad Bench Press:  
Elbows flared, Scapulae Protracted**

**Good Bench Press:  
Elbows tucked, Scapulae Retracted**

**Bad Seated Row:  
Chin Protrusion + Elbow Flexion**

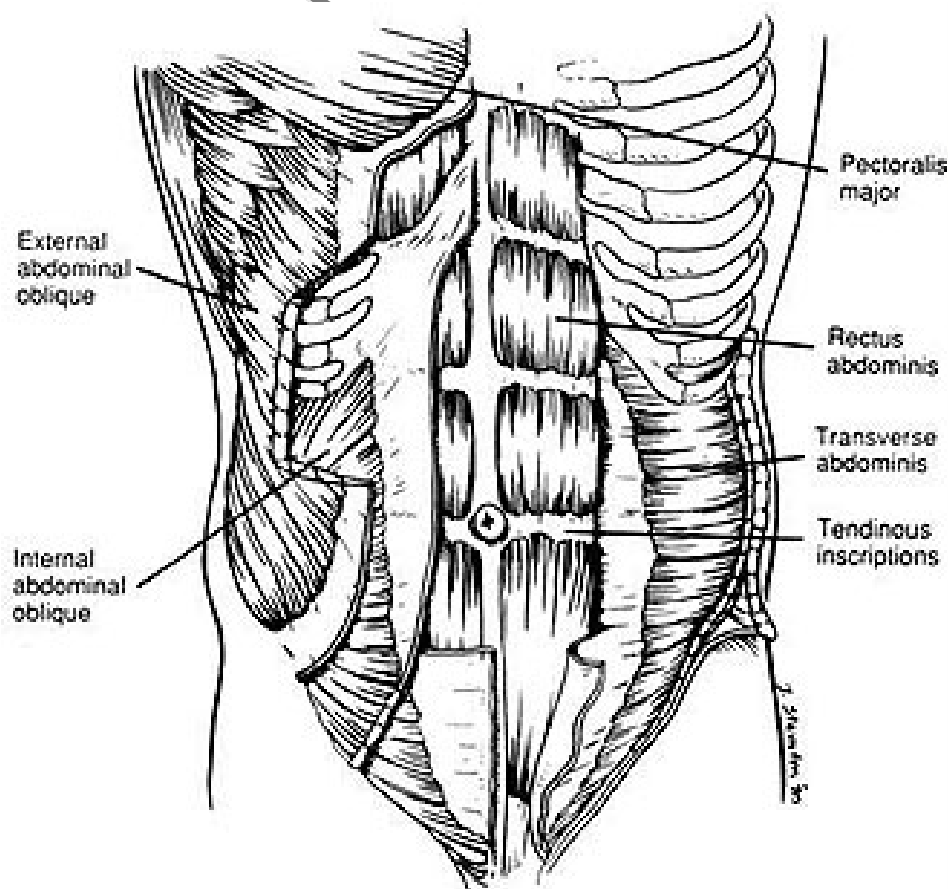
**Bad Seated Row:  
Hip/Lumbar Flexion + Extension**

**Bad Seated Row:  
Scapular Elevation + Humeral Extension**

**Good Seated Row:  
Actual Scapular Retraction!**

# Rotational Training and the Rectus Abdominus

- True Role of the Rectus
- Structure dictates function!
- **Need stability at the lumbar spine, and mobility at the hips, thoracic spine, and scapulae.**



**Bad Woodchop:  
Lumbar Rotation (Hip Fallout/Lean)**

**Good Woodchop:  
Thoracic and Hip Rotation**

**Rotational Preparedness:  
An Accidental Assessment  
The Wheelbarrow Walk**

**Rotational Preparedness:  
Prone to Side Bridge w/out Rotation**

# Lesson #5

Think “correct” before you think “different.” If an exercise causes pain, stop performing it. Evaluate technique before moving on, though. If performing the exercise correctly alleviates pain, keep it. Chances are that correctly performing the exercise will actually help correct the imbalance. An athlete will be more receptive to “do it this way instead” than he will to “don’t do this.”

# Step 3: Find What You *Can* Do

## **Part III: Maintain a Training Effect in Any Way Possible**

- Limited ROM work (e.g. board presses)
- Find challenging substitution exercises
- Increase volume of imbalance-correcting exercises
- Train the uninjured limb
- Know when to refer out. Be as aggressive as possible, but do no harm. Stay in touch with the PT/doctor.

