
FIT CHICKS ACADEMY
FIT CHICKS
CERTIFIED
FITNESS &
NUTRITION
EXPERT
PROGRAM
FITNESS SESSION 4:
Muscular Concepts

What we are going to cover

DIFFERENT TYPES OF MUSCLES

MUSCULAR ANATOMY

- Muscle Function and Structure
- Special characteristics of muscle tissue
- Muscle contraction and muscle mechanics

THE NERVOUS SYSTEM AND ITS CONNECTION TO STRENGTH

MAJOR MUSCLE GROUPS

- Action and Attachment points
- How to train each Major Muscle Group!

THE FITT PRINCIPLE FOR STRENGTH TRAINING

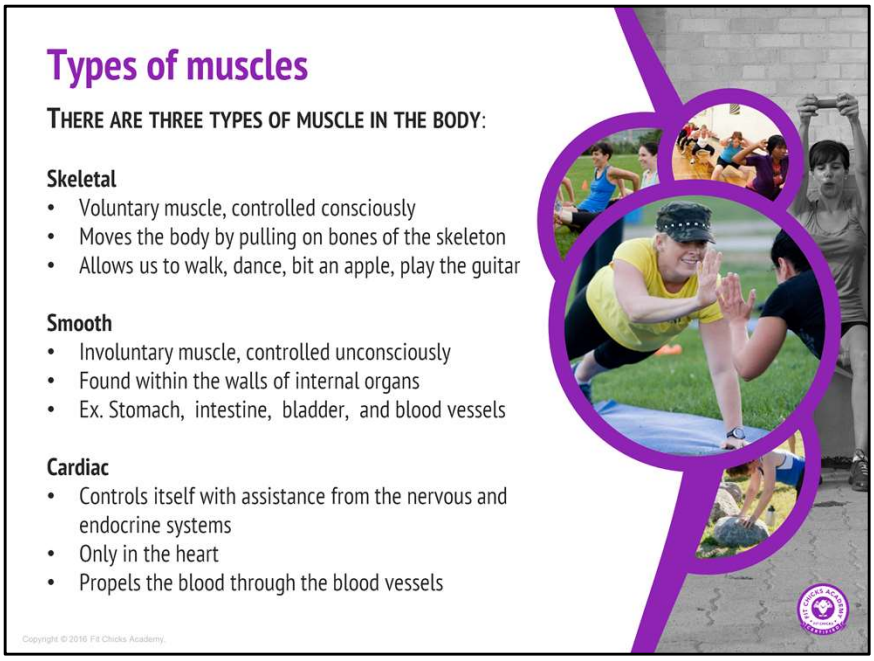
- Benefits of resistance training
- Recommended strength training guidelines


"We are what we repeatedly do; excellence,
then, is not an act but a habit."
~Aristotle

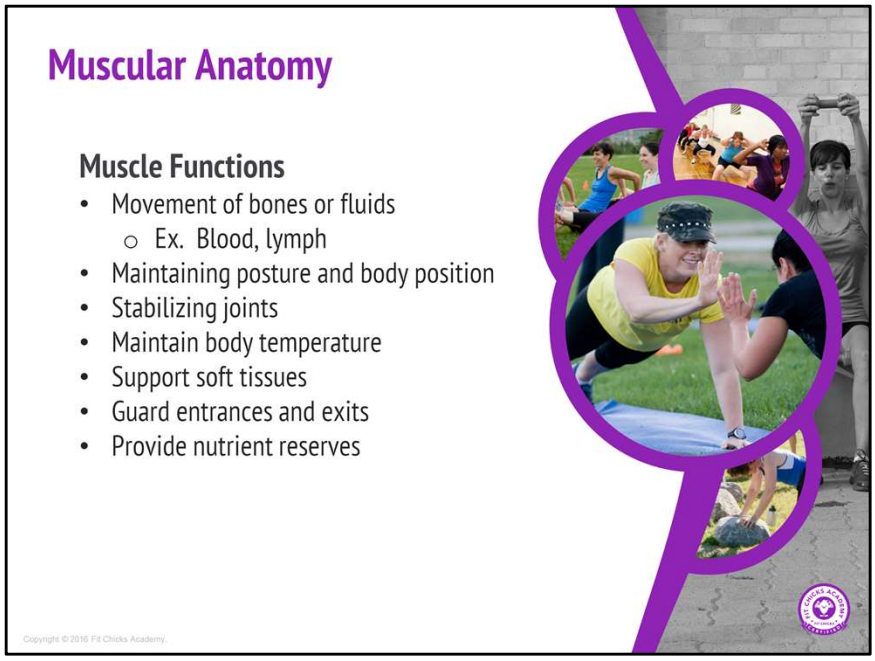
What you need before we start

1. Water
2. Put your finger tips together
3. Take 3 deep breaths

Muscles!

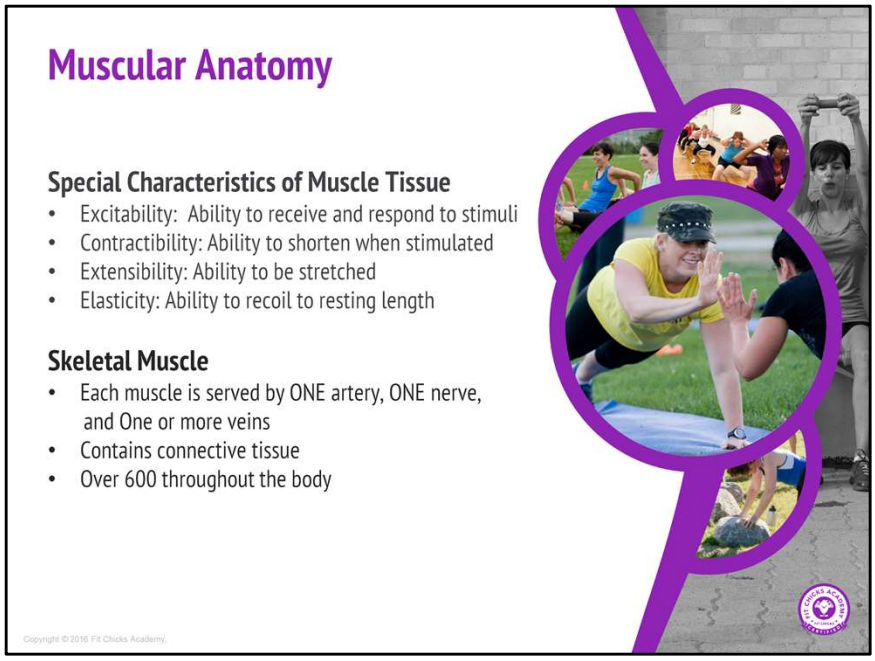


Martini, F.H., Ober, W.C., Bartholomew, E.F., Nath, J.l. (2013). Visual Essentials of Anatomy and Physiology. 205



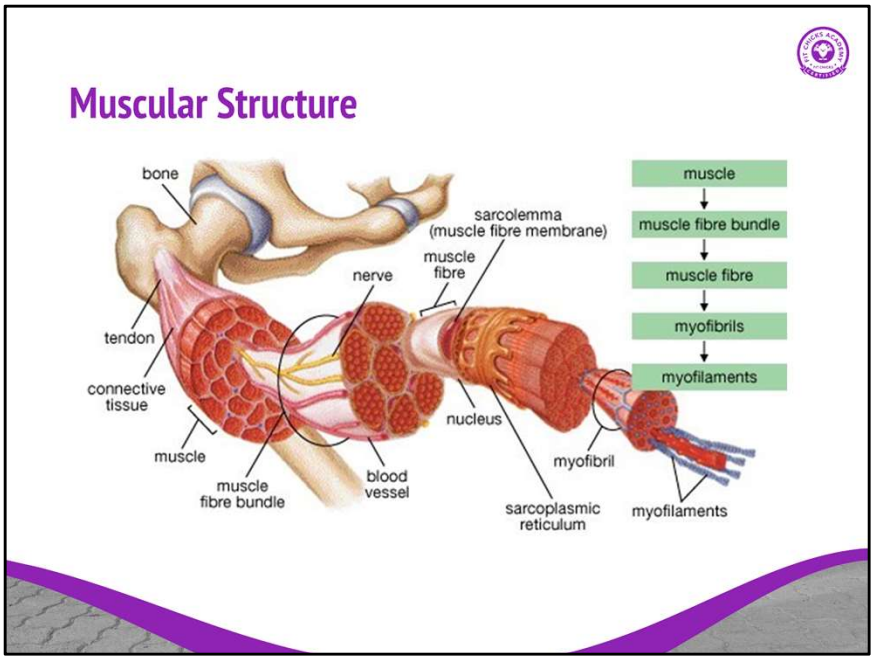
Maintain body temp - Heat generation – shivering, fidgeting, muscle contraction require energy, when energy is used, some gets converted to heat
Support soft tissue – abdominal cavity wall, pelvic floor support visceral organs, held protect from injury
Guard entrances and exits – encircle opening of the digestive and urinary tracts – provide voluntary control – swallowing, defecating, urinating
Nutrient reserves – body can break down protein in the muscles to be used as fuel

Martini, F.H., Ober, W.C., Bartholomew, E.F., Nath, J.l. (2013). Visual Essentials of Anatomy and Physiology. 205



A skeletal muscle contains:

- Connective tissues that harness the force of contraction
- Blood vessels that nourish,
- Nerves that control the contraction



https://notinmycolour.com/flexin-part-2-muscle-anatomy/

Myo = muscle

A muscle is made up of muscle fiber bundles
A muscle fiber bundle (also knows as a muscle fascicle) is made up of muscle fibers
A muscle fiber is made up of myofibrils
Myofibrils are made up of myofilaments (actin and myosin)

A single muscle can contain thousands of muscle fibers

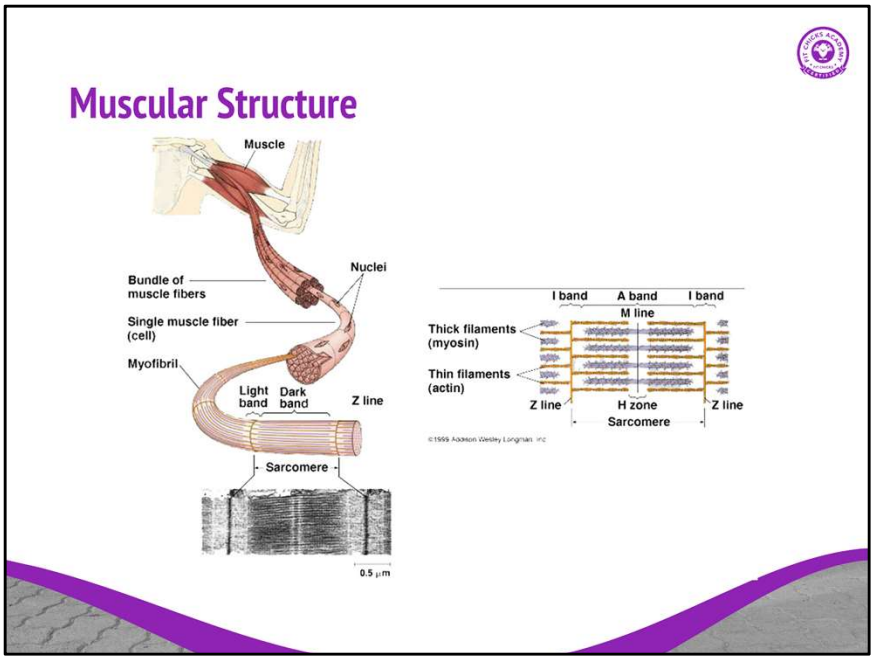
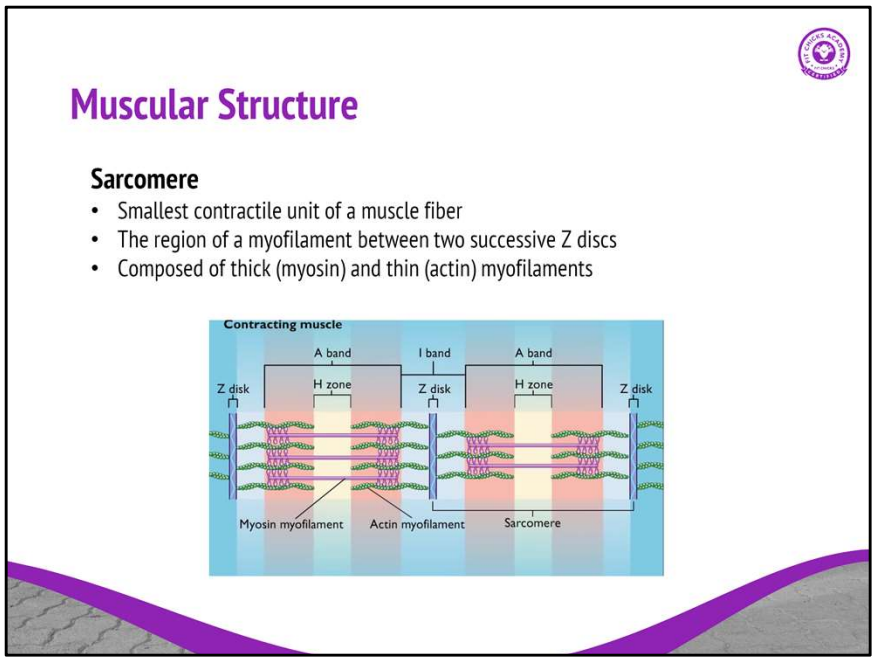


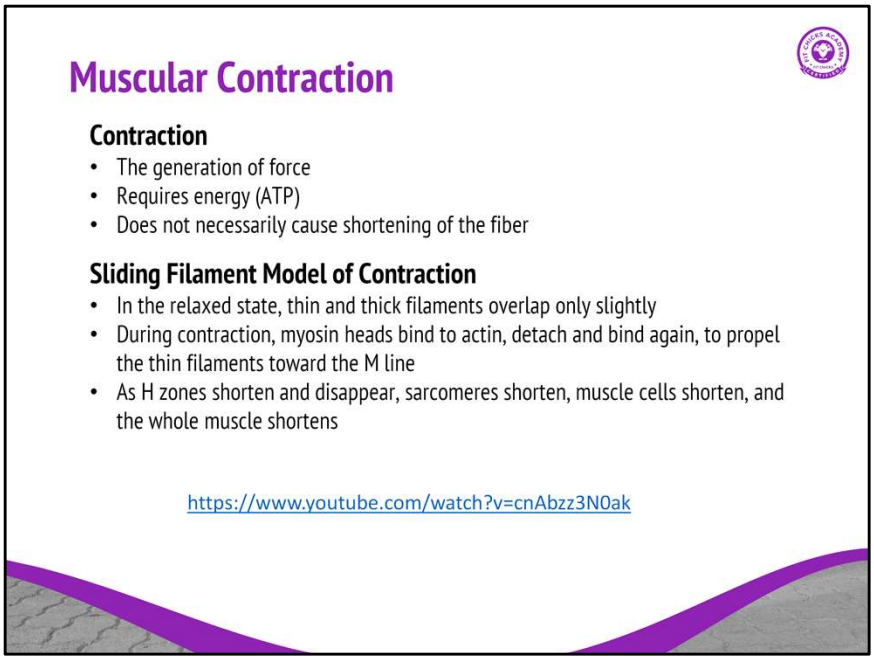
Diagram of the muscle further broken down – here you can see the contractile unit of a muscle – the sarcomere

Wilmore, J.H., Costill, D.L., Kenney, W.L. (2008). Structure and function of exercising muscle. Physiology of Sport and Exercise Fourth Edition. USA Human Kinetics

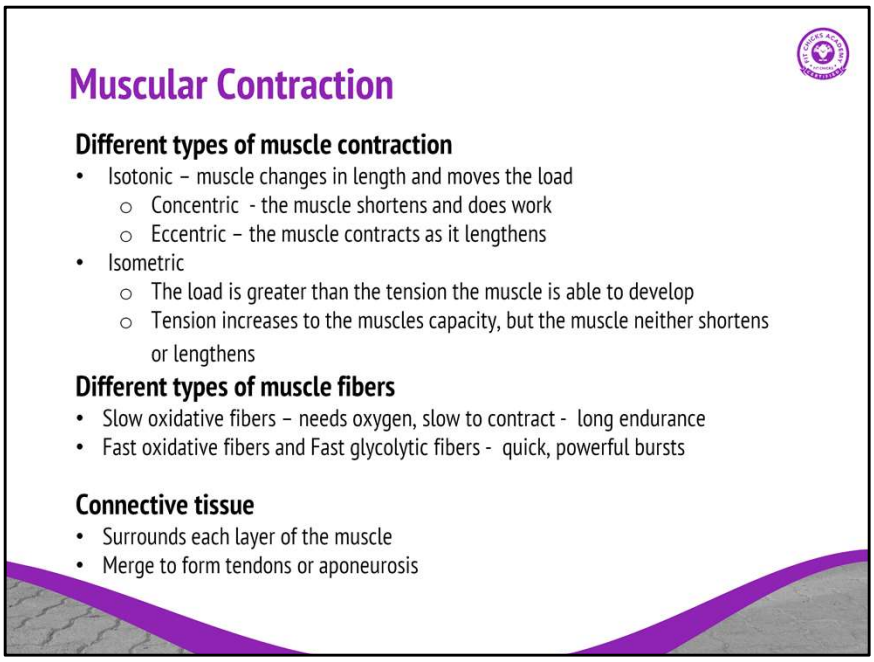


Here's a short video explaining what happens in a sarcomere during a muscle contraction
https://www.youtube.com/watch?v=onxb-28ZjVg

