Keeping Your Yoga Teaching Current

Course Outline & Notes

Module 1: Anatomy of Muscle Tissue, Fascia, & Connective Tissue

Video 1: Introduction to Muscle Tissue

4 tissue types of the body: **epithelial, nervous, muscle, connective**
muscle tissue: tissue that contracts in response to signals from the nervous system
hypertrophy: the enlargement of a muscle
3 types of muscle: **smooth, cardiac, skeletal**
muscle fiber = muscle cell
sarcomere: basic functional unit of muscle

Video 2: Introduction to Fascia & Connective Tissue, Part 1

common claims about fascia
connective tissue is the most abundant type of tissue in the body
examples of connective tissue
3 component parts of connective tissue: **fibroblast cells, collagen fibers, ground substance**
tendons, ligaments, aponeurosis

Video 3: Introduction to Fascia & Connective Tissue, Part 2

joint capsule, periosteum
intramuscular connective tissue: **endomysium, perimysium, epimysium**
pack of spaghetti example of muscle structure
3D organization of the body's tissues - no separation
defining fascia - varying definitions
superficial fascia, deep fascia
in this course, fascia is treated as a sub-type of connective tissue

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Module 1: Anatomy of Muscle Tissue, Fascia, & Connective Tissue, Cont'd.

Video 4: Muscle & Connective Tissue's Role in Movement

fascia cannot be isolated from all of the other tissue with which it's interwoven
muscle tissue is *active*; connective tissue is *passive*
rubber band example: **potential energy** / **kinetic energy**
connective tissue, recoil energy
frog example & other examples
we want our connective tissue be **stiff**
we create stiff connective tissue by **loading it**

Video 5: Muscles: The 3D vs. 2D Model

muscles are contractile proteins embedded in connective tissue
the nervous system - **brain, spinal cord, peripheral nerves**
neuron = nerve cell
muscle structure similarities with nervous system structure
nervous system - the system of communication in the body
our muscles are completely subservient to the nervous system
"hardware vs. software"
motor unit - a motor neuron & the muscle fiber(s) it innervates
muscle contraction happens on the *motor unit level*, not the whole muscle level
the brain doesn't understand "muscles" - it only knows motor units

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Module 2: Muscle & Connective Tissue Function

Video 1: Types of Muscle Contractions & Clearing Up Misconceptions

muscle contractions
all-or-none-law
concentric contractions
"contraction" does not mean shortening
eccentric contraction
isometric contraction
examples of varying types of contractions
outdated 2D ideas about muscle contractions

Video 2: Sarcomeres & How Muscle Contractions Happen

muscle contractions
muscle, muscle fiber, myofibril, sarcomere
myofilaments: tiny contractile proteins that live in sarcomeres
myosin, actin & the Sliding Filament Theory
titin, eccentric contractions, & the Three Filament Theory

Video 3: How Muscle Responds to Load

muscles & connective tissue respond to load differently
progressive overload
underloading
a muscle contraction is force being generated
muscles respond to load by increasing their ability to generate force
most initial strength gains are neurological and not due to physical changes in muscle

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Module 2: Muscle & Connective Tissue Function Cont'd.

Video 4: How Connective Tissue Responds to Load

fibroblasts create their surrounding environment
connective tissue types and fiber density & arrangement
load directs the organization of fibers in connective tissue
we want stiff, strong connective tissue
we can utilize specific, directional loads to create healthy connective tissue
connective tissue & muscle tissue work together to create movement

Video 5: What Does Injury Prevention Mean?

connective tissue is injured more often than muscle tissue
load > cap = injury
trash bag analogy of strong/weak connective tissue
the best way to prevent injury is to increase the capacity of your tissues to bear load

Video 6: Teaching Tools for Tissue Adaptation, Mobility Gains, & Neurological Control

yoga is one type of load
eventually we all plateau in our yoga practice
to continue to adapt, either change loads or increase loads
examples of variety within a yoga practice
length-tension curve of muscle tissue
strength is specific
passive stretching vs. active stretching
directed muscle contractions

