



International Yoga Teacher Training Academy

THE MUSCULAR SYSTEM



Name :

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YOGAFX INTERNATIONAL YOGA TEACHER TRAINING ACADEMY

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"AWARENESS"

MAKE SURE THAT YOU CARRY NO RESISTANCE

NO hatred, no negative energy

Live to "Have no enemies"

Leaving un-resolved worries will only
catch up with your past trail of sad
destruction,

Turn bad energy into Positive.

Respect people's personal space
and they will love you for who you
are alone.



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"CHANGE"

REAL FREEDOM IS LIFE IN ITS PUREST FORM

IT is felt not as a passing by experience but also as strong presence. It is to be who you are, to feel within you the good that has no enemy to experience the joy of just simply "Being" that depends only on your inner-self.

Loneliness is the first test. See if you can survive the darkness solitude only after this will you then be able to see your life through 3 eyes, instead of 2.





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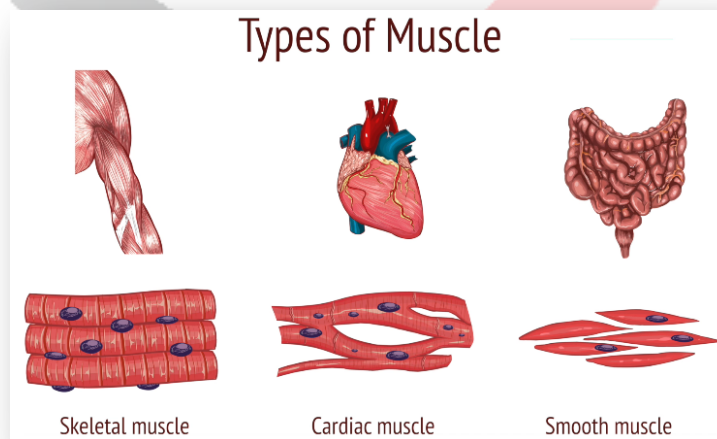
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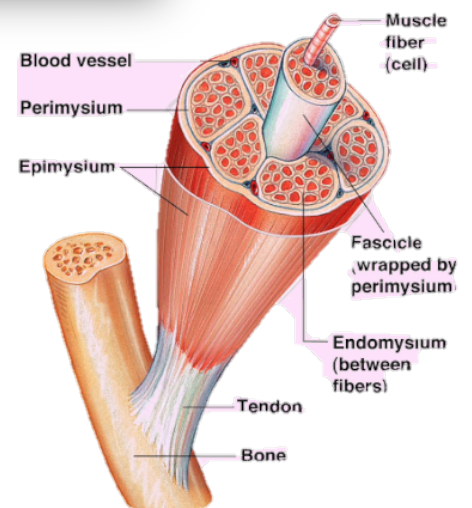
Muscle Types

Muscles, **crucial for voluntary and involuntary movements**, require an understanding of physiological principles governing contraction. Comprising half of body weight, **muscles are categorized into skeletal, cardiac, and smooth types**, each with unique structures and functions. **Skeletal muscles facilitate movement, cardiac muscles pump blood, and smooth muscles support organ functions by changing shape.**



Skeletal Muscle

The skeletal muscle, commonly known as **muscle**, is a vital organ of the **vertebrate muscular system, attached to bones by tendons**. With longer cells called muscle fibers, it exhibits striated tissue and operates voluntarily **under the somatic nervous system**. Additionally, **cardiac muscle is striated**, while smooth muscle lacks striations and functions involuntarily.





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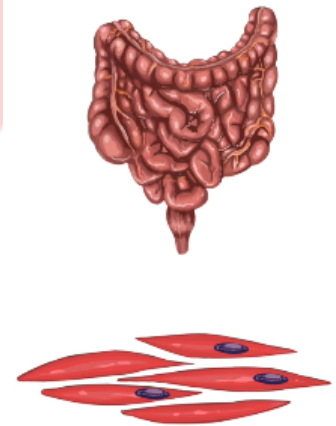




The human body boasts **600 skeletal muscles** facilitating vital functions like movement, facial expression, and posture. **Comprising 40% of body mass**, these muscles not only power voluntary movements but also contribute to thermal homeostasis by **generating heat during contractions**.

