CHEK Points in Shoulder Training
Session 224
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Basic Anatomy
Osseous Anatomy
- Functional unit of the shoulder
- Four primary joints
- Disc in the SC joint
- Labrum – increases joint surface by approximately 50%

Capsular Anatomy
- Provides passive stability
- Maintains a negative pressure in the joint
- Contains synovial membrane
- Relatively weak anteriorly

Ligamentous Anatomy

Muscular Anatomy

Neurology
- Cervical Plexus innervates:
  - Upper Trapezius
  - SCM
  - Omohyoid
  - Levator Scapula (C4/5)
  - Rhomboid (C4)
- Brachial Plexus innervates remaining shoulder musculature

Comparative Anatomy - Hip vs. Shoulder
- Each extremely mobile - ball & socket.
- Each bony socket is relatively rigid and intimate with stable structures.
- Both shoulder girdle and pelvic girdle serve as foundations for more flexible spinal segments.
- Each flexible spinal segment must stabilize and anteriorly displace load.
- 72% injury correlation within 5 years!

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Crawling
Reptilian crawling

Mammalian crawling
The GHJ becomes more stable when:
- In the mammalian position.
- Stabilized by gravity and body weight.
- Used in a close chain environment.

Posterior acetabulum - Adductor facilitation may be related to remnant use as more primary muscles in the mammalian crawl movement pattern.

Developmental Deficiency
- Underdeveloped in mammalian crawl phase
- Poor posture, muscle imbalances, chronic pain syndromes in adolescents and adults
Culprit - jolly jumpers and walkers

Shoulder complex is dependent upon functional stability of the whole kinetic chain. Shoulder/arm dysfunction = common manifestation of instability in:
- Lower extremity
- Pelvic girdle
- Torso
- Neck

Survival Objectives
The shoulder is vital for survival in a primitive environment:
- Precision manufacture of tools and weapons.
- Support forprehension.
- Coordinated force from the ground up in order to throw.
- Functional pulling – the shoulder is intimate with the back and the contra-lateral hip.
- Vital for transport and carrying.

Smart Spring of Margaria – shoulder / arm complex works synergistically with the torso and lower extremity to store energy.

Considerations for Resistance Training
Poor training technique -> shoulder injury.
  - Anterior capsule is most vulnerable.
Impingement syndrome -> pain and frequently precipitates shoulder injury.
Preventing Impingement
- Low row modifications
- Upright row modifications
- Lateral shoulder dumbbell raises
- Shoulder presses

Unnecessary trauma to SC and AC -> chronic pain.
Commonly related to faulty timing - ST/GH joints; scapulohumeral rhythm.

Lat. Pull Down Considerations
- Poor technique -> excessive strain on subscapularis.
  → Keep forearms vertical, in line with the cable.
  → Natural depth of pull.

Bench Press Considerations
- Scapulothoracic rhythm disruption
- Full Range of motion? – determine your own ROM. May need to use a ROM limiter e.g. rolled up towel
- Systemic flexibility index – Ref. Rocobado
- Repetitive loading may -> laxity
- Restoring shoulder stability: Limited ROM + High resistance training to tighten
- Swiss ball bench press
  → Provides greater scapula ROM + Provides natural ROM limiter
  → Increases core and lower extremity integration

Dip Considerations

Shrug Considerations

Wrist Wrap Concerns
- Reduce irradiation (movement) from distal to proximal due to reduced grip demands.
- Extension of set beyond the natural ability to stabilize.
- Insufficient irradiation during the dead lift may allow subclavicular compression and traction of the brachial plexus.
- Positive Sulcus test may result from multidirectional instability.

Pattern Overload
- The body is designed for 3D freedom of movement – protects from repeated trauma to same tissues.
- Machines – loss of form does not prevent dysfunction.

Flexibility - Muscle Balance - Stability ➔ Functional Strength ➔ Functional Power

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Flexibility and Muscle Balance

- Lengthen short tonic muscles: Balance nervous system and joint structures
- Joints must be mobilized and stabilized as needed

Stability Training

- Fitter exercises
- Tornado ball - Power ball exercises
- Cable / Dumbbell exercises

Strength Training

- Force is commonly generated from the ground up
- The shoulder mostly summates forces
- Isolation training – limited value in functional environment.
- Functional exercises

Power Training

- Integrate upper extremity with stronger legs and core
- Medicine ball and Tornado ball

CONCLUSION

Inner unit isolation / activation ➔ Inner unit / outer unit integration ➔
Integrated strength ➔ Sports specific

1. The shoulder / arm complex is extremely integrated with the rest of the body
2. Isolation training has very finite value in rehabilitation or functional training for the arm/shoulder complex
3. Always consider the “Survival Totem Pole” when assessing shoulder dysfunction

REFERENCES


For a complete list of references, please e-mail the C.H.E.K Institute.

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