The thick filaments (myosin) run the entire length of the A band
The thin filaments (actin) run the length of the I band and partway into the A band
Z disk anchors the thin filaments and connects the myofibrils to one another
H zone – the light mid region where filaments do not overlap
M line (see previous slide) – holds adjacent thick filaments together



Martini, F.H., Ober, W.C., Bartholomew, E.F., Nath, J.l. (2013). Visual Essentials of Anatomy and Physiology. 212



Eccentric contractions (sometimes called 'negatives') are when the muscle contracts while lengthening at the same time.
(ex. if you are lowering a weight after a bicep curl very slowly, your bicep muscle is contracting to prevent the weight from falling quickly but lengthening as well – this is great way to build strength! Ie. Negative chin-ups)

Video on muscle contractions:
https://www.youtube.com/watch?v=PHTUlwCnCe8

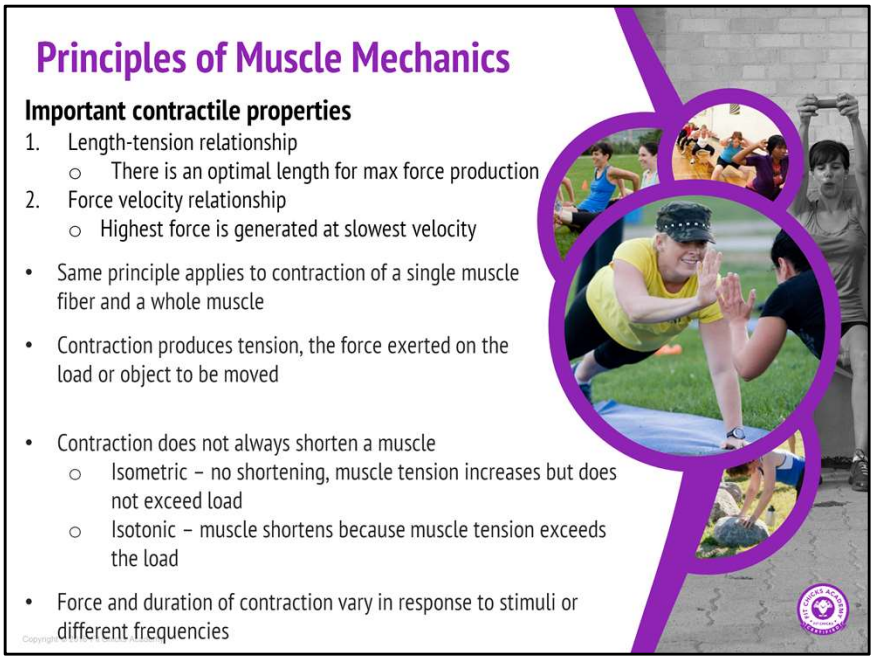
Normal muscle tone will always have a few heads attached to always be ready for contraction
A "tight" muscle or a knot is when more myosin heads are attached to actin than in normal tone.

Muscle fiber types
– fast - activities like HIIT, sprinting, weight lifting – training muscular strength (they need to work quickly)
- Slow - endurance type activities like running, cycling – training muscular endurance

(they need to work slowly for a longer period of time)

Tendon – bundle of connective tissue attaching muscle to bone
Aponeurosis – a broad sheet of connective tissue that attaches over a broad area, may involve more than one bone (ex. Lumbar aponeurosis)

Martini, F.H., Ober, W.C., Bartholomew, E.F., Nath, J.l. (2013). Visual Essentials of Anatomy and Physiology. 221



Length-tension – there is an optimal length for maximum force production (force production is critically influenced by limb position)

- Try to do a push-up starting with arms straight then try to do one starting at the bottom position of the push-up.

Force-velocity – highest force is generated at slowest velocity (can't move heavy objects very quickly)

- If you are going to pick up a piano, you will do it slow and controlled (unless you are superwoman!)

Principles of Muscle Mechanics

Force of a muscle contraction is affected by:

Number of muscle fibers stimulated
- Recruitment

Relative size of the fibers
- Hypertrophy increase strength

Frequency of stimulation
- Increased frequency allows time for more effective transfer of tension to non-contractile components

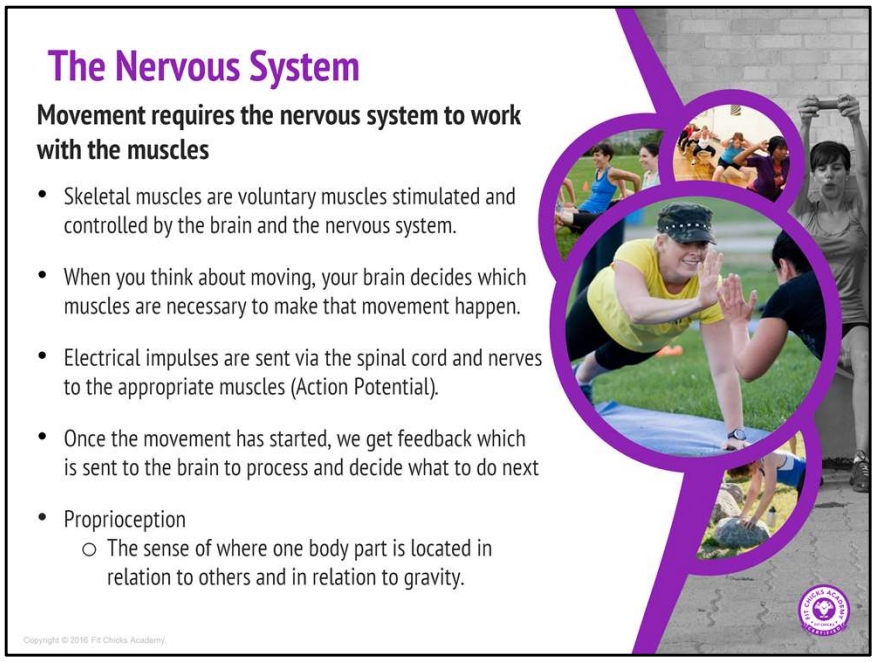
Length- tension relationship
- Muscles contract most strongly when muscle fibers are 80 – 120% of their normal resting length

Muscle Fatigue

Muscle Fatigue

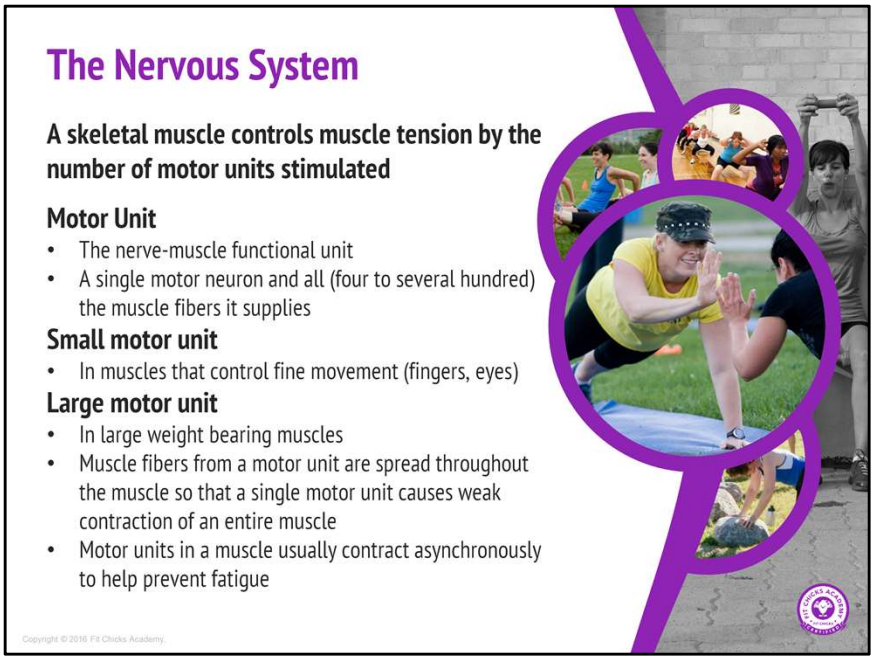
- Physiological inability to contract
- Occurs when
  - Ion balances interfere with nervous system stimulus (Na+, K+, Ca+)
  - Prolonged exercise can damage the myofilaments and surrounding structures
- Total lack of ATP causes contractures (continuous contractions)
  - Occurs rarely, during states of continuous contraction

Contractures – see this a lot in the elderly, body always favors flexion (reflex).



http://www.medicinenet.com/how_muscles_work_and_respond_to_resistance_exercise-page3/views.htm

- Skeletal muscles are stimulated by somatic motor neurons
- The impulses travel from the central nervous system along the motor nerve to skeletal muscle
- Each axon (part of a nerve) forms several branches as it enters a muscle
- Each axon terminal (the end of a nerve) forms a neuromuscular junction with a single muscle fiber
- The neuromuscular junction sits midway along the length of a muscle fiber
- The axon terminal and muscle fiber are separated by a gel-filled space called the synaptic cleft
- Synaptic vesicles contain the neurotransmitter, acetylcholine (Ach) – which is required to contract the muscle
- The nerve impulse arrives at the axon terminal, Ach is released, this causes an action potential which leads to the release of Calcium and causes the muscle to contract
- https://www.youtube.com/watch?v=N4TmS9bAB8w



http://www.medicinenet.com/how_muscles_work_and_respond_to_resistance_exercise-page3/views.htm

Martini, F.H., Ober, W.C., Bartholomew, E.F., Nath, J.l. (2013). Visual Essentials of Anatomy and Physiology. 220

Strength and Neural Recruitment

- To be strong, you need both muscle mass AND neurological patterning
- When you lift weights regularly, you create new patterns of communication between the brain, nerves, neuromuscular junction, and muscle fibers. Every time you do that movement, those neuro-connections get stronger.
- Your absolute strength does depend on your muscle mass but it also depends on your neurological ability to recruit more muscle fibers. You can lift more if you can recruit and fire 50,000 vs. 25,000 fibers.
- Muscle recruitment allows people to get so much stronger in the first few weeks of a new strength training program before increasing the mass of muscle.
- Motor neurons in the muscle and nervous system die as people get older but exercise can reverse that process.

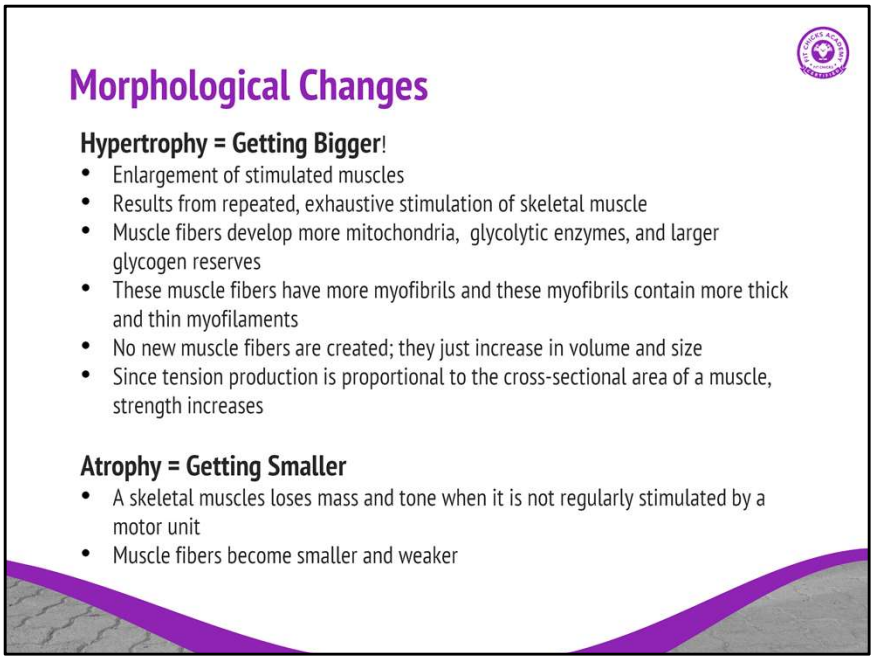
Strength and Neural Recruitment

Sitting around with tons of muscle you don't use would be a waste of energy for your body

When you start to demand work from your body, it will adapt by:

1. Changing how your nervous system recruits and activates the muscles (neurological changes)
2. Changing the muscles themselves (morphological changes)

If you don't use it, you lose it!

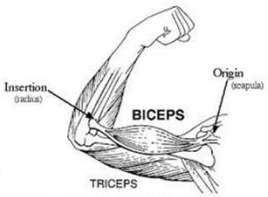


Hypertrophy is an increase in muscle fiber size – increase in size and amount of contractile proteins (actin and myosin)
The repeated, exhaustive stimulation of skeletal muscle results in small micro tears. When the body repairs these micro tears, muscle growth occurs.

Further detail in how a muscle increases in size/repairs itself:
https://www.unm.edu/~lkravitz/Article%20folder/hypertrophy.html

Muscle Attachments

- Muscles attach on each side of a joint and when the muscle contracts or shortens, the joint moves.
  - Ex The bicep muscle crosses the front part of the elbow. When you do a bicep curl, the muscle contracts, the elbow flexes and the weight is lifted.

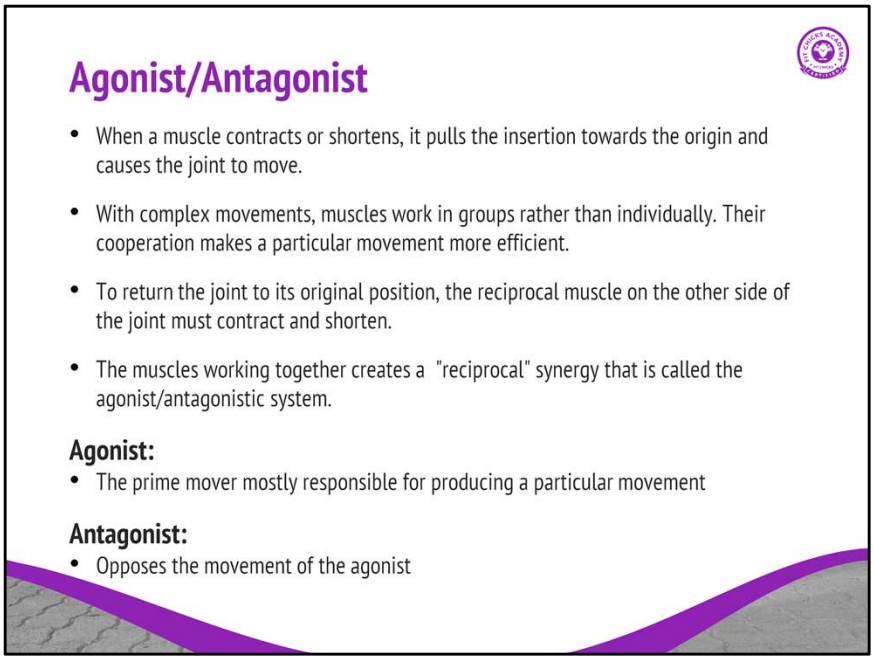


- In most cases one end of a muscle is fixed in position, and the other end moves during a contraction
- **Origin**
  - Where a muscle attaches to the bone closest to the center of the body
  - Where the fixed end is
- **Insertion**
  - Where a muscle attaches to bone farthest from the center of the body.
  - Where the movable end attaches to another structure
- **Action**
  - The specific movement a muscle makes when it contracts

Ex. The biceps origin is on the scapula and the humerus, and its insertion is on radius.

https://www.youtube.com/watch?v=8WE-bOH2loA

Martini, F.H., Ober, W.C., Bartholomew, E.F., Nath, J.l. (2013). Visual Essentials of Anatomy and Physiology. 228



Martini, F.H., Ober, W.C., Bartholomew, E.F., Nath, J.l. (2013). Visual Essentials of Anatomy and Physiology. 228

There are also synergist muscles that contract to help the larger agonist work efficiently. They synergists provide additional pull near the insertion or may stabilize the point of origin. Ex. The brachioradialis assists the biceps and helps stabilize the elbow joint.

Antagonistic Muscle Groups List


Biceps — Pairs with — Triceps 

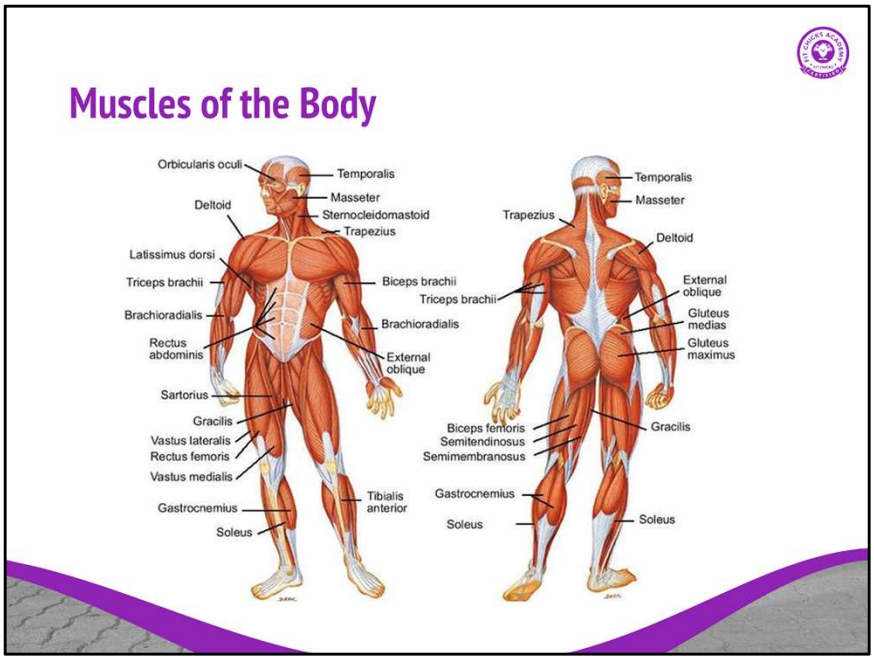

Back — Pairs with — Chest 


Abs — Pairs with — Lower back 


Shoulders — Pairs with — Chest / Back 


Quadriceps — Pairs with — Hamstring 


Tibialis anterior(shin) — Pairs with — Calf muscle 



http://actionreactionpt.com/balancing-muscle-groups/

These are all the major muscles of the body, this diagram does not label to muscles of the forearm, hand, deep lower leg or feet.

