IV)TROUBLESHOOTING/ MAG7

Mechanism of Injury

Multi-planer assessment

Posture/Balance

2/1 Leg

Breathing/Core

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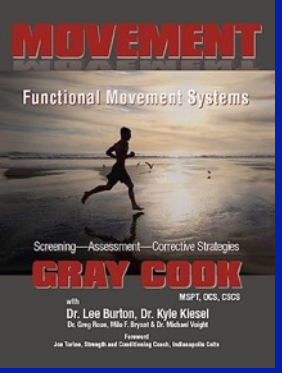
R2P
REHABILITATION 2 PERFORMANCE

Pain vs Discomfort

- Stretch is discomfort
- Anything else is pain

Pain & Asymmetry most important

- If in doubt give the lower score
- Any test w/ a 0 score (pain) requires ortho evaluation
- Any test w/ a 1 or a painless aysmmetry (painless dysfunction) requires functional correction
  - Stabilization
  - Mobilization
- Assess-Correct-Reassess



What is Goal?

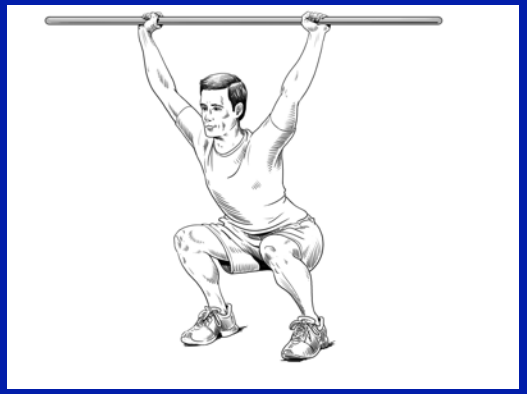
- Acc to Cook, the goal is fastest to 14, not 21
- Acc to Lewit, “the goal is not to teach perfect movement patterns, but to correct the key fault that is causing the trouble.”

The Magnificent Seven - A Functional Screen

Pre-Screen. Pain?

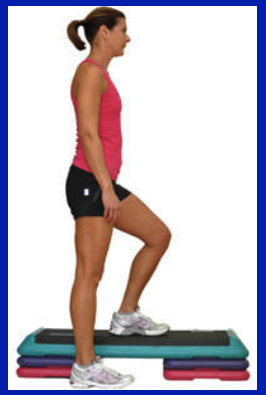
1. Posture

2. OH Squat

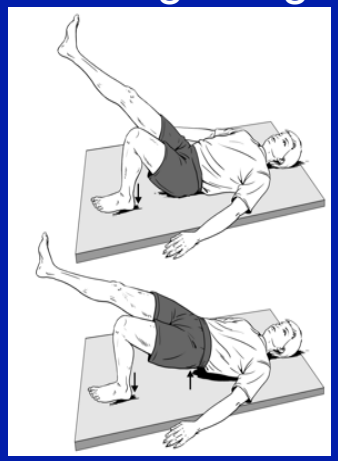


3. Balance

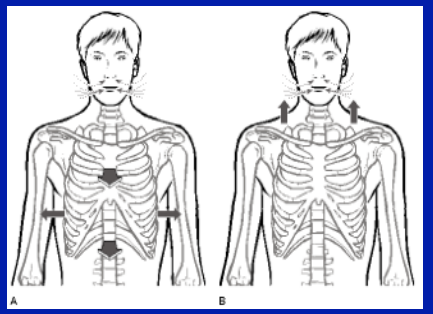
4. 1 Leg Squat



5.1 Leg Bridge



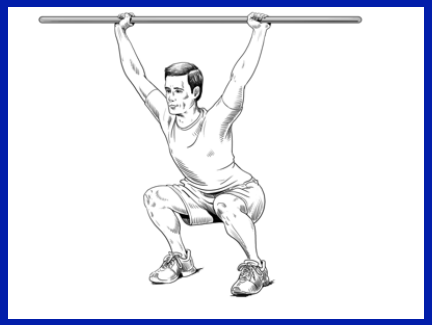
6. Inhalation



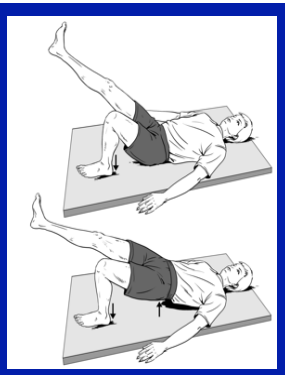
7. Core - IAP

BASIC FUNCTIONS

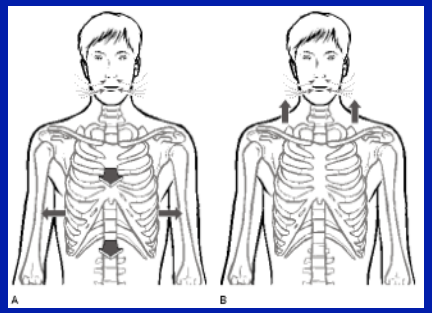
- *Upright Posture*



- *Single Leg*



- *Respiration/Core*



Record Sheet

- Always record the worst score for any test
- Always record if there is an asymmetry

To Cue or Not to Cue

- “During movement pattern testing, minimal verbal cues should be used which test an individual’s habitual way of performing a movement. If the cues are too “leading” then the test will be of the subjects ability to learn how to perform the movement correctly, rather than how they are habitually performing it.”
- “graded on how they chose to perform rather than how they could perform the tasks given feedback or coaching”
- “the hallmark of the SFMA design is the use simple basic movements to expose natural reactions and responses by the patient.”