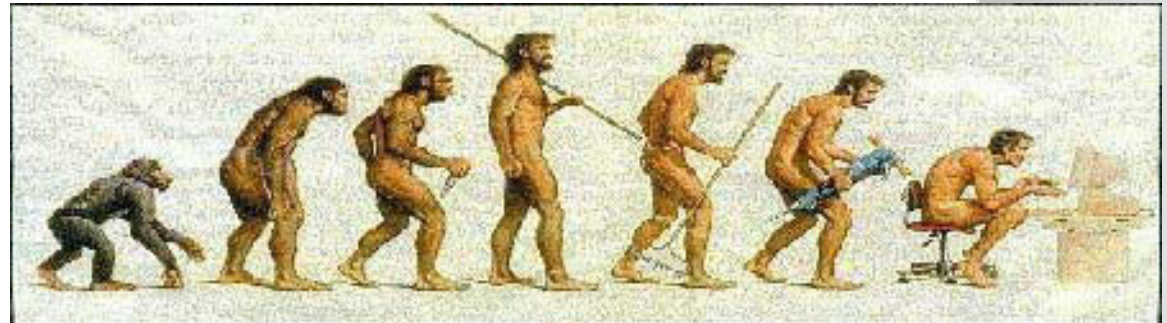
# Lesson #6

Make the athlete feel like an athlete – not a patient – both physically and psychologically. Tell them what they **CAN** do.

# Step 4: Address the Underlying Issue

## Part I: Start with daily activities.

- Never alter the training *program* first.
- Modify daily activities
- Consider the Law of Repetitive Motion
  - Explains how overuse injuries occur
- The 23/1 Rule



Somewhere, something went terribly wrong.

# The Law of Repetitive Motion

$$I = NF/AR$$

- I = Insult/Injury to the tissues
- N = Number of repetitions
- F = Force or tension of each repetition as a percent of maximum muscle strength
- A = Amplitude of each repetition
- R = Relaxation time between repetitions (lack of pressure or tension on the tissue)
- You train for one hour per day and have 23 hours to undo the good stuff!

# The Law of Repetitive Motion

$$I = NF/AR$$

- Poor posture: higher forces with lifting tasks (no change in amplitude or relaxation => high insult)
- Sitting at a computer: high number of reps (constant activation) with low amplitude and lower relaxation time.
- The weaker you are, the higher the percentage of maximal strength you'll use to accomplish a task.
- Resistance training can be extremely effective in correcting problems quickly. Otherwise, we'd have to sit with "more-than-perfect" posture for an equal amount of time to iron things out.

# Lesson #7

Before you go changing what's going on in the gym, figure out what you can do to improve what's going on outside of it. Think posture, repetitive motions, sheer lack of movement, sleeping posture, footwear, and even poor diet.

# Do We Really Need this Punishment?



# Step 4: Address the Underlying Issue

## **Part II: Implement soft-tissue work.**

- Active Release, Foam Rolling, Massage, “The Stick”
- Symptomatic relief, but makes other corrective training easier to do
- The Elastic Band Analogy: Length vs. Quality
- Pre-training or separate from training

# Foam Rolling

- Simple, cheap, and effective
- Best Bang for the Buck
  - Quads
  - Iliacus/Psoas Major
  - IT Band/Tensor Fascia Latae
  - Hamstrings
  - Adductors
  - Thoracic Extensions



# Lesson #8

Soft-tissue work serves a valuable role in preventing and correcting imbalances – without making any programming modifications. Foam rolling is cheap and effective; just do it.

# Step 4: Address the Underlying Issue

**Part III: Implement mobility/dynamic flexibility and activation work to get more out of your warm-up. Complement it with some static stretching.**

- **Dynamic Flexibility:** “controlled movement through the **active** range of motion for each joint”
- **Activation:** target the non-functioning synergists
- If a muscle is overused/strained, always look for a dysfunctional synergist.

