ISOMETRIC NECK EXERCISES: PREVENTION AND REHAB FOR CONCUSSIONS

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Can Concussions Be Prevented?

NO!!!!

Concussions are a complex, multifactorial issue so the Realistic goal for now is to reduce incidence and severity

CONCUSSION PREVENTION

• HELMETS
• HEADBANDS
• MOUTHGUARDS
• RULE CHANGES
• LAWS
• EDUCATION
• NECK STRENGTHENING
HELMETS AND HEADBANDS

- No good evidence
- Biomechanical studies show reduction of impact forces but not a reduction in concussions
- Purpose to prevent skull fractures, trauma to face
- Need to fit properly and be in good condition

MOUTHGUARDS

- No good evidence that mouth guards prevent concussion
- Need to wear to prevent dental and orofacial trauma

RULE CHANGES

- Rule enforcement by officials and league
- Discussion of decreased days of contact in football
- NFL changing their rules
- i.e. Soccer at least 50% upper extremity to head trauma – ban heading especially in youth soccer??
LAWSUITS
- NFL vs. Players
- Texas High School Marble Falls coach
- Maine Hockey player in NCAA lawsuit
- Kansas City school administrators and coaches settle $3 million dollar for letting player play with concussion etc etc

LAWS
NATASHA’S LAW
TEXAS
ZACK LYSTEDT LAW
WASHINGTON STATE
44 States have laws

EDUCATION
- Athletes, Physicians, Athletic Trainers, Coaches, Parents, Educators, Administrators, other Health Care Providers
- Have a concussion protocol in place
- Risk Compensation
- Behavior modification
- Fair Play
NECK STRENGTHENING

- Many suggest important to help prevent concussions (Cantu, Collins, etc.)
- Conley, Viaro, Pellman, Hyne, Whiting, Tierney, Pintar, Matsumoto are a few names of researchers looking at neck strength and biomechanics in prevention of concussion and have published many articles on the subject
- Great deal of theoretical evidence supporting the thought that increased neck musculature can possibly decrease the risk of concussion

NECK STRENGTHENING

- CANTU – girth and neck size not protective
- Cidzik – Memphis – 2012 Neck strengthening and conditioning program has reduced their concussion rate by 50% 2011-2012
- Currently no good studies showing prevention

NECK MUSCULATURE

- Levator scapulae
- Longissimus capitis
- Longissimus cervicis
- Semispinalis capitis
- Semispinalis cervicis
- Trapezius
- Sternocleidomastoid
- Multifidi
NECK MUSCLE ANATOMY

NECK STRENGTHENING

• ISOMETRIC VS. ISOTONIC
• MEMPHIS – CIDZIK
• MICHIGAN – GITTELSO
• WHICH IS BEST?
• FACTORS – Age, Gender, Sport Specific, Compliance, Position Specific, Off season vs. In season programs

NECK EXERCISES

Shoulder shrugs
Upright rows
4 way resistance – 2 hand – front back side
Push resistance
Towel resistance
CONCLUSIONS

• WEAR APPROPRIATE PROTECTIVE GEAR THAT FITS PROPERLY AND IS WELL MAINTAINED AND CONDITIONED

• MOUTH GUARDS ARE TO BE WORN

• AVOID POINT OF HEAD CONTACT – LEAD WITH SHOULDER NOT HEAD

CONCLUSIONS

• SINCE THERE ARE NO VALID STUDIES WHICH PROVE THAT NECK STRENGTHENING EXERCISES ACTUALLY PREVENT CONCUSSIONS, WE NEED TO BE CONSERVATIVE IN HOW THE PROGRAMS ARE DESIGNED AND EXECUTED
CONCLUSIONS

• NECK STRENGTHENING EXERCISES MAKE SENSE
• EDUCATION
• FOLLOW RULES AND FAIR PLAY
• SCHOOL HAS APPROPRIATE CONCUSSION POLICY

CONCLUSIONS

• ATHLETES TO NOT PLAY IF SYMPTOMATIC
• ENCOURAGE ATHLETE TO REPORT SYMPTOMS AND TEAM MATES TO REPORT IF THEY CONSIDER AN ATHLETE IMPAIRED
• APPROPRIATE EVALUATION AND TREATMENT FROM CONCUSSION TRAINED ATHLETIC TRAINER AND PHYSICIAN

THANK YOU!!!!