Pre-Screen
Range of Motion - ROM/Ortho

- Hyper or hypomobile
- Find movements or positions which reproduce, increase, or peripheralize pt's characteristic symptoms
- Example L-spine

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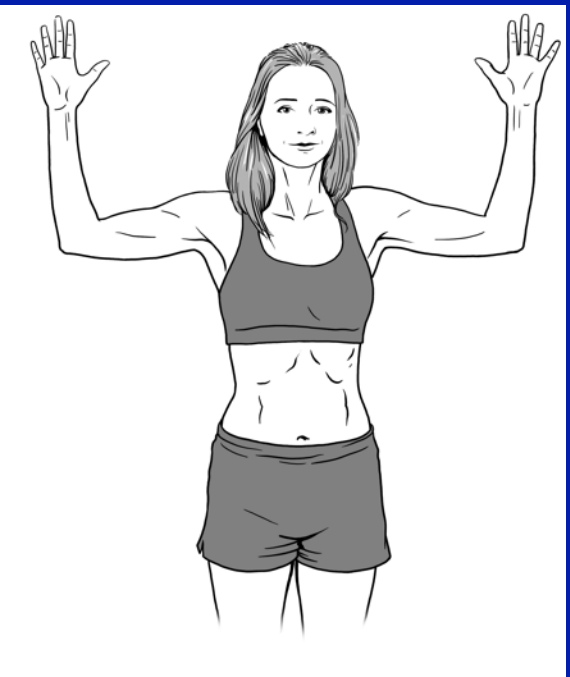
Functional Problem Solving

- DISC PATIENTS, CHRONIC BACK PAIN, ETC
- Patient Classification
  - Directional Preference
  - Stabilization
  - Mobilization

1. T4 Mobility Screen

- Stand vs. wall w/ arms externally rotated/supinated & feet slightly forward
- Buttocks vs wall
- Back of head vs wall
- Hands vs wall
- Try to flatten back
- Record
  - Can back flatten at all?
  - Where does pt. feel tension (mid-back, left or right side, neck)



Scoring

- 0 - Pain
- 1 - Can't perform movement
  - Any chin poke
    - Back of head can't touch wall w/ horizontal face line (no C0-C1 hyperextension)
  - ⇓⇓ Shldr Ex Rot - Wrist >1 cm off wall
  - No anterior rib cage motion when flattening back against wall
  - All five fingers not touching the wall
- 2 - Performs movement w/ compensation
  - T/L lordosis > 1 cm from wall
  - ⇓ Shldr Ex Rot (can't flatten wrist vs wall)
- 3 - movement performed w/out compensation
  - Wrist & fingers flat on wall
  - T/L lordosis < 1 cm of wall

FMS - Shoulder Mobility

Integrate Wall Angel w/ FMS

FMS - Shoulder Mobility

Integrate Wall Angel w/ FMS

Functional Movement Screen : Shoulder Mobility

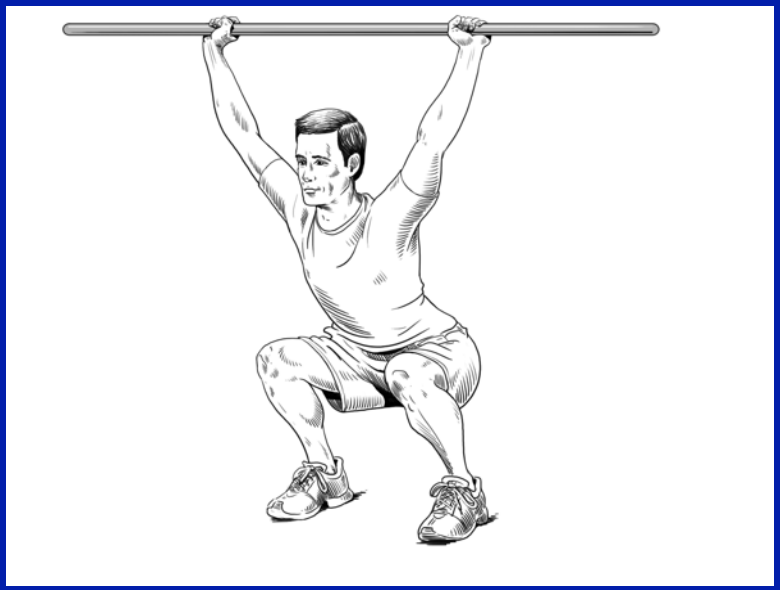
Frontal View			
Score	3	2	1
Criteria	•Fists are within one hand length	•Fists are within one and a half hand lengths	•Fists are not within one and a half hand lengths

Functional Problem Solving

- SHOULDER/NECK PAIN
- Thoracic Mobility Progressions/ Regressions
  - ??

2. The Overhead Squat

- **Signs of Dysfunction** *What signs are looked for in your posture or during exercise?*



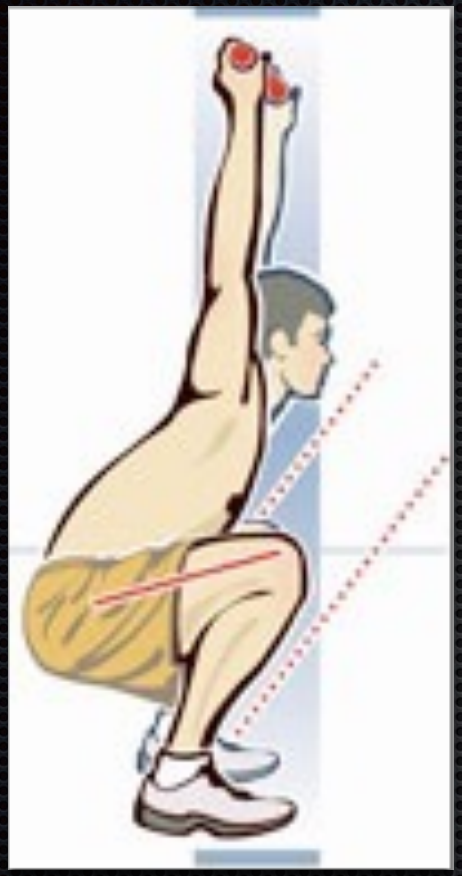
QuickTime™ and a
decompressor
are needed to see this picture.