# Some Common Examples

<b>Tight/Strained</b>	<b>Weak/Dysfunctional</b>
TFL	Gluteus Medius
Quadratus Lumborum	Gluteus Medius
Hamstrings	Gluteus Maximus
Adductor Magnus	Gluteus Maximus
Rectus Femoris	Psoas Major
Pectoralis Major	Subscapularis
Subscapularis	Teres Minor/Infraspinatus
Teres Minor/Infraspinatus	Subscapularis

Incorporate soft-tissue and mobility/flexibility work for the left side and activation work for the right side.

# Why Dynamic Flexibility?

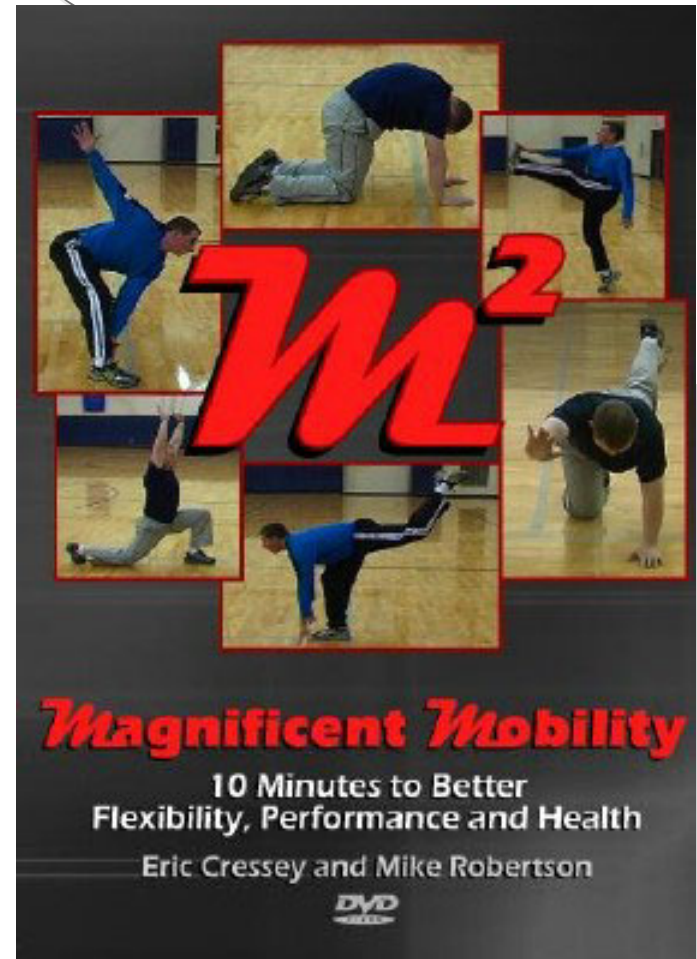
- Improves performance and dynamic range of motion, and reduces injury rates when compared to a static stretching program
- Passive vs. Active Flexibility
  - Neural Control
  - Stability within a given ROM
  - Excessive Passive ROM is actually an injury risk (e.g. gymnastics, ballet)
- Some Static Stretching is a good thing.

# Sample Warm-Up

- **Foam Rolling**
- **Non-involved Corrective Static Stretches** (hip flexors, ITB/TFL, neck)
- **Ground-based Mobility/Activation:** Supine Bridge, Birddog, Calf Mobilization
- **Standing:** X-Band Walk, Side-to-Side Leg Swings, High Knee Walk, Pull-Back Buttkick, Cradle Walk, Overhead Lunge Walk, Walking Spiderman, Squat-to-Stand, Overhead Broomstick Dislocation, Scap Pushup

# Lesson #9

Implement mobility and activation work in your warm-up. It only takes 5-10 minutes – which is a lot less time than it takes to recover from an injury. You'll be amazed at what shakes free when you enhance stability through full ranges of motion.



# Step 4: Address the Underlying Issue

## **Part IV: Modify the training program.**

- This is a last resort – although you'll often use it simply because you want results fast.
- The substitute exercises you chose will rarely help to correct the inefficiency.
- With the imbalance identified, volume in the opposing direction is your best friend.
  - Restore joint balance
  - Groove neural patterns

# Training Modifications

- Isometric Holds
  - Short (e.g. pull-through lockout)
  - Long (EQIs: e.g. split-squat isometric hold)
- Longer Eccentrics
  - Groove technique
  - Build tendon strength
- The basics done **CORRECTLY** are more valuable than you think.