Muscles of the Arms

Upper arm

Anterior

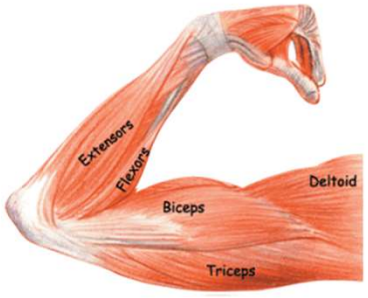
- Biceps Brachii
- Brachialis
- Brachioradialis

Posterior

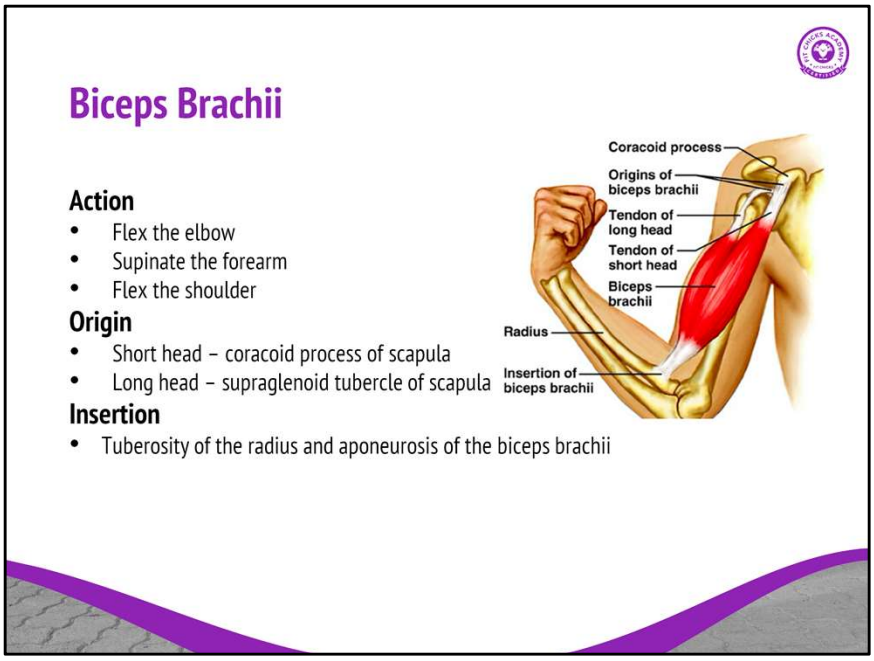
- Triceps brachii

Forearms

- Wrist flexors
- Wrist extensors



https://workouttrends.com/arm-muscles-and-workout

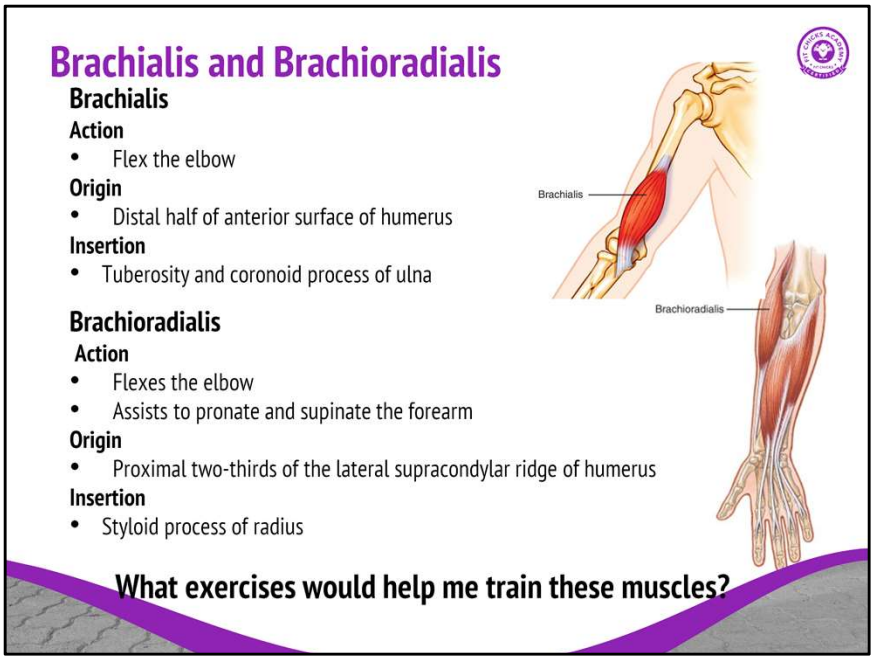


https://coreem.net/core/biceps-and-triceps-tendon-rupture/
Biel, Andrew (2010). Trail Guide to the Body. 95

Strength Training Anatomy:
Biceps Brachii, Brachialis?
Curls p. 6-15
Brachioradialis p. 9

O – Anterior scapula
I – proximal radius

When clients are doing curls you want to make sure their shoulders are properly stabilized. Always think about shoulders back and chest. You can also watch for your clients neck bobbing forward trying to compensate/counter the weight.



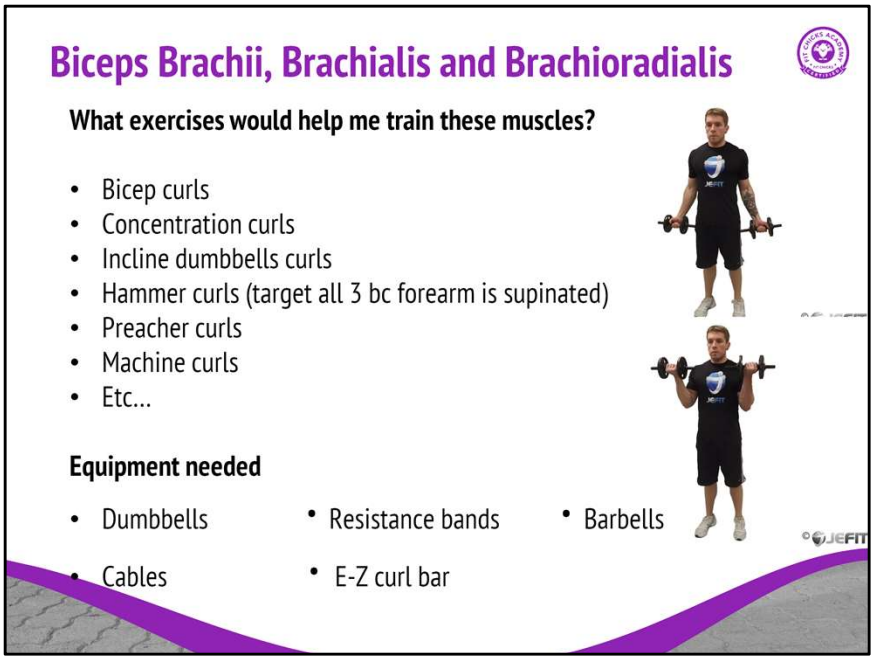
https://medical-dictionary.thefreedictionary.com/brachialis
https://medical-dictionary.thefreedictionary.com/brachioradialis
Biel, Andrew (2010). Trail Guide to the Body. 132-133

Brachialis – also known as baby bicep
I- proximal, medial ulna

Brachioradialis – also known as the drinking muscle

Strength Training Anatomy:
Curls p. 6-12
Brachioradialis p. 9
Brachialis p 6-12

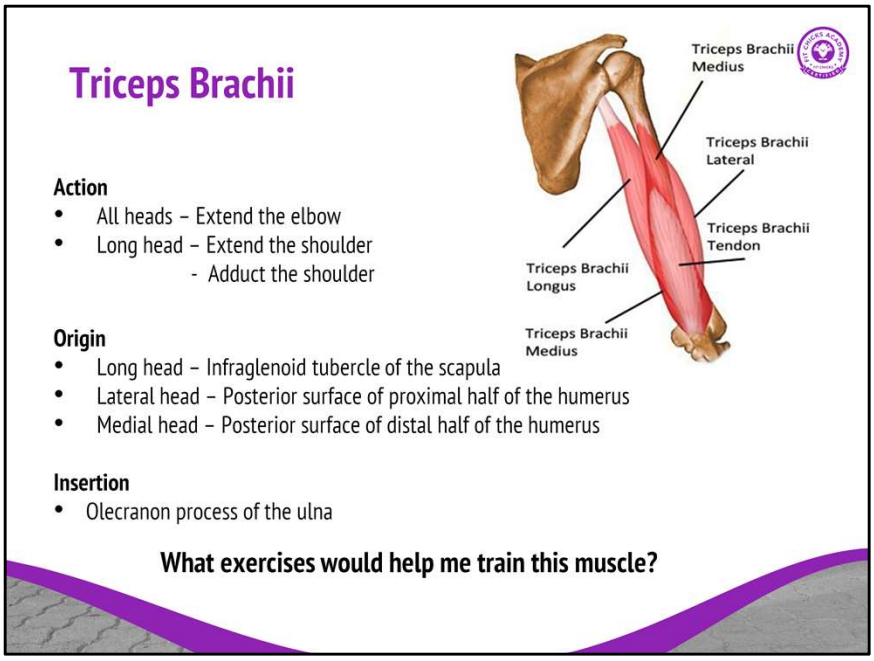
What exercise targets are three muscles at once? (pg 9)



https://www.jefit.com/exercises/100/Dumbbell-Bicep-Curl

Strength Training Anatomy:
Curls p. 6-12
Brachioradialis p. 9
Brachialis p 6-12

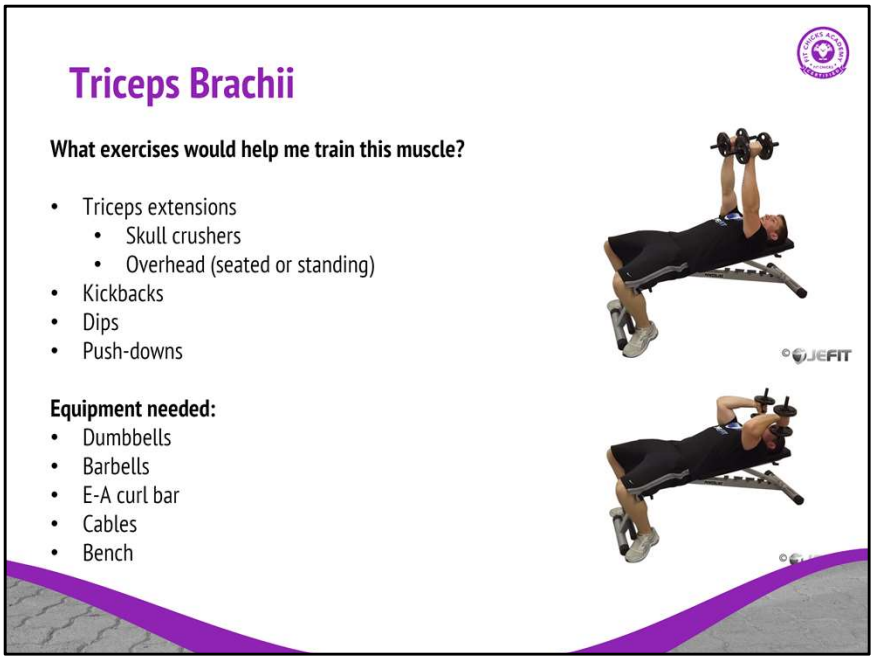
What exercise targets are three muscles at once? (pg 9)



http://build-muscle-101.com/tricep-exercises/
Biel, Andrew (2010). Trail Guide to the Body. 97

Which triceps exercise is better to hit all three heads of the muscle group, push downs or lying triceps extensions? – think about where the muscle attaches
- Lying triceps extensions bc you will be recruiting the long head as well

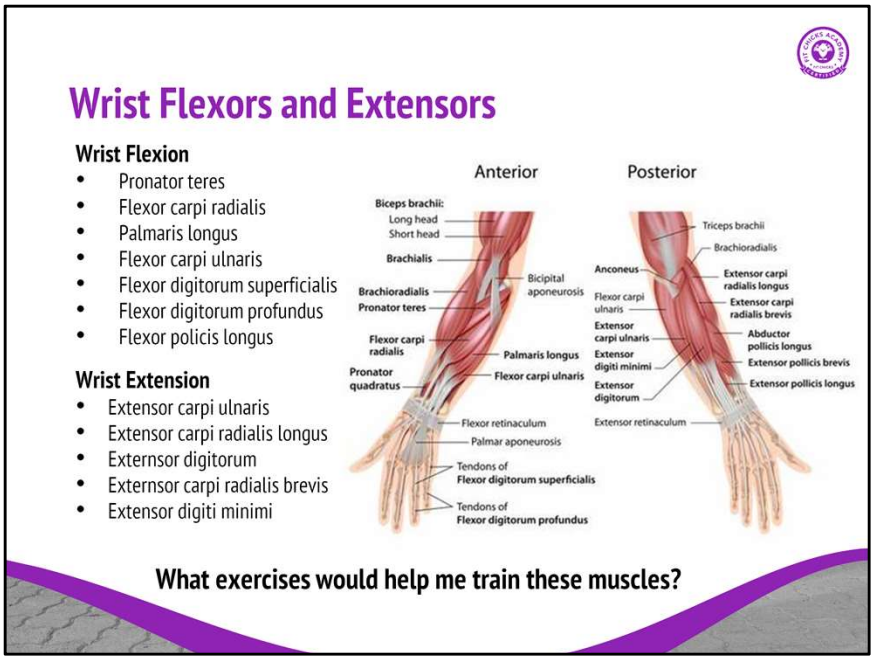
Strength Training Anatomy:
Triceps?
Extensions p. 24
Kickbacks p. 20
Dips p. 23
Push-downs p. 13



https://www.jefit.com/exercises/236/Dumbbell-Lying-Supine-Two-Arm-Triceps-Extension

Which triceps exercise is better to hit all three heads of the muscle group, push downs or lying triceps extensions? – think about where the muscle attaches
- Lying triceps extensions bc you will be recruiting the long head as well

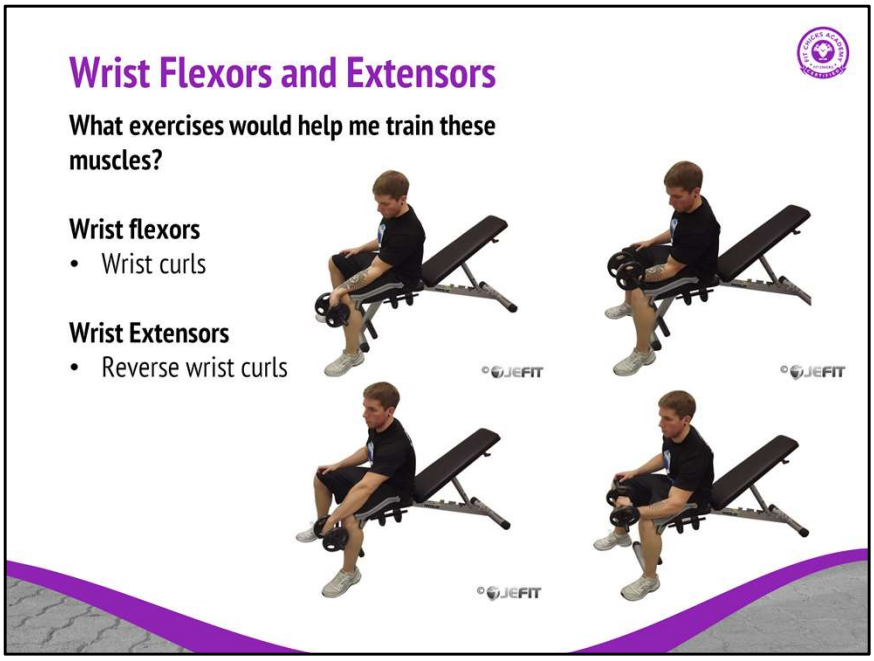
Strength Training Anatomy:
Triceps?
Extensions p. 24
Kickbacks p. 20
Dips p. 23
Push-downs p. 13



https://www.nielasher.com/blogs/video-blog/61769541-trigger-point-therapy-treating-the-wrist-flexor-muscles

Wrist Flexors?
- Most of the wrist flexors attach to the medial epicondyle and into the palm of the hand
- Wrist curls pg. 17

Wrist Extensors?
- Most wrist extensors attach to the lateral epicondyle and into the back of the hand
- Reverse wrist curls pg. 16