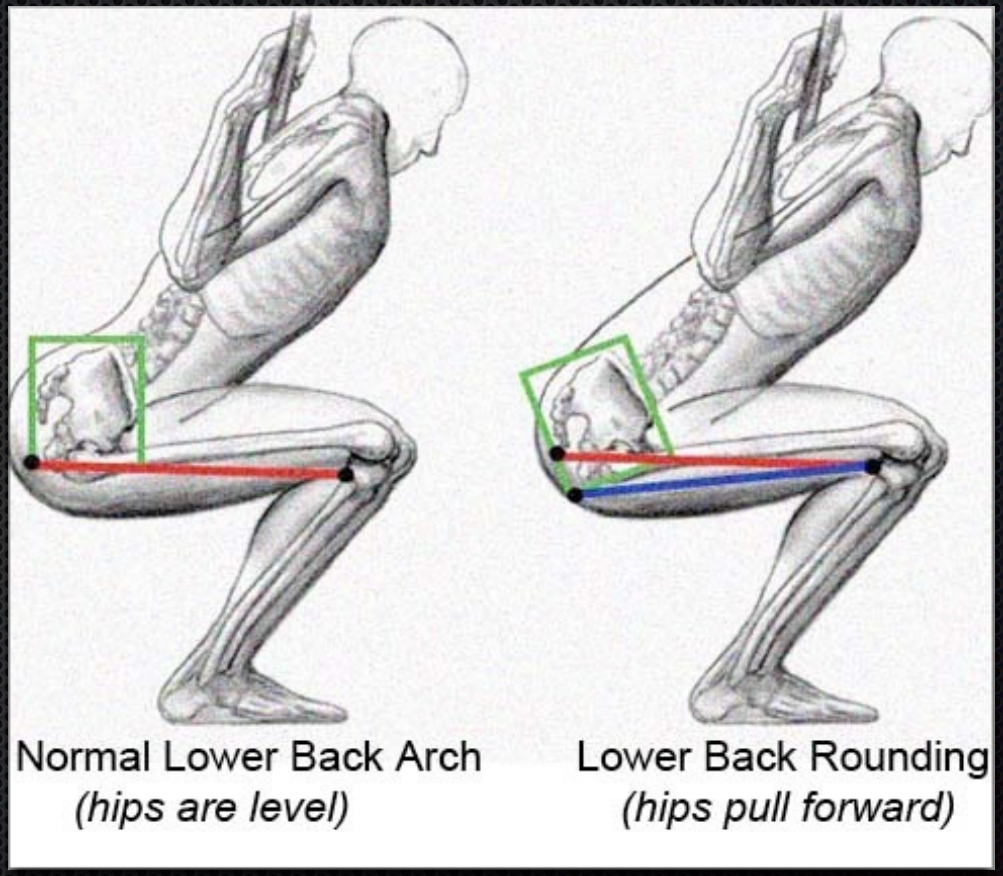
Scoring

- 0 - pain
- 1 - can't perform movement
  - Hands forward of feet
  - Thighs don't reach past horizontal
  - W/out L/S flexion before thighs reach horiz.
  - W/out heels raising before thighs reach horiz.
- 2 - performs movement w/ compensation
  - Tibia & upper torso are not parallel
  - Ant patellar shear (knees forward of toes)
  - L/S flexion when thighs are horiz.
  - Knee valgosity
  - Hyperpronation
  - Chin poke/Neck not packed in
- 3 - movement performed w/out compensation

FMS - OH Squat

Integrate





NSCA CEU QUIZ

Available at: http://www.nsca.com/Certification/Continuing-Education/CEU-Quizzes/

The Back Squat: A Proposed Assessment of Functional Deficits and Technical Factors That Limit Performance

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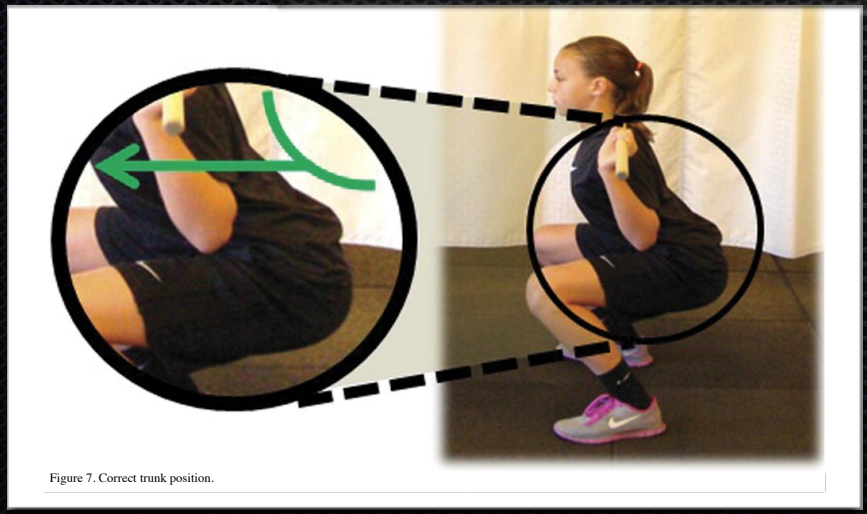

Figure 7. Correct trunk position.

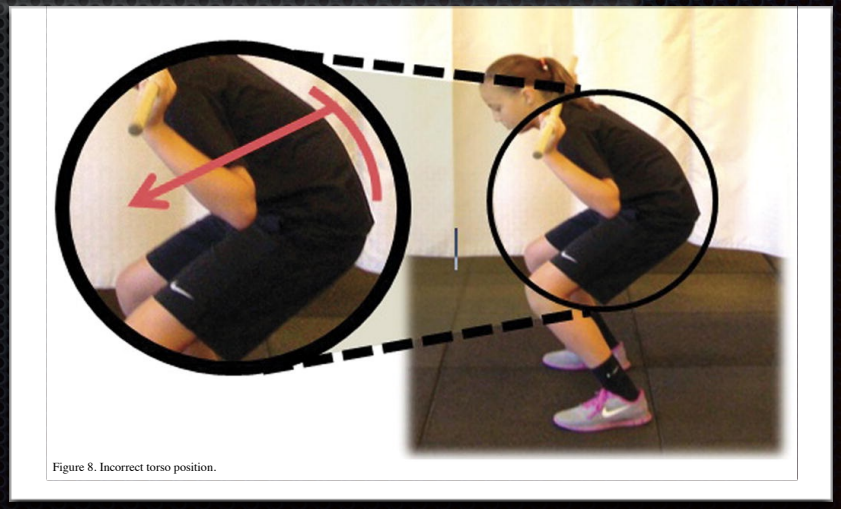

Figure 8. Incorrect torso position.

Functional Problem Solving

- BACK/KNEE/SHOULDER
- T4 & Shoulder mobility
- Ankle & Hip mobility
- Core stability
- Progressions/Regressions
  - ??