# Lesson #10

As a last step, modify the training plan – and only on a small-scale, if possible. This is the most “sacred” aspect of an athlete’s preparation, so you should “butcher” it as little as possible. The more you screw with things, the more the athlete is going to feel like a patient.

# A Programming Example

- IT Band Friction Syndrome
- Lateral Knee Pain
- Contemplating Lateral Release Surgery
- Generalized Lower Back Pain
  - Pain free in less than six weeks
  - Now preparing for the NYC marathon (Sept.)

# A Programming Example: Month 1

- **Daily:** Supine Bridge Iso Holds, Side Bridges, Birddogs, Static Stretching, Foam Rolling
- **Pre-Training:** 2-3 static stretches + mobility
- **Day 1 Lower:** BB Reverse Lunge – Front Squat Grip (Iso weeks 1-2), Pull-throughs (Iso weeks 1-2), Reverse Crunches, Reverse Extensions
- **Day 2 Lower:** Rack Pulls from Kneecaps (Iso weeks 1-2), Bulgarian Split-Squat Iso (all four weeks), weighted back extensions, side bridges
- **Two “Corrective” Bloodflow Days w/light aerobic work**

# A Programming Example: Month 2

- **Day 1 Lower:** Deadlifts from 3” blocks, Barbell Reverse Lunge Iso Holds, Weighted Back Extension, side bridges, suitcase deadlifts
- **Day 2 Lower:** Wide Stance Anderson Squats from Pins (just above parallel – long eccentric wks 1-2), DB Step-ups, Pull-Throughs, Reverse Crunch, Single-leg supine Bridge Iso Hold
- **Two “Corrective” Bloodflow Days w/light aerobic work, plus one additional “cardio” session**

# A Programming Example: Month 3

- **Day 1 Lower:** Full ROM Deadlifts, DB Reverse Lunges, Dragon Flags, Pull-Throughs
- **Day 2 Lower:** Front Squats (long eccentric), Barbell Step-ups, Mini-band Box Squats, Full Contact Twists
- **Pushed Weight Room Volume Heavily this month**
- **Longer duration Corrective Bloodflow and aerobic sessions**

# A Programming Example: Month 4

- **Day 1 Lower:** Box Squats (weeks 1-2), Olympic Squats (weeks 3-4), SLDLs, walking DB lunges, bar rollouts, supine bridge iso holds
- **Day 2 Lower:** Speed Pulls, Anderson Front Squats from Below Parallel, BB Reverse Lunge – Front Squat Grip, Cable Woodchops, Elevated Split-Squat Iso Hold
- **Three full running sessions (LSD, Threshold, Anaerobic Interval)**
- **Dropped corrective bloodflow sessions (some elements included in warm-ups)**

# The Overall Approach

1. Prevention is the best form of corrective training.
2. Remove the offending stimulus – fix posture in both your daily life and when sleeping. Watch for repetitive motions. Check footwear, diet.
3. Offer some symptomatic relief – especially in cases where pain is present – to expedite treatment modalities. For the sake of this discussion, soft tissue work and static stretching are appropriate.

# The Overall Approach

4. Address the underlying problems – in this case, we're talking about the non-functioning synergists (e.g. glutes, scapular retractors, external rotators): activation work.
5. Integrate proper recruitment patterns established with activation patterns into full range of motion training protocols: body weight as resistance, dynamic flexibility.
6. Integrate these recruitment patterns into more complex and loaded movements – classic resistance training.

# A Recap: Lessons 1-5

After you've mastered functional anatomy...

1. Fit the program to the lifter – not vice versa.
2. Learn to program for yourself.
3. Some exercises just aren't worth it.
4. You can never have too much information.
5. Think “correct” before you think different.”

# A Recap: Lessons 6-10

6. Don't make the athlete feel like a patient.
7. Before you go changing what's going on in the gym, figure out what you can do to improve what's going on outside of it.
8. Take advantage of soft-tissue work.
9. Implement mobility and activation work in your warm-up.
10. As a last step, modify the training plan – as little as possible.

# One Final Note...

- Corrective training is always going to be a work in progress.
- Remember that you're dealing with *inefficiency* and *not pathology*; know when to refer out.
- Knowledge leads to theory, which drives practice. Practice either confirms or refutes theory; you may not get things right on the first try.

# Thank You!



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