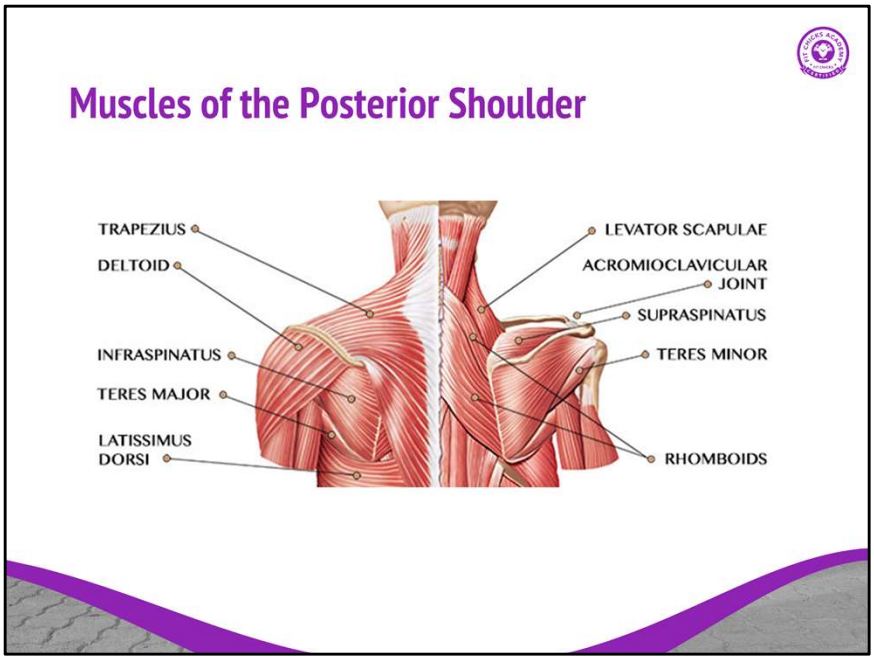
https://www.jefit.com/exercises/1081/Dumbbell-One-Arm-Seated-Wrist-Curl
https://www.jefit.com/exercises/1083/Dumbbell-One-Arm-Seated-Reverse-Wrist-Curl

Wrist Flexors?
- Most of the wrist flexors attach to the medial epicondyle and into the palm of the hand

- Wrist curls pg. 17

Wrist Extensors?
- Most wrist extensors attach to the lateral epicondyle and into the back of the hand

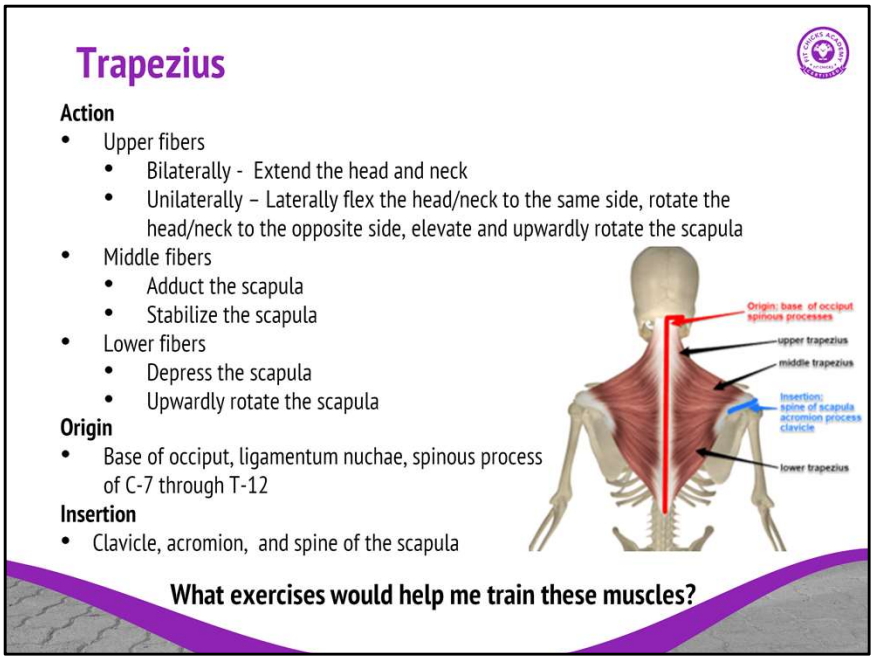
- Reverse wrist curls pg. 16



https://www.youtube.com/watch?v=D3GVKjeY1FM

Http://clickmypicture.com/shoulder-muscle-anatomy/shoulder-muscle-anatomy-shoulder-muscle-shoulder-muscles-how-to-improve-function-and-avoid/

https://hurnechiropractic.com/resources/posts/muscles/PecMajMin/



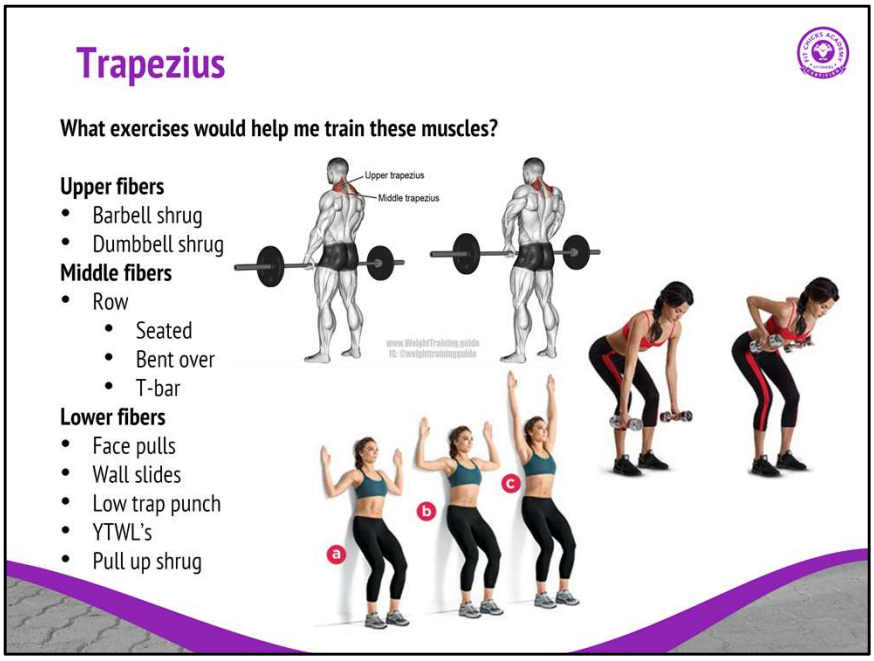
https://www.yoganatomy.com/trapezius-muscle-yoga-anatomy/
Biel, Andrew (2010). Trail Guide to the Body. 69

check pg 115-119 in Strength Training Anatomy:
Rows: 94-101
Lower:91, 86

Upper Trapezius?
Shrugs (p.115)

Mid Trapezius?
Rows (p. 98)

Lower Trapezius?
Chin ups (p. 86)
Low trap punch - https://www.bodiempowerment.com/advanced-posture-exercises/
YTWL's (y's specifically) - https://suzannekasparson.com/2016/08/17/shoulder-stability-exercises-ytwli-raise/
Wall slides/angles - https://www.womenshealthmag.com/fitness/a20699625/wall-slide/



https://www.skimble.com/exercises/11876-bent-over-row-to-fly-how-to-do-exercise
https://www.womenshealthmag.com/fitness/a20699625/wall-slide/
https://weighttraining.guide/exercises/barbell-shrug/

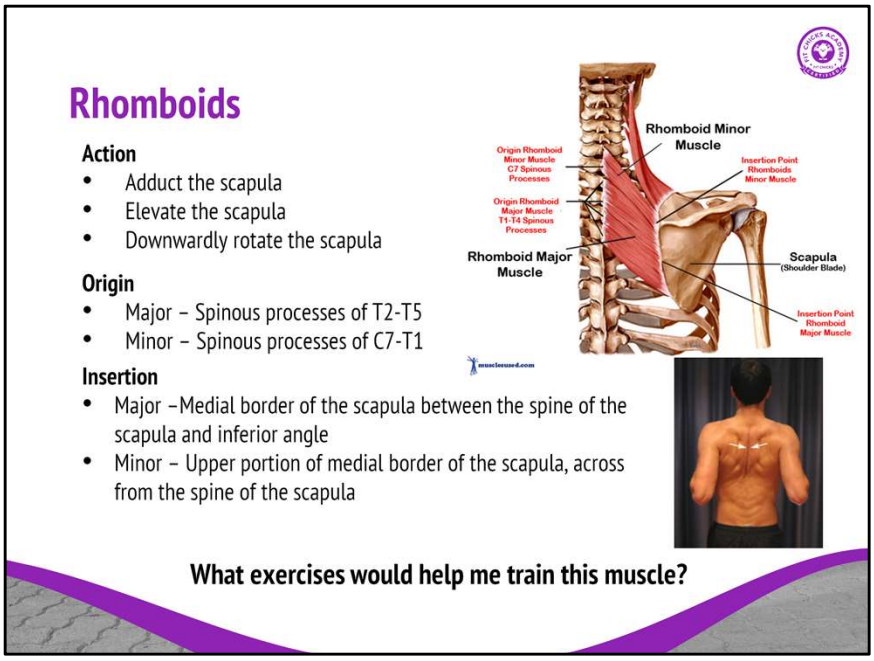
check pg 115-119 in Strength Training Anatomy:
Rows: 94-101
Lower:91, 86

Upper Trapezius?
Shrugs (p.115)

Mid Trapezius?
Rows (p. 98)

Lower Trapezius?
Chin ups (p. 86)
Low trap punch - https://www.bodiempowerment.com/advanced-posture-exercises/
YTWL's (y's specifically) - https://suzannekasparson.com/2016/08/17/shoulder-stability-exercises-ytwli-raise/

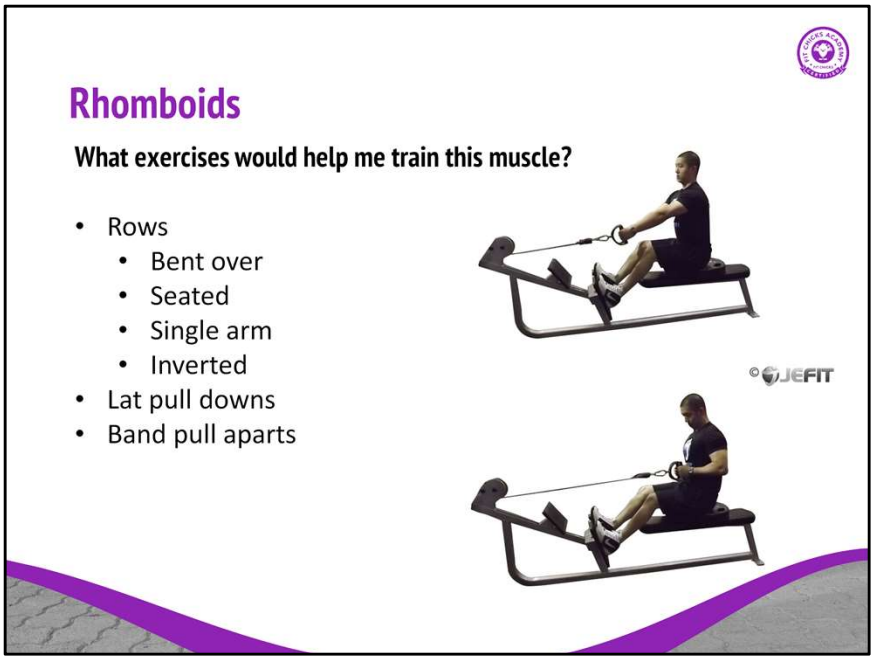
Wall slides/angles - https://www.womenshealthmag.com/fitness/a20699625/wall-slide/



Biel, Andrew (2010). Trail Guide to the Body. 82
http://www.musclesused.com/rhomboid/

Strength Training Anatomy:
p.94- 95, 97-101
Rows, Lat Pull Downs p. 91

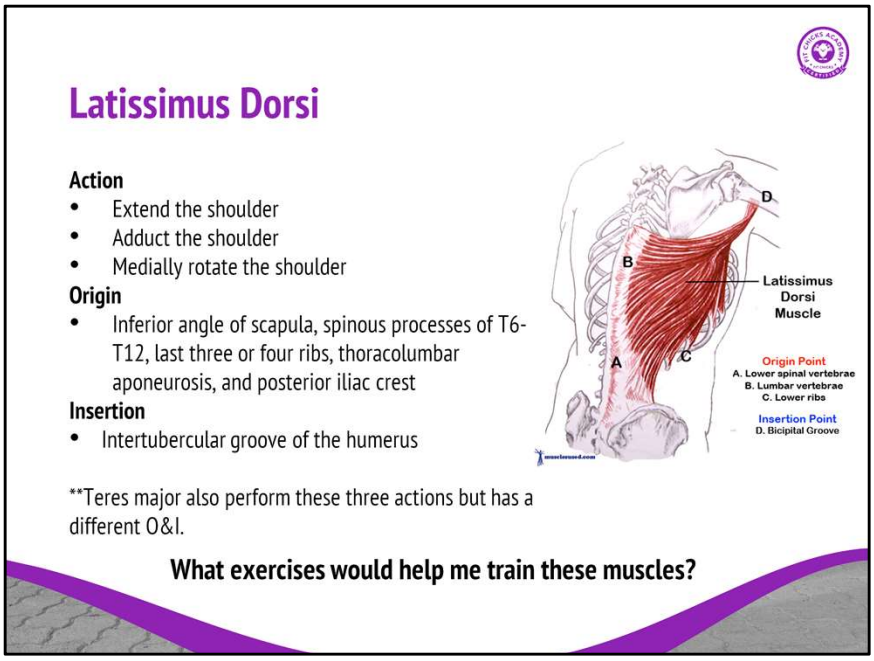
another good ex not in the book – band pull aparts (also develops posteriors delts)



Biel, Andrew (2010). Trail Guide to the Body. 82
http://www.musclesused.com/rhomboid/

Strength Training Anatomy:
p.94- 95, 97-101
Rows, Lat Pull Downs p. 91

another good ex not in the book – band pull aparts (also develops posteriors delts)

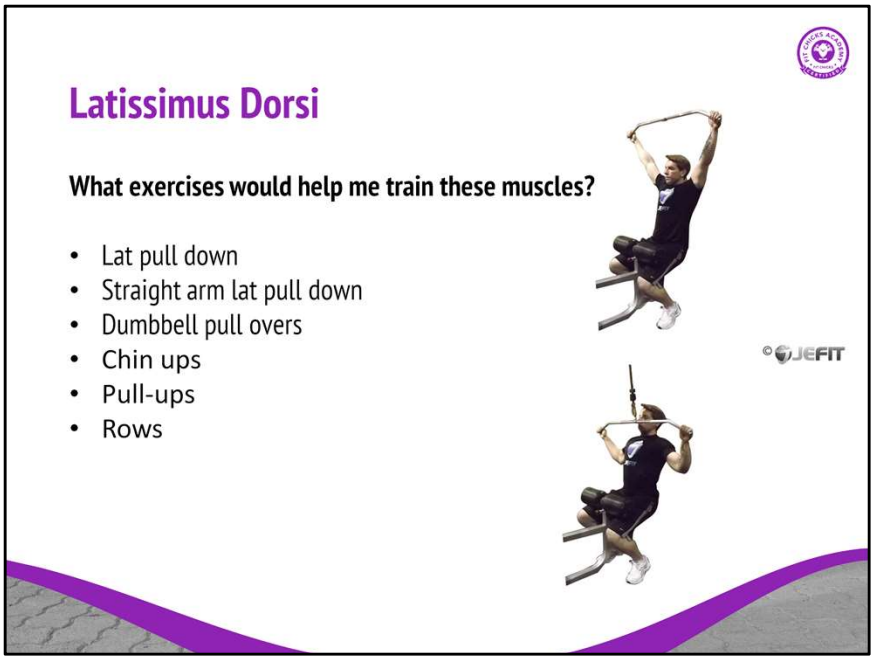


Biel, Andrew (2010). Trail Guide to the Body. 71
http://www.musclesused.com/latissimus-dorsi/

Strength Training Anatomy:
p. 86: chin ups.

what chin up variation should i do to develop the width of the back?

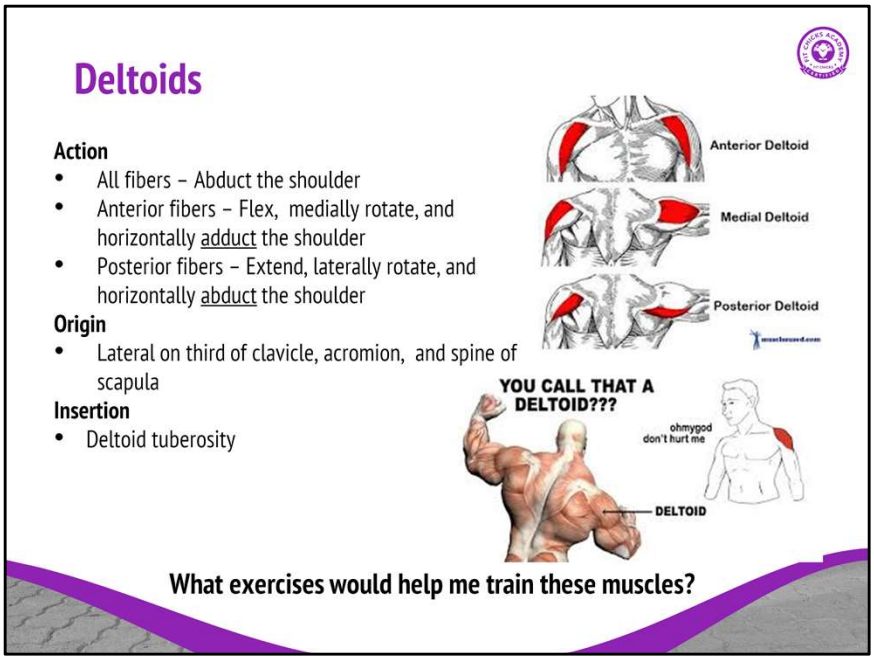
Latissimus Dorsi?
Lat Pull Downs p. 90
Rows p. 94



Strength Training Anatomy:
p. 86: chin ups.

what chin up variation should i do to develop the width of the back?