3. 1 Leg Balance Test – p248-249, 807-809

- Maribo T, Iverson E, Andresen N, Stengaard-Pedersen K, Schiottz-Christensen B. Intra-observer and interobserver reliability of one leg stand test as a measure of postural balance in low back pain patients. Int Musc Med 2009;31:172-177

Balance

- **Procedure**
  - Instruction: Stand on 1 leg & look straight ahead (w/ arms folded)
  - Person can choose preferred 1 leg stance position
  - Perform eyes open (EO) 1st then, use this instruction
  - Stand on 1 leg & look straight ahead, focusing on spot on the wall in front of you.
  - Now, keep balancing & close your eyes (EC)
  - Visualize the spot in front of you
- **Score**
  - Patient gets up to 5 tries on each leg
  - 1-2 EO trials/rest EC
  - Max time 30s
  - Record time when:
    - Hop
    - Move foot
    - Reach out & touch something with either hand

Scoring

- 0 - pain
- 1 - can’t perform movement
  - Less than 10s EO
  - Less than 5 s EC
- 2 - performs movement w/ compensation
  - Less than 30s EC
  - Less than 60s EO
  - Hyperpronation
  - Trendelenberg sign
  - Shoulder unleveling
- 3 - movement performed w/out compensation

Functional Problem Solving

- ANKLE SPRAIN/FALLS-ELDERLY
- Sensory input to sole of foot
- Single Leg Progressions/Regressions
- Split Stance
- 1/2 Kneeling

4. Single Leg Squat Test – p814-815

- Squat to approx 30 deg. Hip flexion
- Or, perform off step (8” or 20 cm high) w/ non-wt. bearing leg straight until heel touches floor

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- 8” or 20 cm height

Scoring

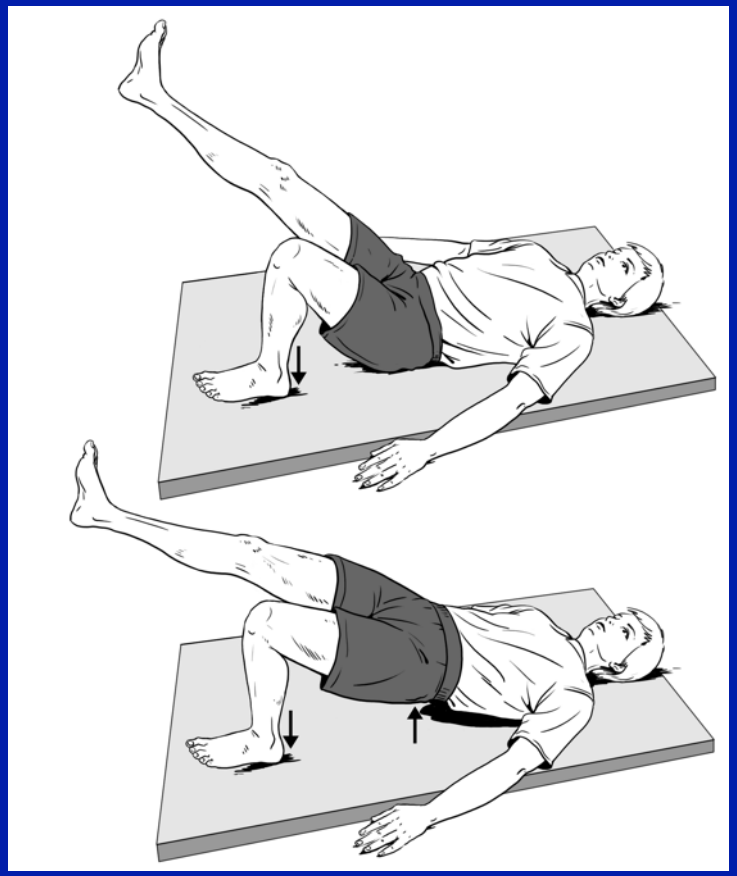
- 0 - pain
- 1 - Can’t perform movement to approx 30 deg knee flexion
  - Knee valgosity (knee passes medial to foot)
- 2 - performs movement w/ compensation
  - L/S flexion
  - Ant patellar shear
  - Trendelenberg
  - Hyperpronation
- 3 - movement performed w/out compensation

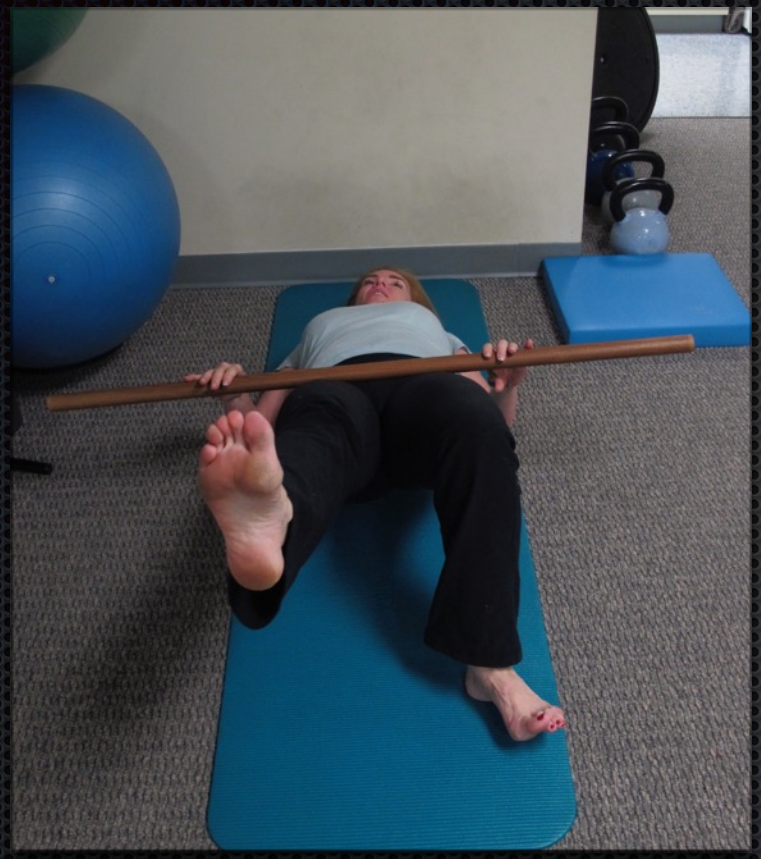
Functional Problem Solving

- KNEE/ANKLE/HIP
- See Balance
- Lateral Wall Lean/Squat
- 2/1 Leg Squat
  - Concentric (only) 1 Leg Squat up
  - Eccentric 2 Leg Squat down