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Module 3: Common Misconceptions About Stretching, Strengthening, Rolling, & the Tissues of the Body

Video 1: How Stretching Affects the Tissues of the Body

does stretching make our muscles longer from end to end?
physical changes to muscle & connective tissue properties from stretching
stretch tolerance
the nervous system is the main system in charge of flexibility
active stretching increases flexibility faster than passive stretching

Video 2: Is Passive Stretching Bad for Us?

misconceptions about stretching creating lax ligaments
Yin Yoga
which connective tissues does longer passive stretching target?
connective tissue has a range that does not change

Video 3: The Relationship Between Stretching & Strengthening

are stretching & strengthening opposites?
outdated 2D concept: stretching lengthens tissues & strengthening shortens tissues
our tissues aren't like clay or taffy that can be molded
muscles can contract at all ranges
can you change posture through stretching & strengthening?
outdated 2D concepts of posture, stretching, & strengthening
the nervous system's role in posture
what is the opposite of a muscle contraction?
should you stretch a muscle if you haven't strengthened it?

Module 3: Common Misconceptions About Stretching, Strengthening, Rolling, & the Tissues of the Body Cont'd.

Video 4: Fascia, Massage, & Rolling

fascia = a buzzword
common claims about fascia
much of what the general public learns about fascia comes from sources invested in the "dysfunctional" model of fascia
what does objective science have to say about fascia?
can fascia be targeted separately from other tissues?
fascial adhesions & scar tissue
the nervous system's role in massage & rolling
fascial dehydration
Occam's Razor
cortical maps
rolling & massage are excellent for turning up a parasympathetic nervous system response, relaxation, and clarifying cortical maps

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Module 4: The 3D vs. 2D Model of the Body & Human Movement

Video 1: How We Move - The 3D vs. 2D Model

agonist/antagonist 2D model of movement
on/off model of movement
the brain doesn't know muscles; the brain knows motor units
movement variability: same movement, different paths
afferent input & increasing the clarity of our cortical maps
movement micromanaging
muscles co-contract when we move

Video 2: Teaching Tools: Cueing & Language Strategies

less movement micromanaging
cue the movement, not the muscles
allow the nervous system to self-organize
examples

Video 3: 2D Beliefs About the Body & Movement That Yoga Teachers Can Move Away From

reciprocal inhibition
our muscles co-contract
do muscles need to be relaxed to stretch?
does sitting "shorten your hip flexors and shut off your glutes"?
is sitting a problem, or is the problem *sedentariness*?
are there special dysfunctional muscles - i.e. glutes, psoas, transverse abdominus?

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Module 4: The 3D vs. 2D Model of the Body & Human Movement Cont'd.

Video 4: Pain Science Basics for Yoga Teachers, Part 1

yoga teachers are not diagnosed to treat or diagnose pain
but pain still comes into our realm to a certain degree
pain science is part of the 3D model of the human body
outdated 2D model of pain
acute pain vs. chronic pain
pain is subjective
nociception
inputs that can contribute to pain

Video 5: Pain Science Basics for Yoga Teachers, Part 2

pain is a *perception* that you feel in your body
pain is a real experience
biopsychosocial (B.P.S.) model of pain
structural scapegoat
core strength/weakness & low back pain
posture
is the idea of "optimal alignment" evidence-based?
pain like a smoke alarm
pain is a signal from your nervous system
talk about the body in positive terms
new & novel movements

Module 4: The 3D vs. 2D Model of the Body & Human Movement Cont'd.

Video 6: Alignment & the 3D Model of the Body, Part 1

how we approach alignment
what is injury / injury prevention?
does yoga alignment prevent injury?
Davis' Law of soft tissue adaptation
alignment is important with high loads
fragility language in yoga cueing
a beginner who tries yoga for the first time and is injured: why?

Video 7: Alignment & the 3D Model of the Body, Part 2

injury prevention
increased alignment = decreased variety
use alignment for load-optimization
the spine is innately robust & strong
the "right" way to lift something off the ground

Conclusion to KYYTC!