Latissimus Dorsi?
Lat Pull Downs p. 90
Rows p. 94



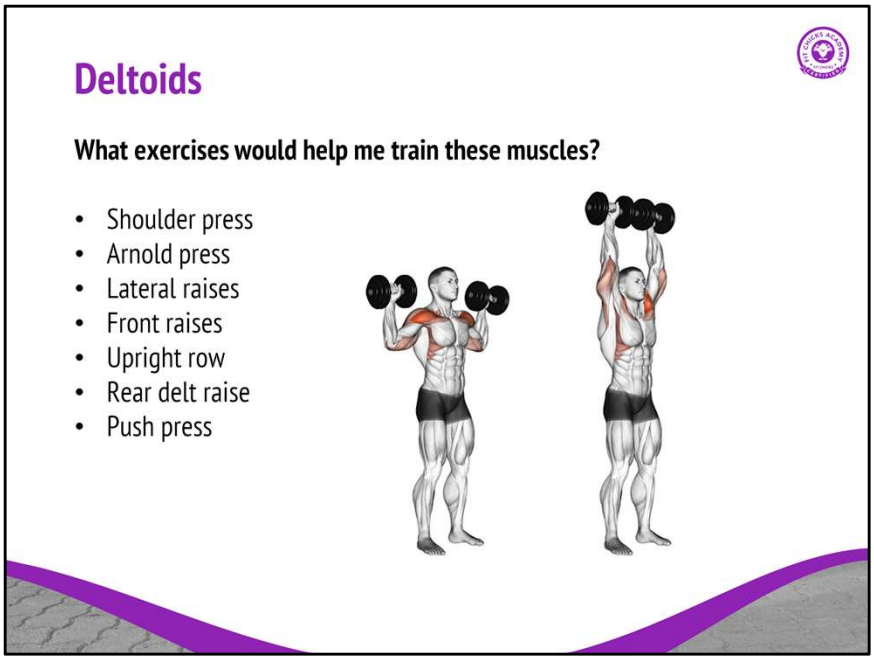
Biel, Andrew (2010). Trail Guide to the Body. 67

Strength Training anatomy:
p. 34 front press
p. 40 arnold press

question: what should you watch for when doing a standing overhead shoulder press? p. 34

what would be a better choice for a beginner; arnold press or dumbell press?

Deltoids:
Overhead Press p. 35
Arnold Press p. 40
Bent Over Lateral Raise p.41
Etc, etc!



http://beaufortpersonaltraining.com/beaufort-fitness-shoulder-press/

Strength Training anatomy:
p. 34 front press
p. 40 arnold press

question: what should you watch for when doing a standing overhead shoulder press? p. 34

what would be a better choice for a beginner; arnold press or dumbell press?

Deltoids:
Overhead Press p. 35
Arnold Press p. 40
Bent Over Lateral Raise p.41
Etc, etc!

Muscles of the Rotator cuff

Supraspinatus
Action
- Abduct the shoulder
- Stabilize the shoulder

Origin
- Supraspinous fossa of the scapula

Insertion
- Greater tubercle of the humerus

Subscapularis
Action
- Medially rotate the shoulder
- Stabilize the head of the humerus in glenoid cavity

Origin
- Subscapular fossa of the scapula

Insertion
- Lesser tubercle of the humerus

Biel, Andrew (2010). Trail Guide to the Body. 75

Strength Training anatomy:
p. 37 for injuries:

Rotator Cuff:
Cable or band rotations p. 50

Muscles of the Rotator cuff

Infraspinatus and Teres Minor

Action

- Laterally rotate the shoulder
- Adduct the shoulder
- Stabilize the head of the humerus in glenoid cavity

Origin

- Infraspinatus – Infraspinous fossa of scapula
- Teres Minor – Upper two thirds of lateral border of the scapula

Insertion

- Infraspinatus and Teres Minor – Greater tubercle of the humerus

What exercises would help me train these muscles?

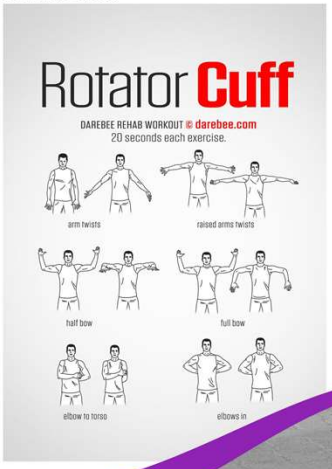
Biel, Andrew (2010). Trail Guide to the Body. 75
Strength Training Anatomy:
p. 37 for injuries:

Rotator Cuff?
Cable or band rotations p. 50

Muscles of the Rotator cuff

What exercises would help me train these muscles?

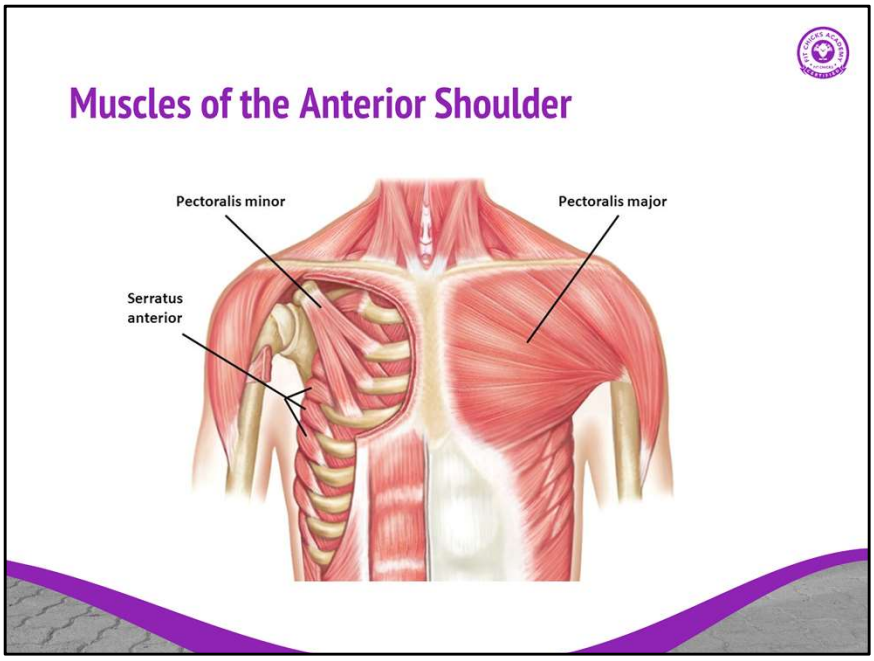
- Face pulls with external rotation
- External arm rotations
  - Dumbbell
  - Band
  - Cable
- Lateral raises



https://darebee.com/workouts/rotator-cuff-workout.html

Strength Training Anatomy:
p. 37 for injuries:

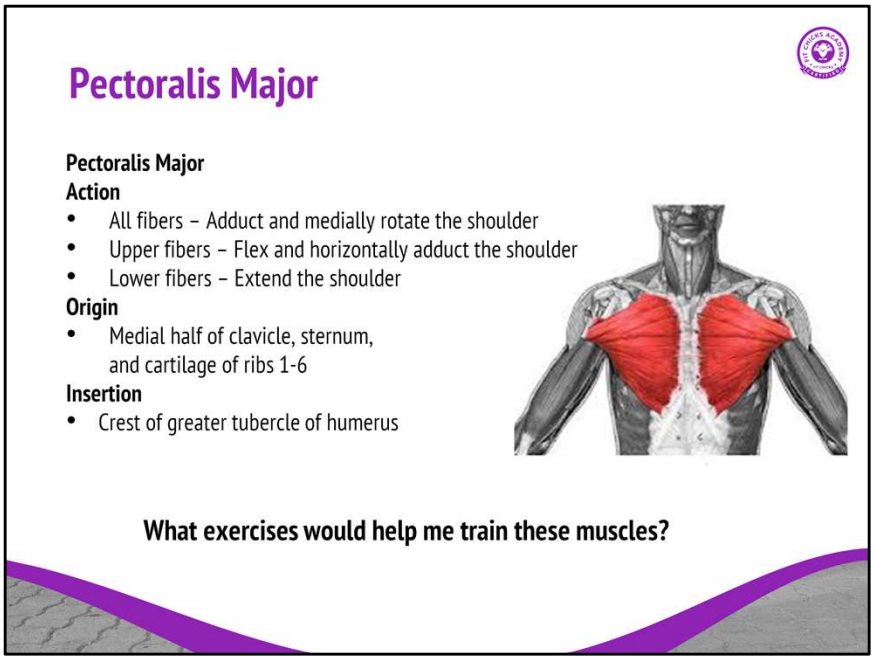
Rotator Cuff?
Cable or band rotations p. 50



https://www.youtube.com/watch?v=D3GVKjeY1FM

Http://clickmypicture.com/shoulder-muscle-anatomy/shoulder-muscle-anatomy-shoulder-muscle-shoulder-muscles-how-to-improve-function-and-avoid/

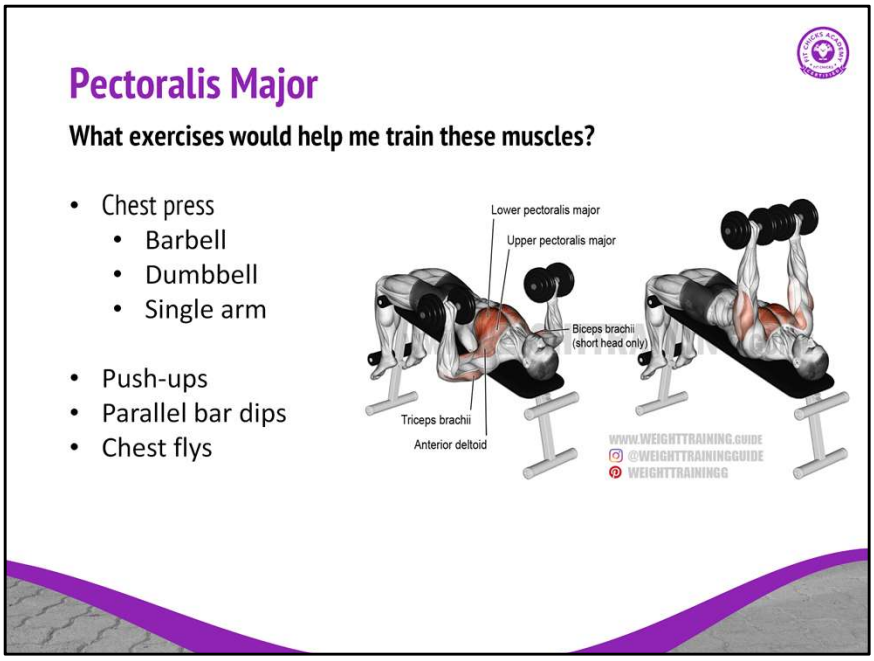
https://hurnechiropractic.com/resources/posts/muscles/PecMajMin/



Biel, Andrew (2010). Trail Guide to the Body. 89

Strength Training Anatomy:
check out pg. 70 for morphology of pec tears and
pg. 76: push=ups
62-84

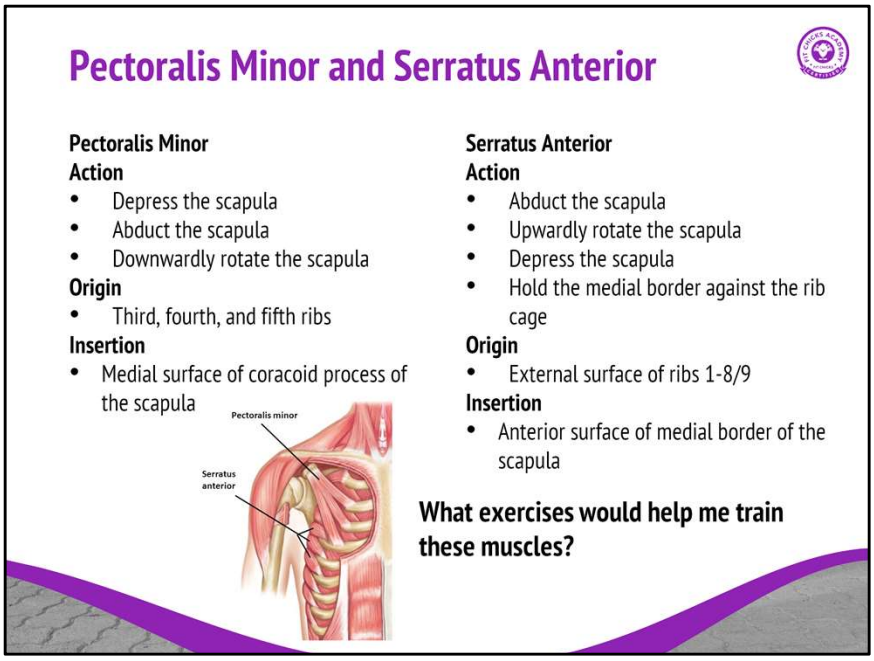
question: what does working your pecs do for the appearance of breasts? p.62
Pectoralis Major?
Dips p. 74
Bench Press p. 73
Push ups. p. 76
Flys p. 81



https://weighttraining.guide/exercises/decline-dumbbell-bench-press/

Strength Training Anatomy:
check out pg. 70 for morphology of pec tears and
pg. 76: push=ups
62-84

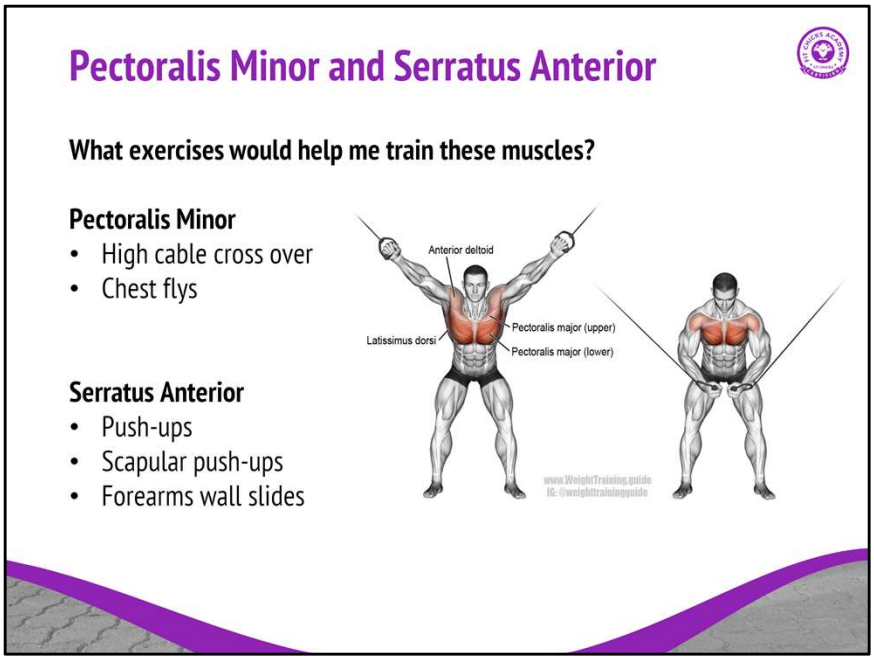
question: what does working your pecs do for the appearance of breasts? p.62
Pectoralis Major?
Dips p. 74
Bench Press p. 73
Push ups. p. 76
Flys p. 81



https://hurnechiropractic.com/resources/posts/muscles/PecMajMin/
Biel, Andrew (2010). Trail Guide to the Body. 87,92

When you see people that have a winged scapula – generally their serratus anterior is weak. It is important to address this bc if their scapula isn't sitting properly and they are not able to stabilize it then it will compromise other movements and could result in injury

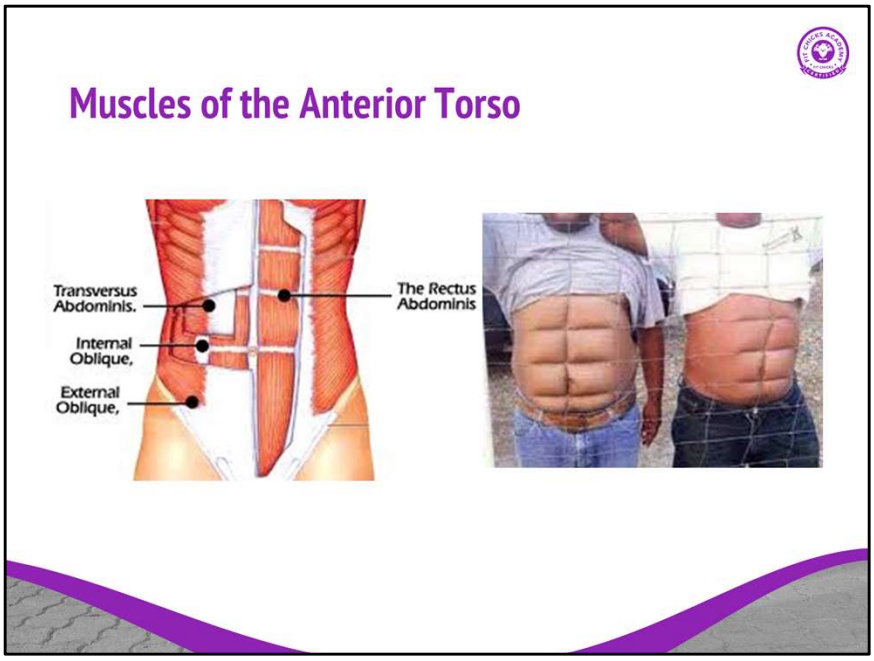
Serratus Anterior – scapular push-ups, forearm wall slides