5. 1 Leg Bridge – p631

- Bridge Up
- Alternate Kicks & Hold
- Then, perform 1 leg bridge up/down





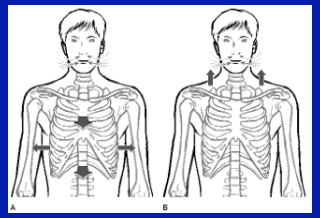
Scoring

- 0 - Pain
- 1 - Can’t perform movement
  - Any pelvic twist or drop
- 2 - Performs movement w/ compensation
  - can’t raise hips to neutral position
  - thighs don’t stay parallel
- 3 - Movement performed w/out compensation

Bird Dog & Anti-Rotation Dysfunction

Functional Problem Solving

- HIP/KNEE/BACK
- See Balance & 1 Leg Squat
- 1 Leg Dead Lift
- Anti-Rotation



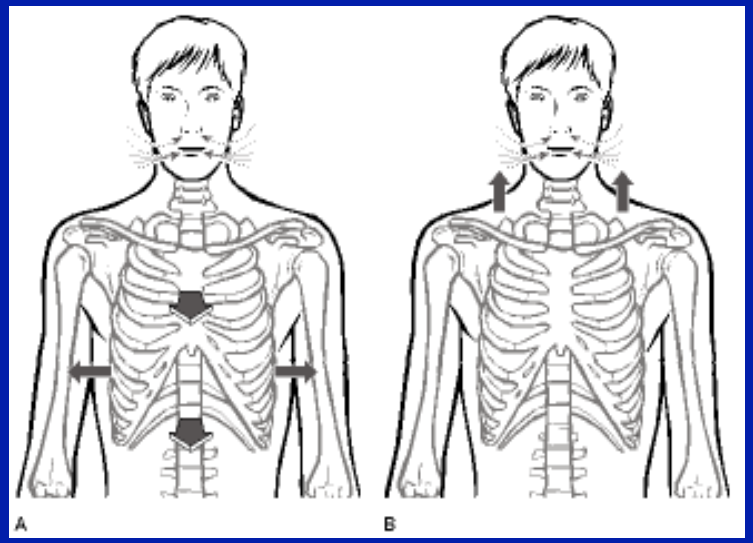
6. Respiration

- Most common faulty movement pattern
- Dysfunctional respiration usually occurs with **vertical** chest breathing predominating over lower abdominal and lower rib cage **horizontal** breathing
- Scalene & upper traps overactivity & poor abdominal function result from faulty breathing

a) Respiration Test - Upright

Standing or Sitting Inhalation Test

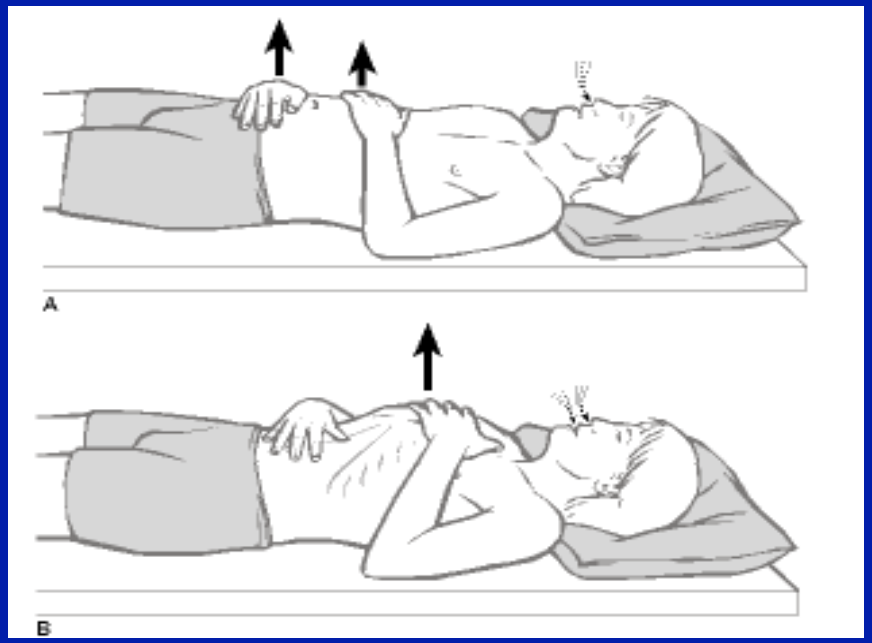
- During a breath in do the shoulders rise up?
- Ideally breathing occurs horizontally not vertically



a) Breathing Observation - Supine

DURING INHALATION:

- Observe if chest breathing predominates over abdominal breathing (**minor dysfunction**)
- Observe during inhalation if the abdomen moves in, rather than out (*paradoxical respiration* – **major dysfunction)**

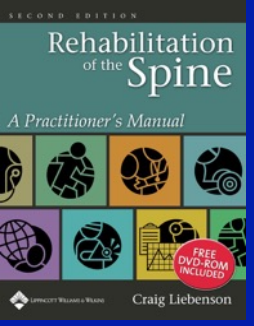


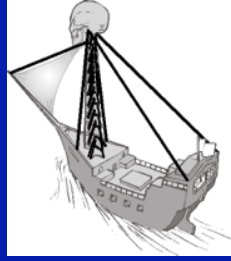
Scoring

- 0 - Pain
- 1 - Can’t perform movement
  - Paradoxical respiration
    - Supine inhalation belly goes in/exhalation out
  - Ribs cephalad in upright/vert test
  - Supine - chest breathing predominates over belly breathing
- 2 - Performs movement w/ compensation
  - Lower rib cage does not widen laterally
- 3 - Movement performed w/out compensation

7. Core/IAP

- Most common faulty movement pattern
- Dysfunctional respiration usually occurs with **vertical** chest breathing predominating over lower abdominal and lower rib cage **horizontal** breathing
- Scalene & upper traps overactivity & poor abdominal function result from faulty breathing



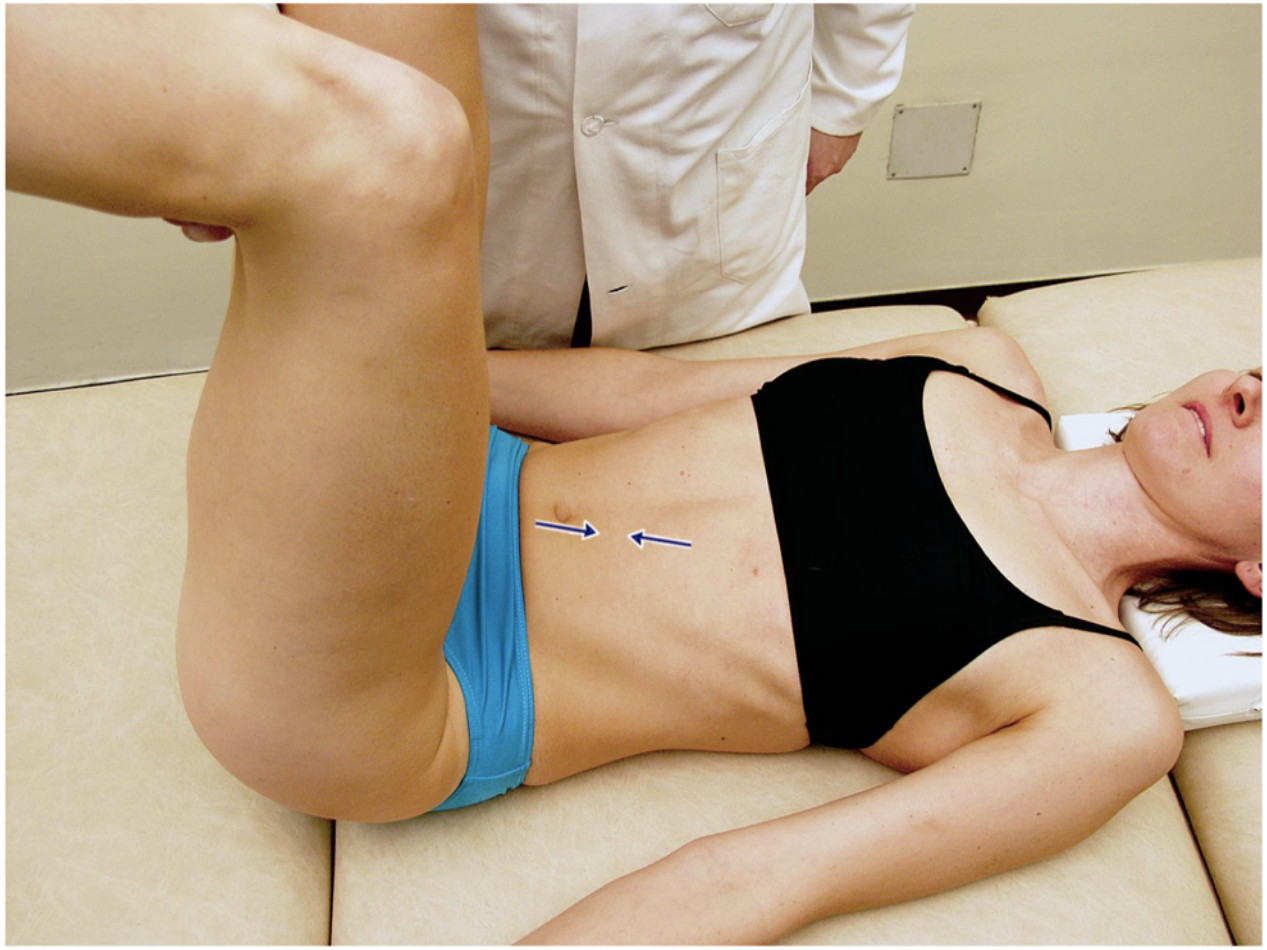


IAP Test
ROS - p555-557

- Bring the chest

  passively into the caudal, expiratory position
- Then the support is removed from under the patient's legs
- The patients holds this position actively

Kolar's Intra-abdominal Pressure Test (p555)



Intra-abdominal pressure test

Initial position

- Patient supine
- Triple flexion of the legs
- The lower legs supported
- Hip abduction corresponds to the width of the shoulders, slight external rotation at the hips

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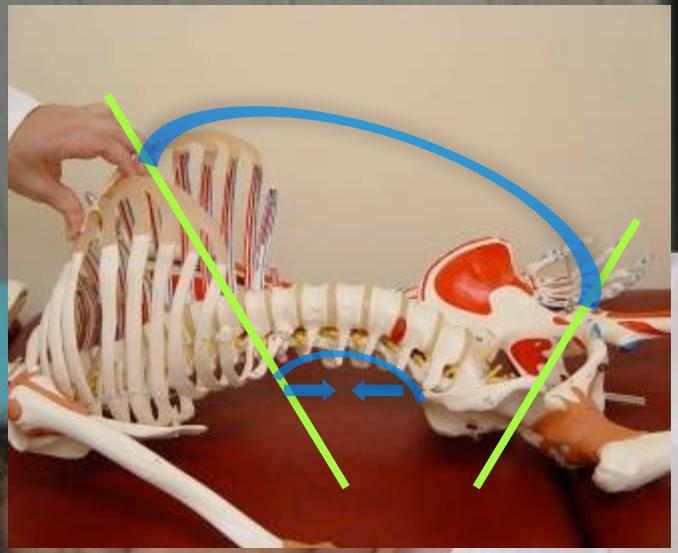
Intra-abdominal pressure test

- The therapist brings the patient's chest passively into the caudal, expiratory position
- Then the support is removed from under the patient's legs
- The patients holds this position actively

Poor activation

- Activity of the upper part of the rectus abdominis predominates
- Inspiratory position of the chest
- The umbilicus is pulled in a cranial direction
- Concavity of the abdominal wall above the level of the groin



Scoring

- 0 - Pain
- 1 - Can’t perform movement
  - Cued Triple Flxn cephalad rib cage
  - Inability to push lateral obliques into fingers
- 2 - Performs movement w/ compensation
  - Uncued Triple Flxn cephalad rib cage
- 3 - Movement performed w/out compensation

Functional Problem Solving

- LOW BACK/NECK
- Open Scissors/Janda' LCS
- Isometric Core Training
- Yoga/Breathing