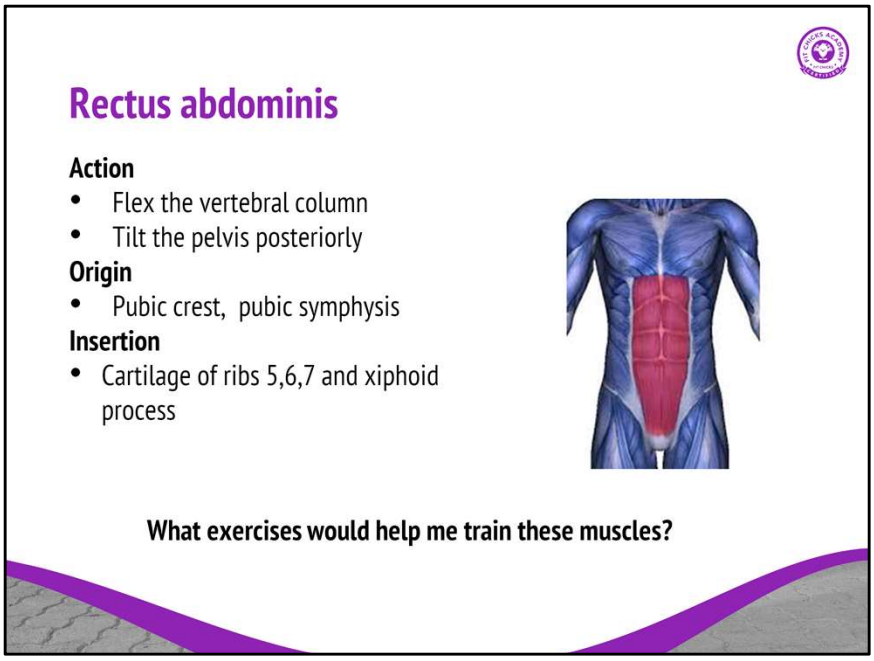
https://weighttraining.guide/exercises/high-cable-cross-over/

When you see people that have a winged scapula – generally their serratus anterior is weak. It is important to address this bc if their scapula isn't sitting properly and they are not able to stabilize it then it will compromise other movements and could result in injury

Serratus Anterior – scapular push-ups, forearm wall slides



https://helloconfidence.com/2015/03/20/all-about-that-core/

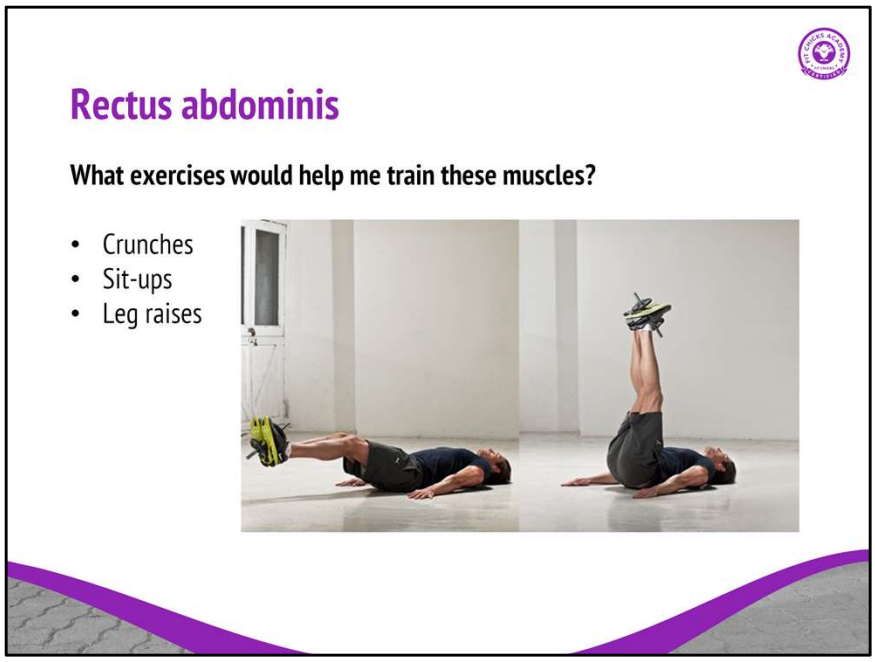


Biel, Andrew (2010). Trail Guide to the Body. 210

The great debate on neutral spine and crunches/sit-ups. Every trainer and health care professional out there has their own opinion on whether or not crunches and sit ups are “bad” for you. It is up to you as a trainer to do your own research and decide which camp you want to be in.
Read pg. 171 and look up Stuart McGill. He has a lot of info on neutral spine for core ex’s.
173: question: What are some ways to make sit-ups easier for beginners?

Some info to check out: https://uwaterloo.ca/applied-health-sciences/hes-got-our-backs

Rectus Abdominis?
Crunches p.172
Discuss p. 171
https://www.youtube.com/watch?v=033ogPH6NNE

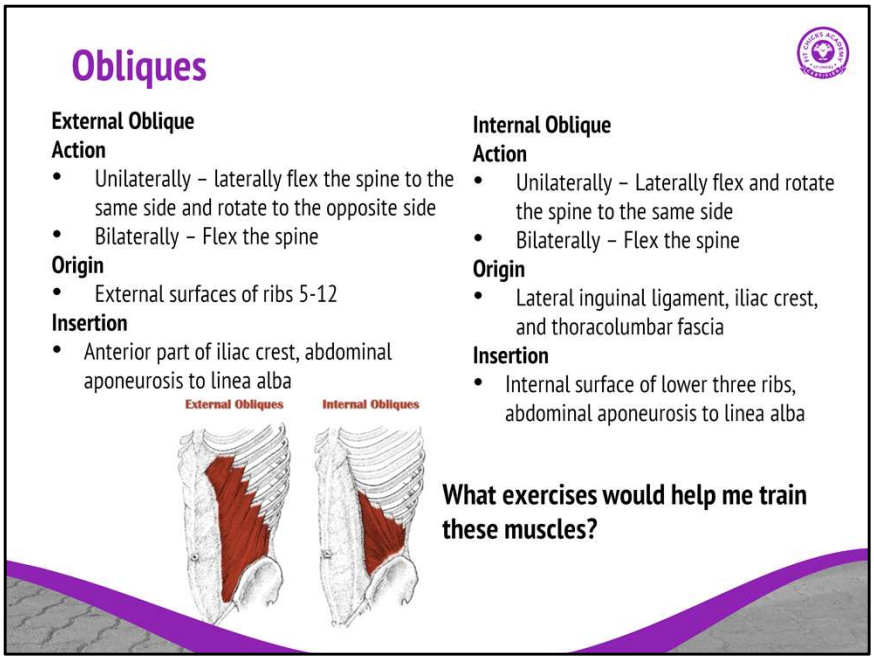


https://www.coachmag.co.uk/exercises/abs-workout/172/instant-six-pack-fix-bench-leg-raises

The great debate on neutral spine and crunches/sit-ups. Every trainer and health care professional out there has their own opinion on whether or not crunches and sit ups are "bad" for you. It is up to you as a trainer to do your own research and decide which camp you want to be in.
Read pg. 171 and look up Stuart McGill. He has a lot of info on neutral spine for core ex's.
173: question: What are some ways to make sit-ups easier for beginners?

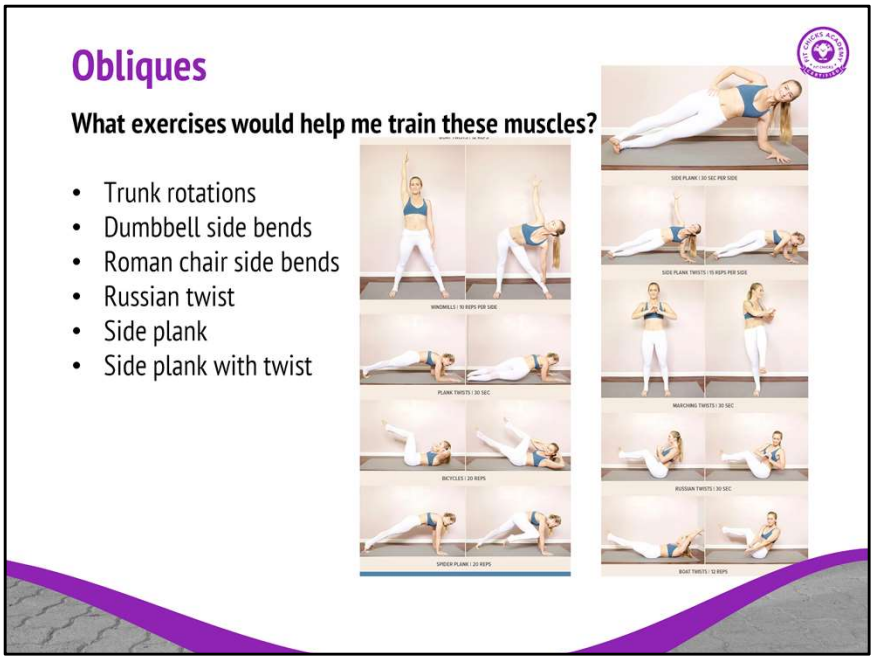
Some info to check out: https://uwaterloo.ca/applied-health-sciences/hes-got-our-backs

Rectus Abdominis?
Crunches p.172
Discuss p. 171
https://www.youtube.com/watch?v=033ogPH6NNE



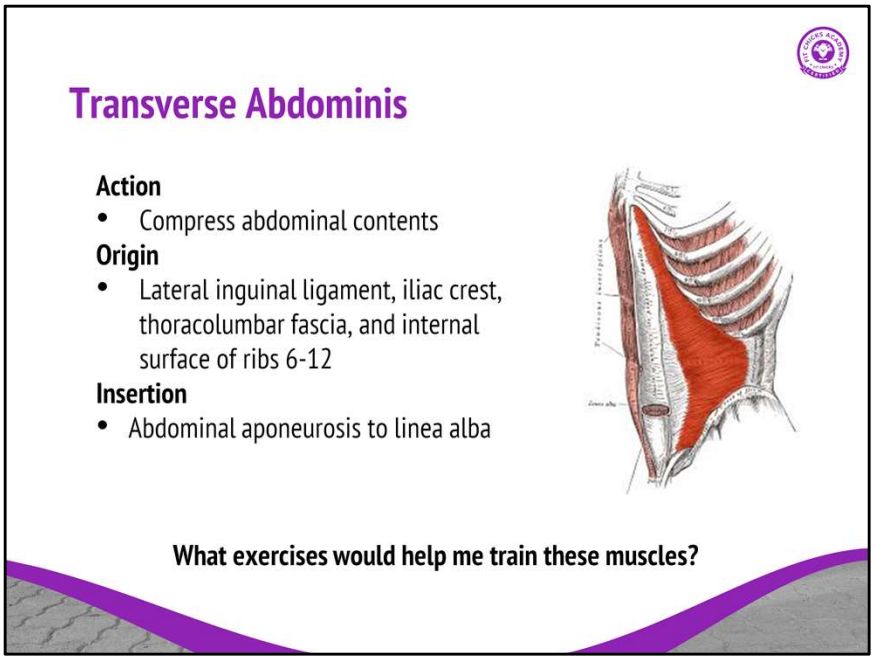
Biel, Andrew (2010). Trail Guide to the Body. 210
http://www.kingofthegym.com/internal-oblique/
http://www.kingofthegym.com/external-oblique/

Strength Training Anatomy:
p.185
Obliques?
Side plank
Static oblique hold: https://www.youtube.com/watch?v=G_odstU0H6I
p. 184
•Spinal Rotation (Russian twist)
•Lateral flexion (side plank with hip dip)
•Aids in Posterior Pelvic tilt)



https://blog.paleohacks.com/oblique-exercises/

Strength Training Anatomy:
p.185
Obliques?
Side plank
Static oblique hold: https://www.youtube.com/watch?v=G_odstU0H6I
p. 184
•Spinal Rotation (Russian twist)
•Lateral flexion (side plank with hip dip)
•Aids in Posterior Pelvic tilt)



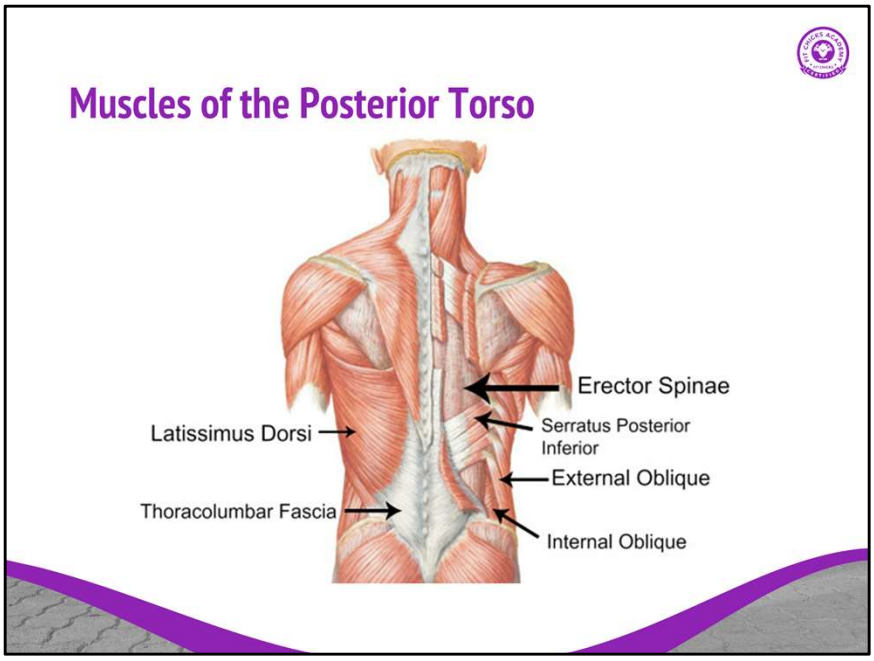
Biel, Andrew (2010). Trail Guide to the Body. 210

Strength Training Anatomy:
Transverse Abdominis?
Deadlifts p. 108
p. 113
Plank
Bracing
https://www.youtube.com/watch?v=dglhzlp474A
- Function: Activate the core musculature and stabilize the pelvis and low back prior to movement of the body.
- Action: 'bracing'

https://www.theguardian.com/lifeandstyle/shortcuts/2017/oct/18/how-to-do-perfect-plank-exercise

Strength Training Anatomy:
Transverse Abdominis?
Deadlifts p. 108
p. 113
Plank
Bracing
https://www.youtube.com/watch?v=dglhzlp474A

- Function: Activate the core musculature and stabilize the pelvis and low back prior to movement of the body.
- Action: 'bracing'



https://helloconfidence.com/2015/03/20/all-about-that-core/

Erector Spinae

Action

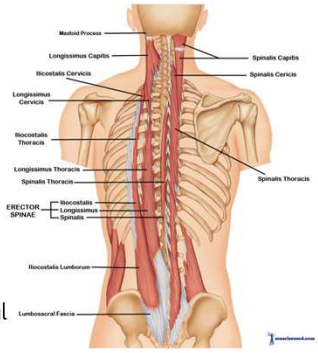
- Unilaterally – Laterally flex the spine to the same side
- Bilaterally – Extend the spine

Origin

- Common tendon that attaches to the posterior surface of sacrum, iliac crest, spinous processes of the lumbar and last two thoracic vertebrae

Insertion

- Various attachments at the posterior ribs, spinous and transverse processes or the thoracic and cervical vertebrae, and mastoid process of temporal bone



What exercises would help me train these muscles?

http://www.musclesused.com/erector-spinae-2/
Biel, Andrew (2010). Trail Guide to the Body. 197

Strength Training Anatomy:
Erector Spinae?
Deadlifts p. 108
p. 113
Bird Dogs
Plank

Erector Spinae

What exercises would help me train these muscles?