Clinical Groupings

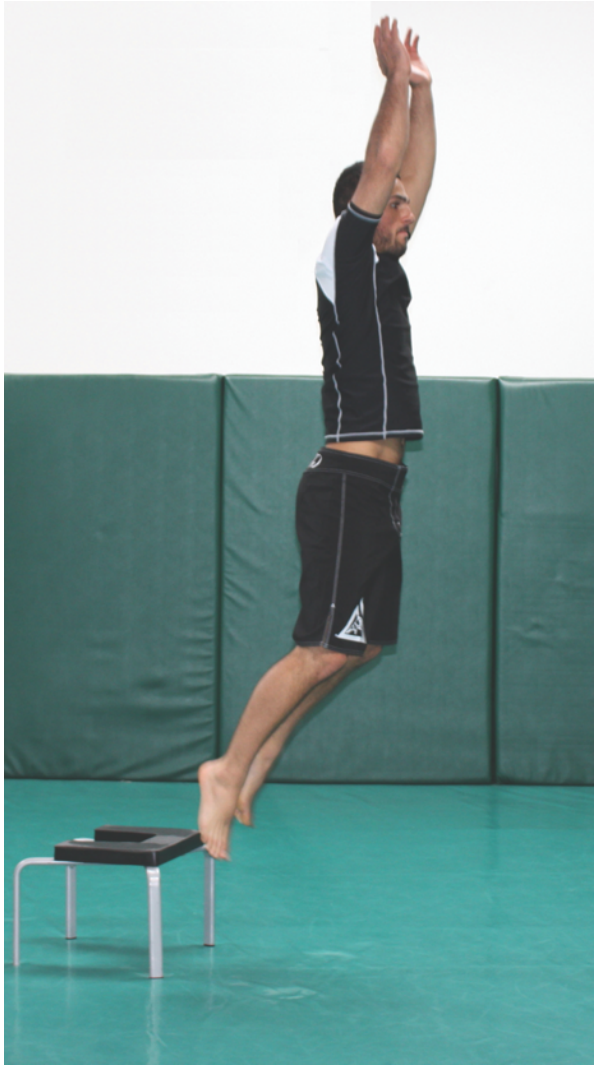
- What is next step?
  1. At least one test a 0 - **a Patient - Recovery**
  2. At least one test a 1 - **at Risk - Stability**
  3. ≥14 w/ all 2's & 3's - **Fit - Strength/Power**

- Fit individuals require additional testing
  A) To reduce risk w/ strenuous activities
  B) To establish athletic development goals to enhance their performance

Magnificent 7 - Re-Sets

- **Finger tip to floor** - Isometric Core Stability/McKenzie
- **Wall Angel/FMS Shoulder Mobility** - Bug off wall; T4 extension mobility, Scapula-Thoracic
- **OH or Deep Squat** - 3-4 month position/Hip Hinge/Happy Baby/Planks
- **1 leg Balance/Squat** - Oblique Bridge/Sit - 7.5 months, 1LDL, Frontal Plane
- **1 Leg Bridge** - 1LDL, Hip Airplane, Posterior Chain, Anti-Rotation
- **Respiration/IAP** - 3-4 month position

Depth Jumps



Performance Tests

Programming & Exercise Tracks

This Weekend

- Functional Approach
- Functional Assessment
- Hip Hinge
- Isometric Core Stability
- T4
- Developmental

Course B

- Foot/ 1st MTP/Arches
- Single Leg/Frontal Plane
- Anti-Rotation
- Posterior Chain
- Spiral Line
- Scapulo-Thoracic
- Plyometrics

REACTIVATION GROVES

Multi-Planar Stability Screens
“Look for Leaks”

- Mag 7
- Inline 1/2 kneeling Pallof
- Bird Dog
- TGU
- Hip Airplane
- Halo

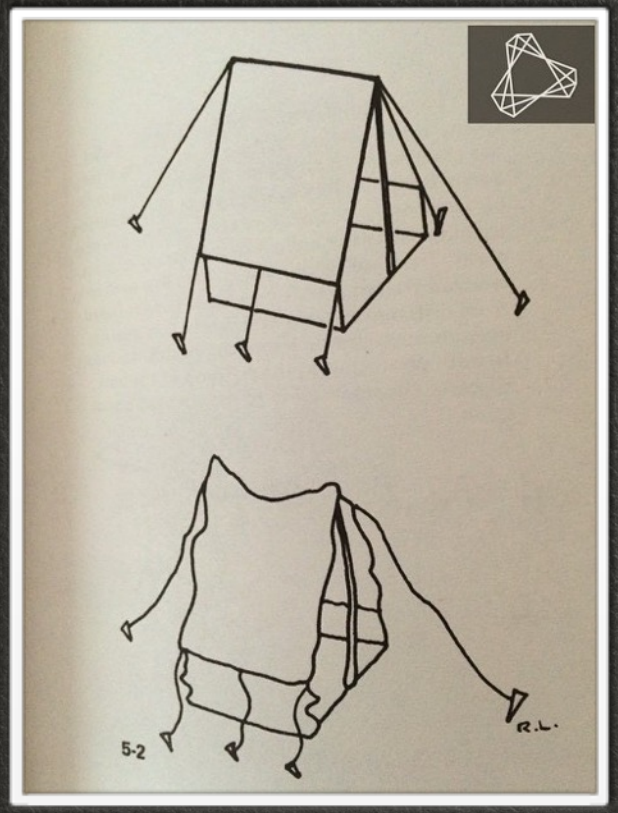
Anti-Flexion
Open Scissor/LCS Challenges

- **Over Head**
- **Bird Dog**
- **Planks**
- **Stir the Pot**
- **Buttress**
- **Bear**
- **Military Press**

Magnificent 7 - Re-Sets

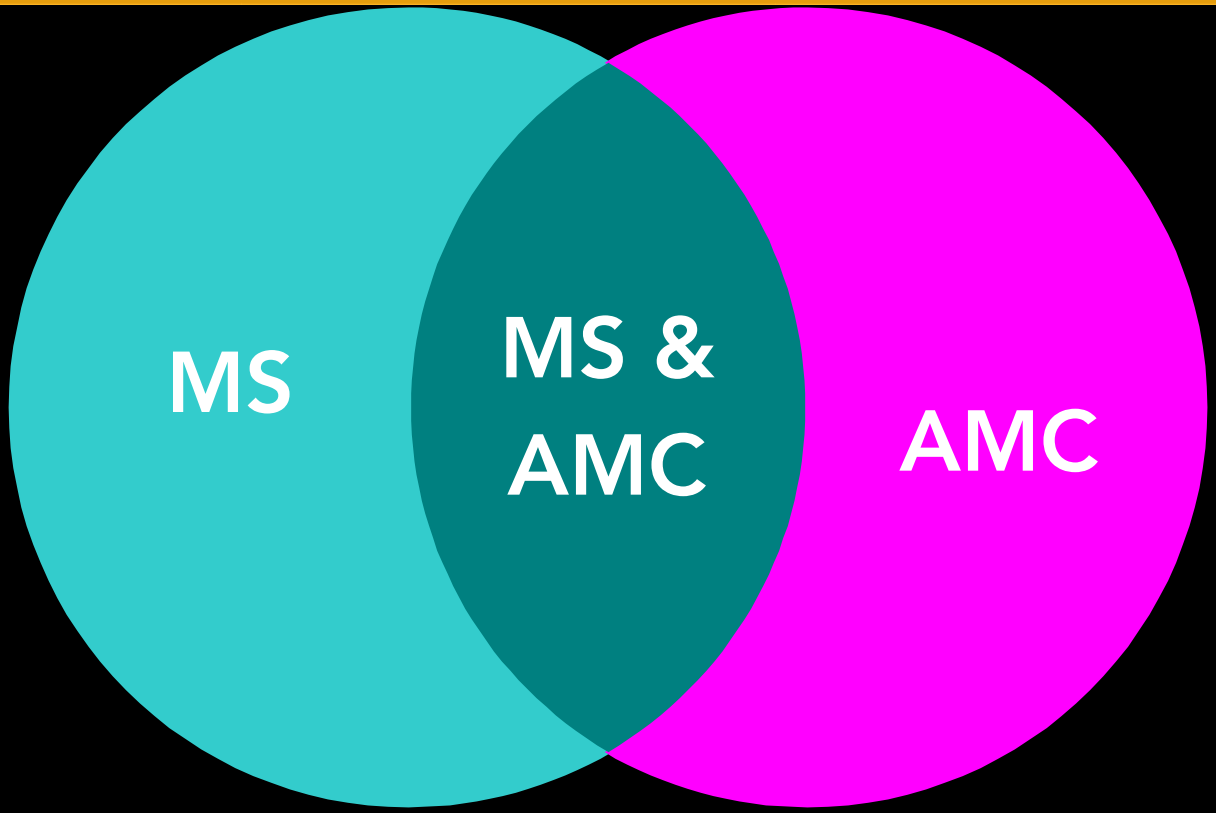
- **PRE-SCREEN: Finger tip to floor - Isometric Core Stability/ McKenzie**
- **Wall Angel- Bug off wall; T4 extension mobility, Scapula-Thoracic**
- **OH or Deep Squat - 3-4 month position/Hip Hinge/Happy Baby/Planks**
- **1 leg Balance/Squat - Oblique Bridge/Sit - 7.5 months, 1LDL, Frontal Plane**
- **1 Leg Bridge - 1LDL, Hip Airplane, Posterior Chain, Anti-Rotation**
- **Respiration/IAP - 3-4 month position (high & low threshold)**

PS2AD-CORE



- From inside out
  - "core stability for distal mobility
- PS2AD-Extremities
  - From outside in
- Key link can be anything

CLINICAL AUDIT PROCESS



ASSESSMENT BASED CARE

MECHANICAL SENSITIVITY - MS (O - PAIN)
AMC - ABNORMAL MOTOR CONTROL (1 - PAINLESS DYSFUNCTION)

ASSESSMENT BASED CARE (ABC)

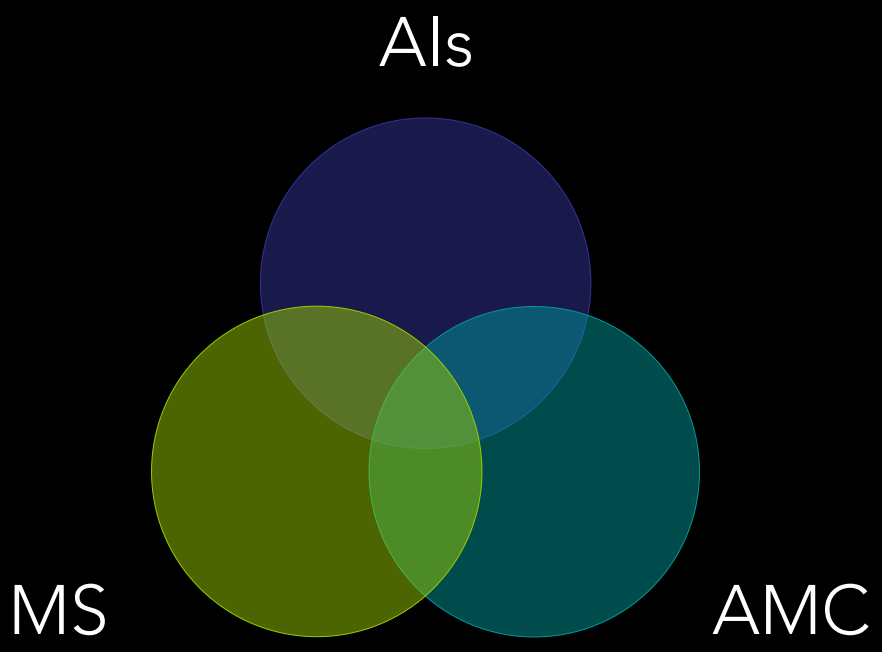
A) **History:** Activity Intolerances (AI) -

- Pain Triggers
- Social Participation Goals

B) **Exam:** Functional Capacity

- Mechanical Sensitivity (MS) (0)
- Abnormal Motor Control (AMC) (1)

C) **Prescription:** Functional Training Range



A) History of Activity Intolerances & Goals

- “the goal of care should shift from relief of symptoms to removal of activity intolerances related to symptoms.”
- Pain triggers

AHCPR - Agency for Health Care Policy & Research. Bethesda, Maryland - USA

B) Exam: Functional Capacity

- Pain - MS (0)
- Dysfunction - AMC (1)
- Tests:
  - START w/ Orthopedic Assessment of MS
    - ROM of area of pain (pain baseline!)
    - Relevant Orthopedic tests (pain baseline!)
  - If pain not severe then, Functional Screening Exam
    - Mag 7 or Gray Cook FMS
    - plus relevant functional tests

BRUCE LEE

A good teacher can never be fixed in a routine. Each moment requires a sensitive mind that is constantly changing and constantly adapting. A teacher must never impose this student to fit his favorite pattern. A good teacher protects his pupils from his own influence. A teacher is never a giver of truth; he is a guide, a pointer to the truth that each student must find for himself. I am not teaching you anything. I just help you to explore yourself.

--Bruce Lee

Progressions & Regressions

- Stability >Strength>Power
- Load>Adaptation>Recovery
- Overtraining>Variability
- Foot: Transverse Arch - Propulsion
- Scapula: Serratus - Prehension

Don’t Train the Test