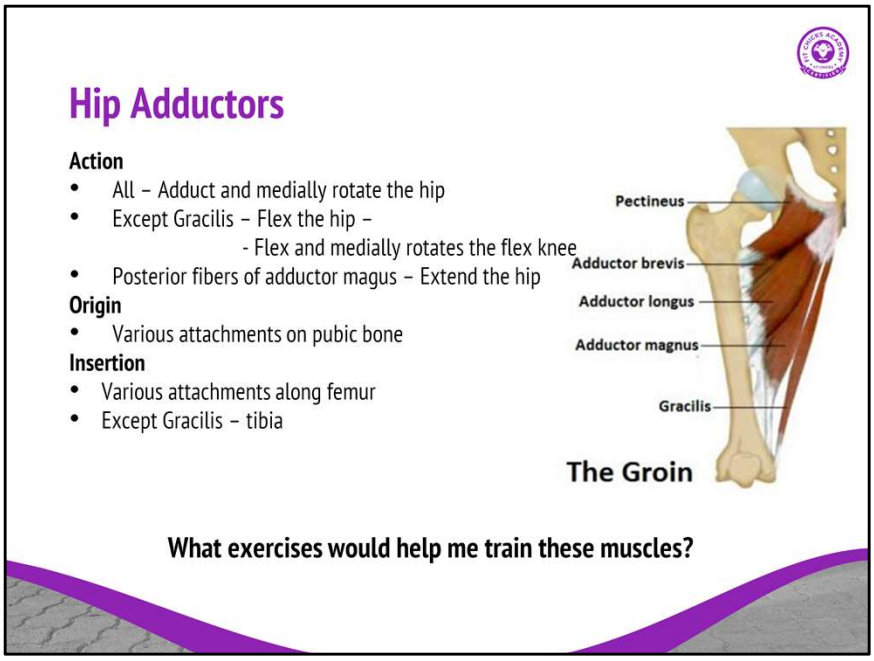
- Back extensions
- Supermans
- Glute bridge
- Bird dog
- Good mornings
- Bent over rows
- Deadlifts
- Rack pulls

https://www.setforset.com/blogs/news/13-best-erector-spinae-exercises

Strength Training Anatomy:
Erector Spinae?
Deadlifts p. 108
p. 113
Bird Dogs
Plank

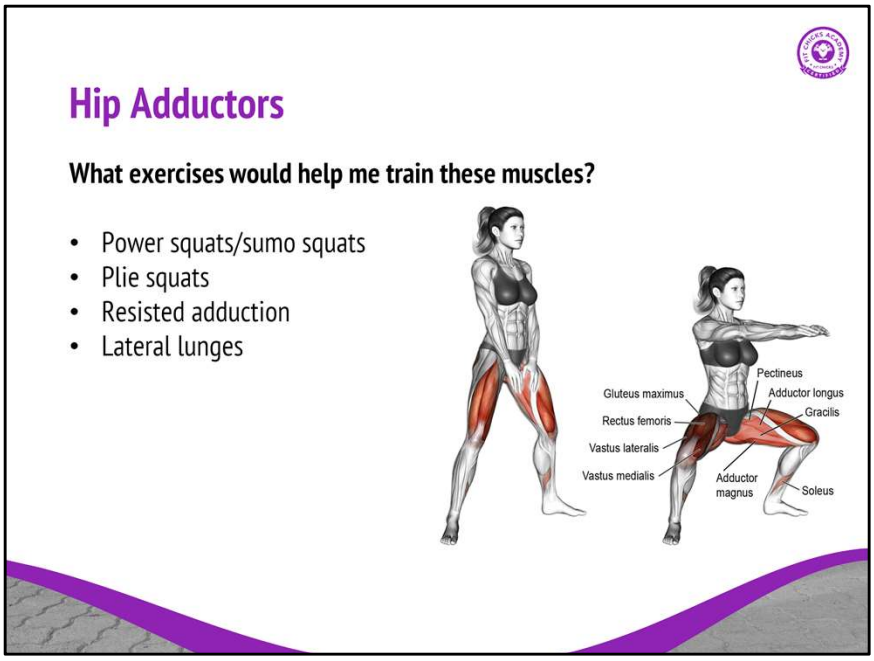
Muscles of the Hip

* Adductors not shown



http://www.stopchasingpain.com/hip-adductor-mojo/
Biel, Andrew (2010). Trail Guide to the Body. 319 -321

Strength Training Anatomy:
Pg 129
Pg 146-147



https://weighttraining.guide/exercises/bodyweight-sumo-squat/

Strength Training Anatomy:
Pg 129
Pg 146-147

Hip Flexors

Action

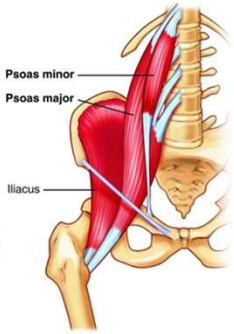
- Flex the hip
- Flex the trunk
- Tilt pelvis anteriorly

Origin

- Anterior lumbar vertebrae (Psoas) and iliac fossa (Iliacus)

Insertion

- Lesser trochanter of the femur



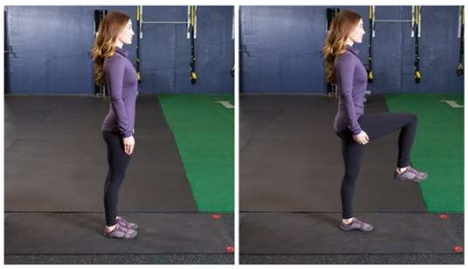
What exercises would help me train these muscles?

https://deansomerset.com/hip-flexors-arent-tight-theyre-overworked-heres/
Biel, Andrew (2010). Trail Guide to the Body.

Hip Flexors

What exercises would help me train these muscles?

- High knees
- Leg raises
- Resisted hip flexion
- Lunges



https://www.healthline.com/health/fitness-exercise/hip-flexor-exercises#takeaway

Gluteal Muscles

Glute Max

Action

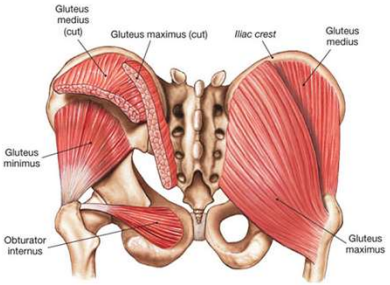
- Upper fibers - Extend, laterally rotate and abduct the hip
- Lower fibers – Adduct the hip

Origin

- Coccyx, edge of sacrum, posterior iliac crest

Insertion

- Iliotibial band and gluteal tuberosity

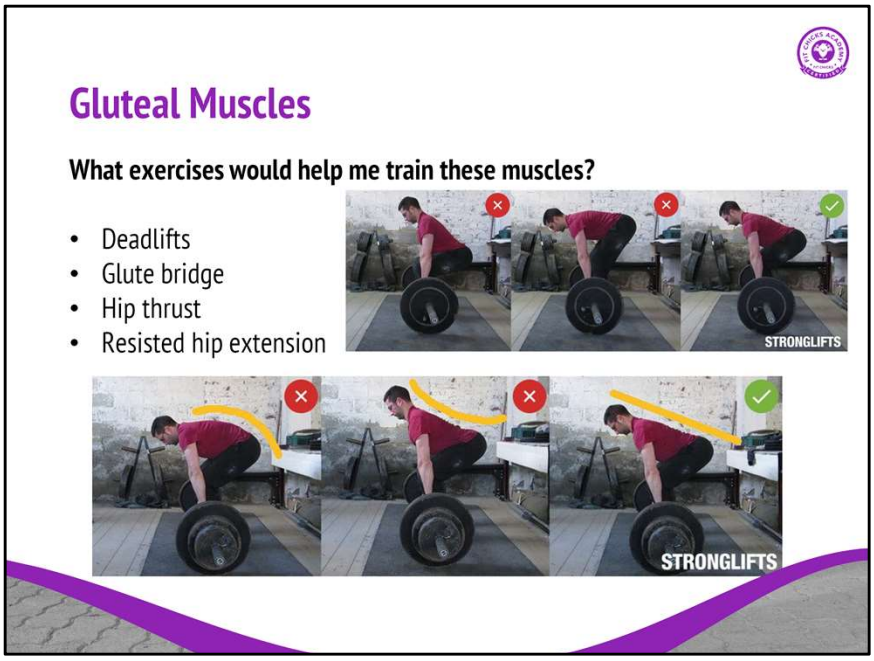


(c) Gluteal and lateral rotators, posterior view

What exercises would help me train these muscles?

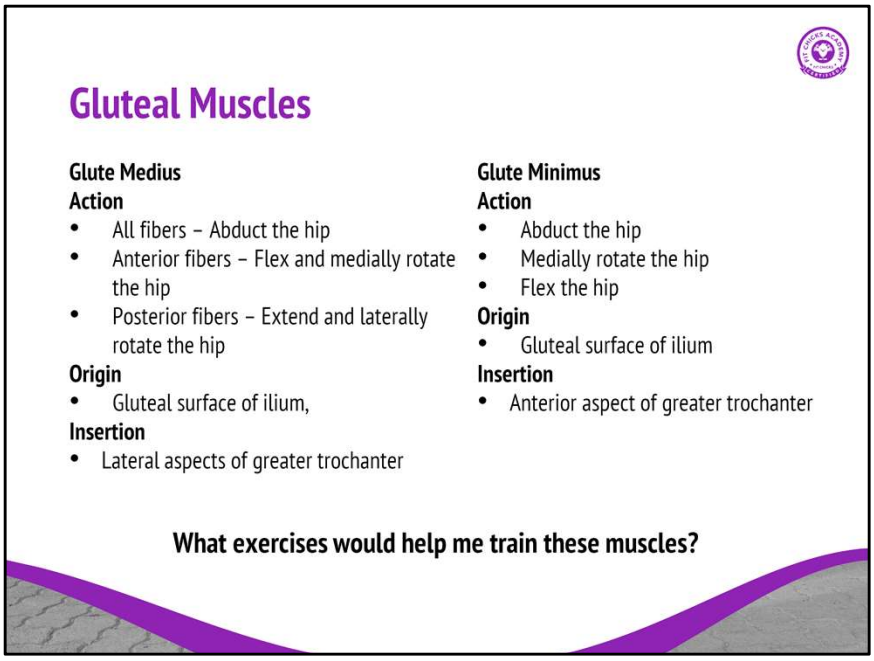
Biel, Andrew (2010). Trail Guide to the Body. 315-316

Strength Training Anatomy:
Glute Max?
Flutter kick, bird dogs, hip bridge p. 162, cable kick backs p. 159
Without isolation: lunges, Squats, Deadlifts, etc p. 156 Glute Med?
Cable Hip Abductions p. 164
Clamshells
Lateral band walks



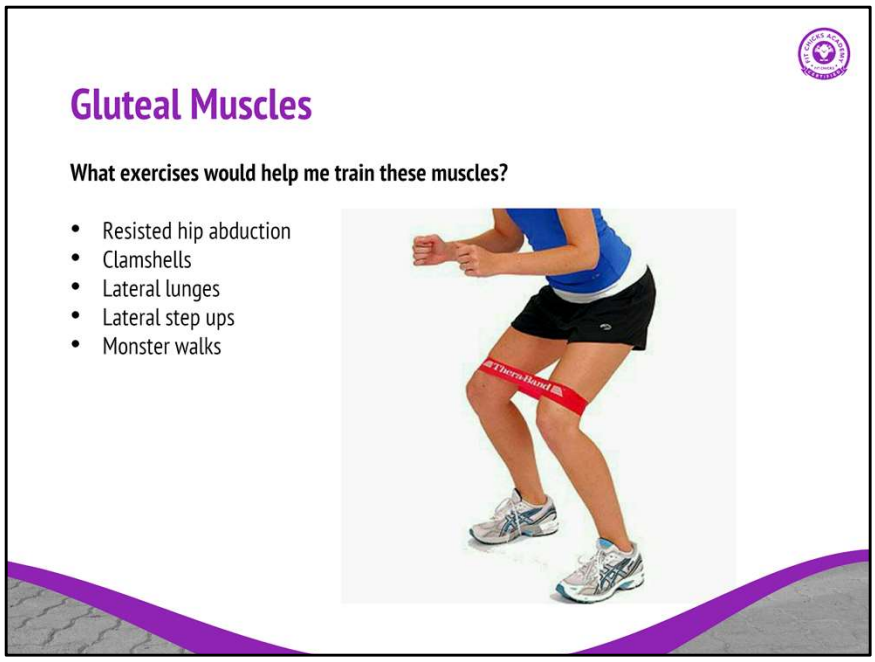
https://stronglifts.com/deadlift/#gref

Strength Training Anatomy:
Glute Max?
Flutter kick, bird dogs, hip bridge p. 162, cable kick backs p. 159
Without isolation: lunges, Squats, Deadlifts, etc p. 156 Glute Med?
Cable Hip Abductions p. 164
Clamshells
Lateral band walks



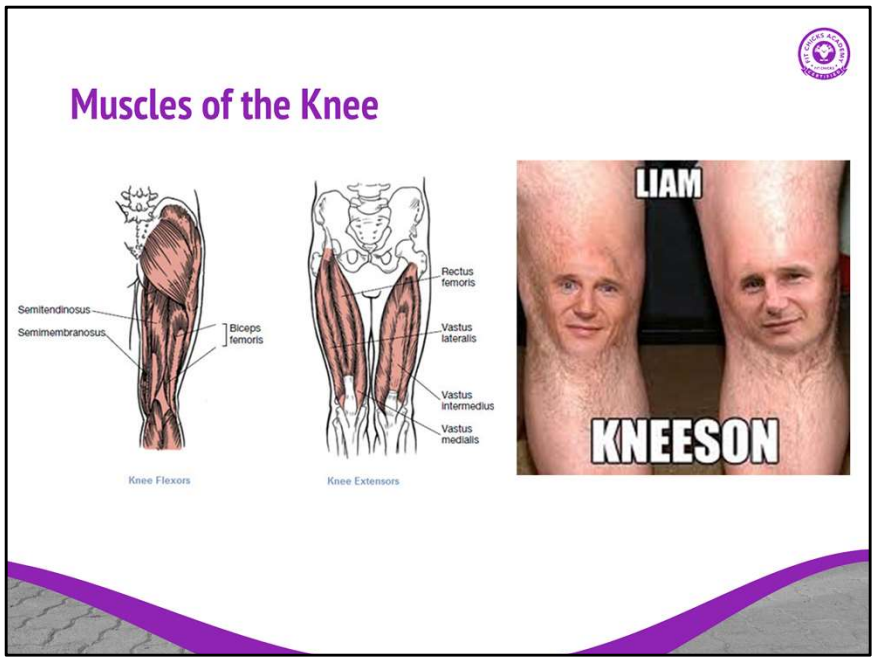
Biel, Andrew (2010). Trail Guide to the Body. 315-316

Strength Training Anatomy:
Glute Max?
Flutter kick, bird dogs, hip bridge p. 162, cable kick backs p. 159
Without isolation: lunges, Squats, Deadlifts, etc p. 156 Glute Med?
Cable Hip Abductions p. 164

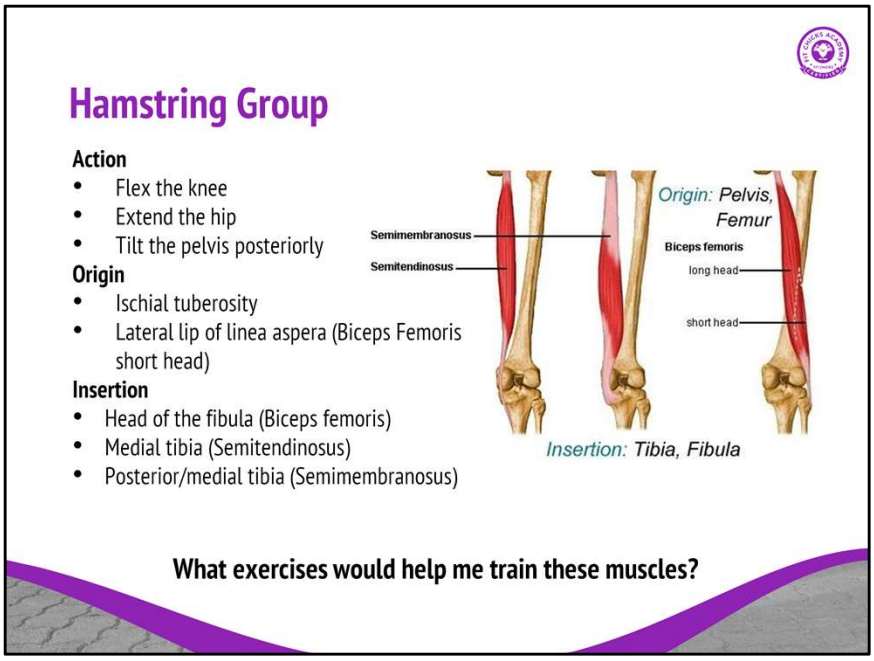


https://www.skimble.com/exercises/28713-hip-abduction-with-band-how-to-do-exercise

Strength Training Anatomy:
Glute Max?
Flutter kick, bird dogs, hip bridge p. 162, cable kick backs p. 159
Without isolation: lunges, Squats, Deadlifts, etc p. 156 Glute Med?
Cable Hip Abductions p. 164

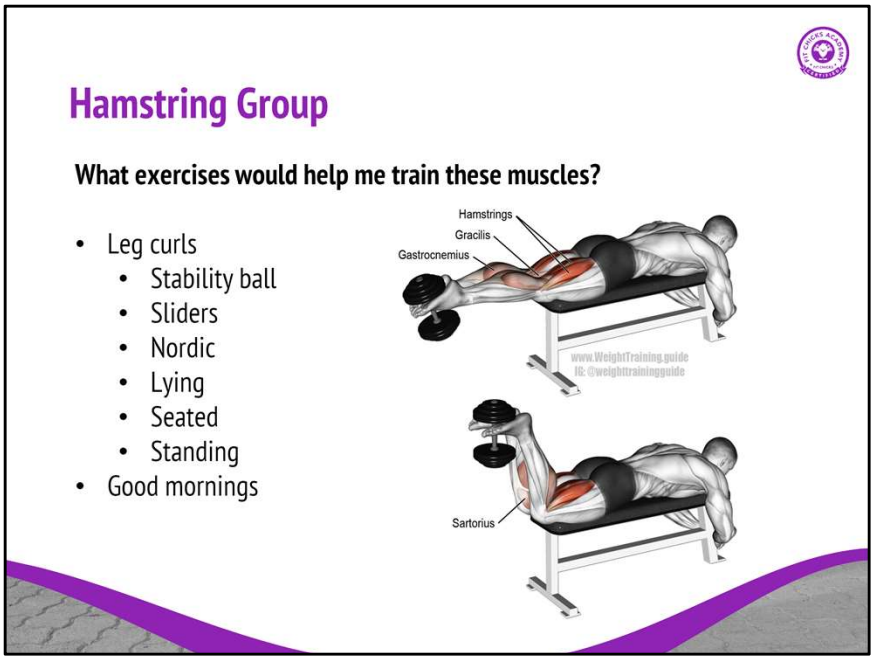


https://www.acefitness.org/fitness-certifications/resource-center/exam-preparation-blog/3594/muscles-that-move-the-leg

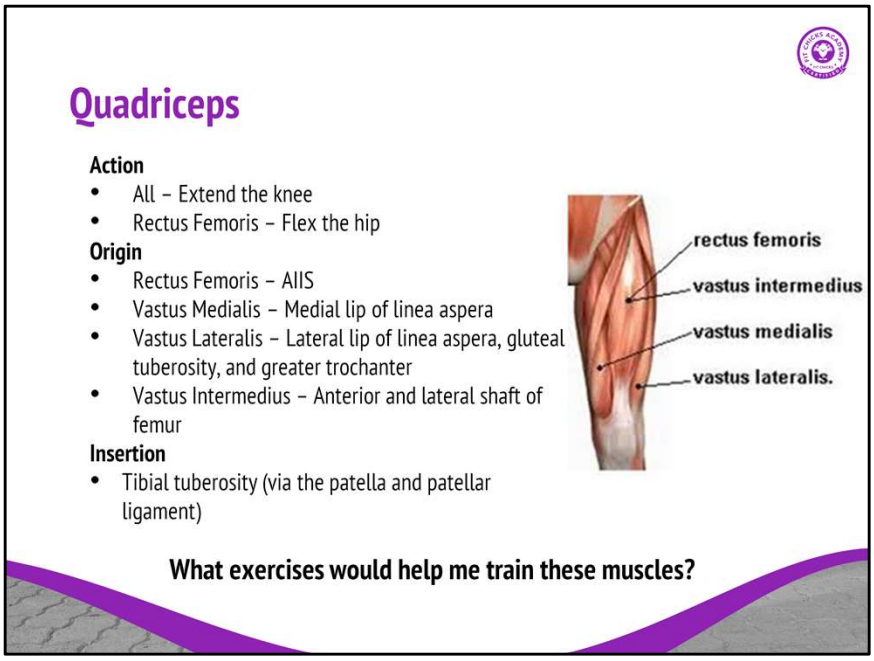


Biel, Andrew (2010). Trail Guide to the Body. 312
https://healthy-topic.com/the-hamstring-muscles-originate-on-the-let-us-know/

Strength Training Anatomy:
Hamstrings?
Leg Curls p. 140
Good mornings p. 144
Deadlifts p. 102
Others:
Stability ball legs curls or slider leg curls
Nordic leg curls

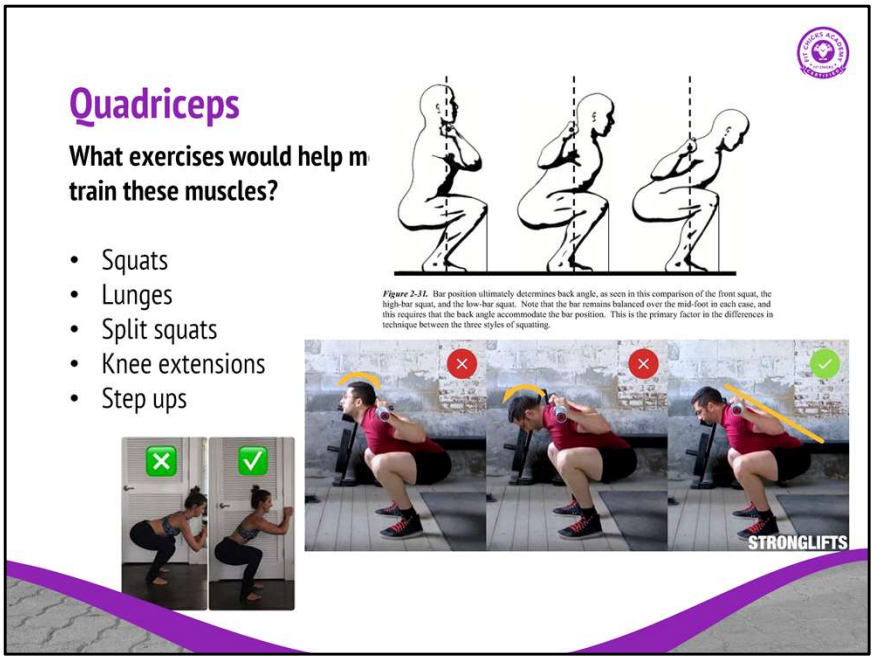


https://weighttraining.guide/exercises/dumbbell-leg-curl/
Strength Training Anatomy:
Hamstrings?
Leg Curls p. 140
Good mornings p. 144
Deadlifts p. 102
Others:
Stability ball legs curls or slider leg curls
Nordic leg curls



Biel, Andrew (2010). Trail Guide to the Body. 306

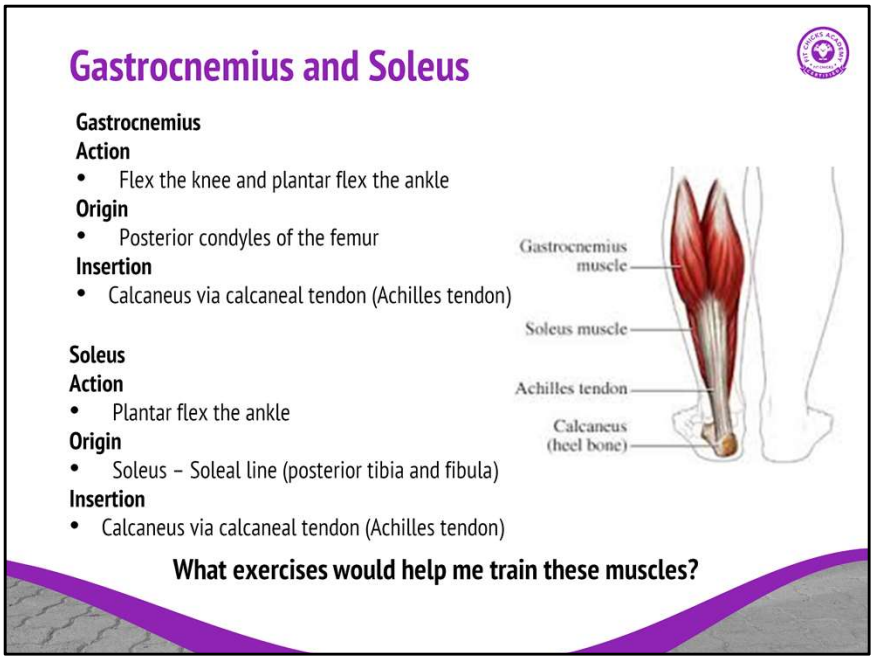
Strength Training Anatomy:
Isolation – pg 139 leg extensions
- there's a lot of debate on leg extensions and the impact they can have on the knee. Some argue that it puts a lot of pressure on the ACL and could potentially cause injury especially to those with previous ACL issues.
Compound – pg – 123-136



https://pilatesofcharleston.com/how-to-squat/
https://stronglifts.com/squat/#gref
https://barbellacademy.com/how-to-high-bar-squat-your-guide-to-proper-form/

Strength Training Anatomy:
Isolation – pg 139 leg extensions
- there's a lot of debate on leg extensions and the impact they can have on the knee. Some argue that it puts a lot of pressure on the ACL and could potentially cause injury especially to those with previous ACL issues.
Compound – pg – 123-136

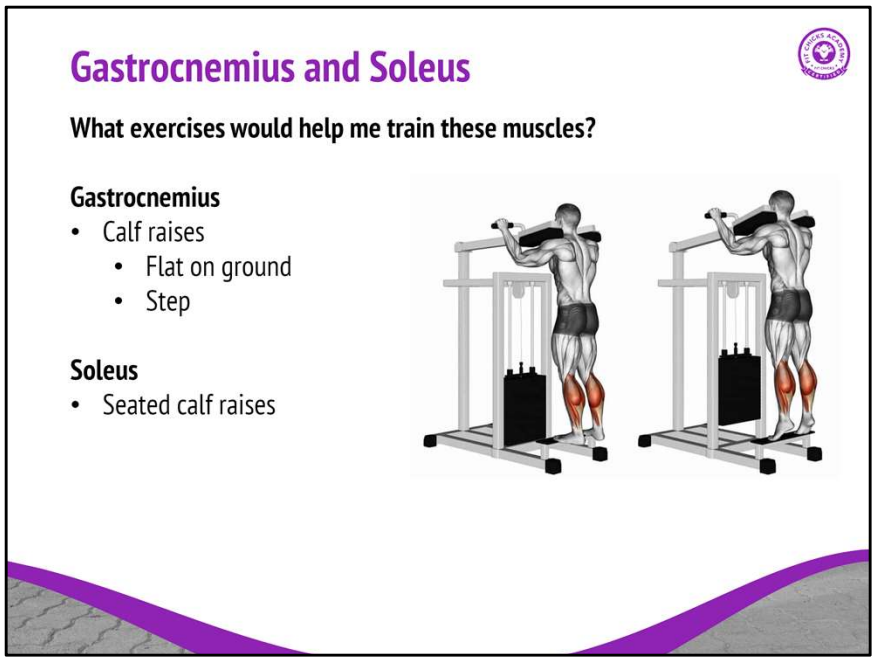
Muscles of the Ankle



Biel, Andrew (2010). Trail Guide to the Body. 371

Strength Training Anatomy:
Gastrocnemius and soleus?
Calf raises p. 149

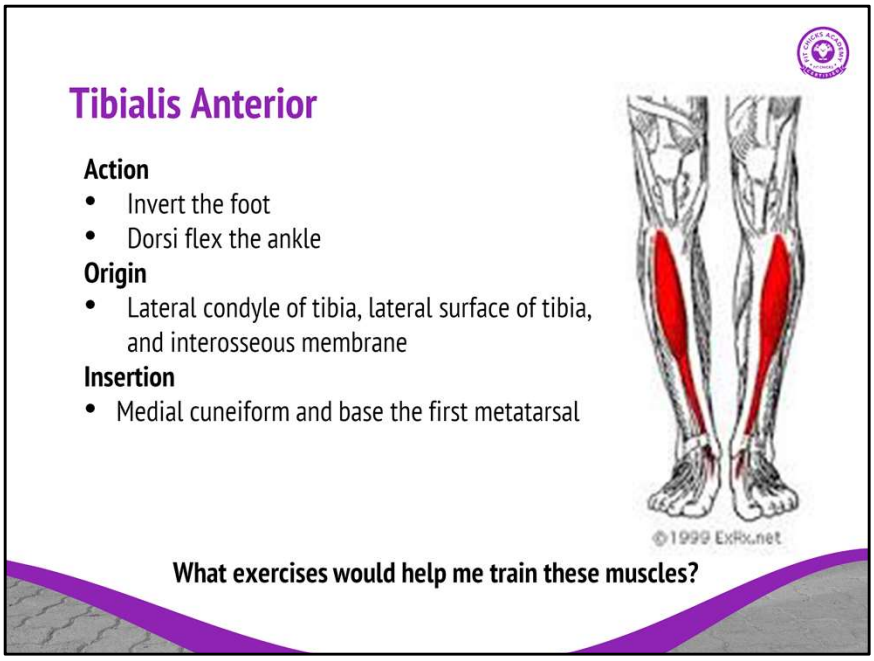
How can you isolate gastroc over soleus?
- Soleus – bend the knees bc it shortens the gastroc so you'll lose the ability of a full force contraction from the gastroc



https://theworkoutdigest.com/standing-calf-raises/

Strength Training Anatomy:
Gastrocnemius and soleus?
Calf raises p. 149

How can you isolate gastroc over soleus?
- Soleus – bend the knees bc it shortens the gastroc so you'll lose the ability of a full force contraction from the gastroc



https://www.youtube.com/watch?v=7Ox-NOJMhKo
Biel, Andrew (2010). Trail Guide to the Body.

Toe taps!

Tibialis Anterior

What exercises would help me train these muscles?

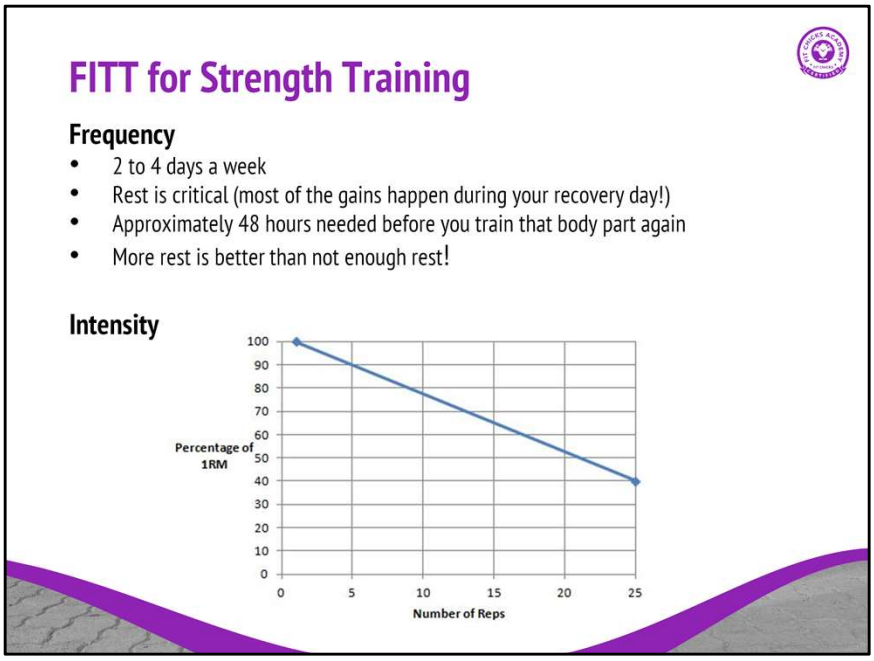
- Heel walking
- Toe taps

https://www.wikihow.com/Exercise-Tibialis-Anterior
https://www.youtube.com/watch?v=7Ox-NOJMhKo
Biel, Andrew (2010). Trail Guide to the Body.

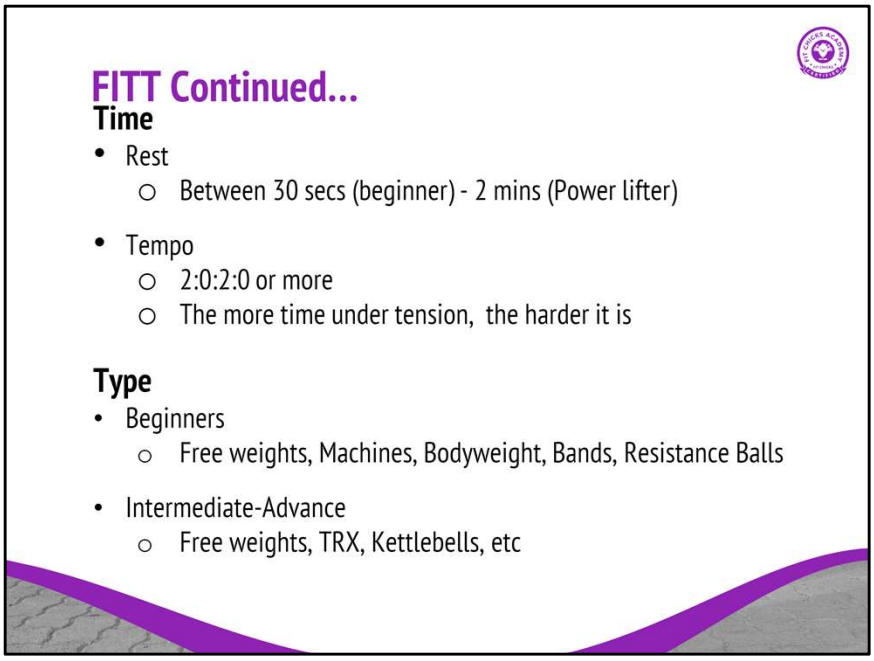
Toe taps!

Benefits of doing resistance training

- Helps in body composition in creating lean muscle mass with a higher metabolic resting rate
- Protects bone density and muscle mass, reducing the risk of premature aging
- Improved performance for sport or daily living
- Elevates endorphins, creates a sense of well-being



https://rogerwardhealthandfitness.files.wordpress.com/2012/03/graph1rm1.jpg



The rest period will depend on how well you client recovers between sets. You can give a guideline of 30-45s based on how they feel after each set. 30 seconds is a good starting point but if your clients goal is strength then they may need a bit longer to rest in between.

Tempo – first number is eccentric, second number is the pause or no pause at the bottom, third number is concentric, and fourth number is pause or no pause at the top.

Recap

DIFFERENT TYPES OF MUSCLES

MUSCULAR ANATOMY

- Muscle Function and Structure
- Special characteristics of muscle tissue
- Muscle contraction and muscle mechanics

THE NERVOUS SYSTEM AND ITS CONNECTION TO STRENGTH

MAJOR MUSCLE GROUPS

- Action and Attachment points
- How to train each Major Muscle Group!

THE FITT PRINCIPLE FOR STRENGTH TRAINING

- Benefits of resistance training
- Recommended strength training guidelines

Any questions or inquiries,
please email:

fne@fitchicks.ca