✓ Smooth Muscle

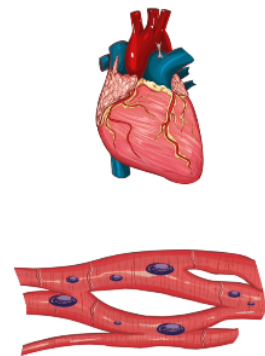
Smooth muscle, **devoid of voluntary control**, comprises spindle-shaped, striated cells forming thin layers in hollow organ walls. **Governed by the autonomous nervous system**, it contracts involuntarily. **With an elastic cellular arrangement**, it facilitates the expansion and relaxation of organs like **the stomach, intestines, bladder, uterus, and arteries**, excluding the heart and uterus. In the eyes, **it adjusts the lens for focus**, while in arteries, it regulates blood flow.



Smooth muscle

✓ Cardiac Muscle

The **cardiac muscle**, or **myocardium**, is the **involuntary**, striated muscle forming the heart's main tissue. **Responsive to signals from the cardiac conduction system**, it contracts, **efficiently pumping blood through the heart**.



Cardiac muscle



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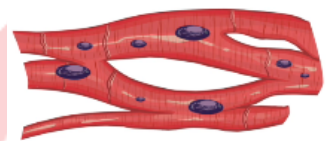
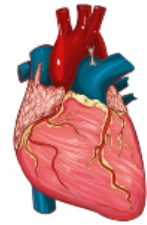
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The heart wall comprises three layers, with the middle layer, the **Myocardium**, orchestrating the heart's pumping action. Cardiac muscle, **unique to the myocardium**, contracts in response to signals from the cardiac conduction system, regulating the heartbeat. **Cardiomyocytes, akin to skeletal muscle cells**, exhibit a shorter and thicker structure, with **branching that fosters a network for coordinated contractions**.



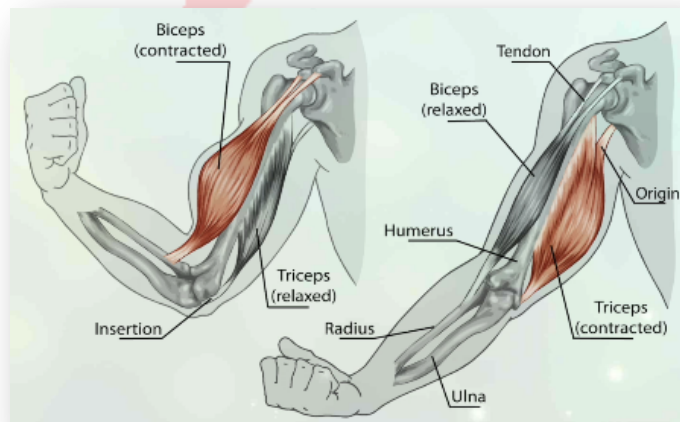
Cardiac muscle

Muscle Contraction

How do the bones of the human skeleton move?

Skeletal muscles engage in contraction and relaxation, orchestrated by nervous system signals. **This muscle contraction mechanism unfolds in 3 key steps:**

- 1) **Nervous system messages initiate a chemical reaction** in the muscular system.
- 2) **The ensuing reaction prompts muscle fibers to reorganize**, resulting in contraction.
- 3) **When the nervous system signal ceases**, the chemical process reverses, and muscles relax.





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Types Of Muscle Contraction

Explore the diverse realms of muscle contraction, categorized into 3 types: **concentric, eccentric, and isometric**. These variations hinge on the alterations in muscle length during contraction. Broadly, **contractions are classified into isotonic, inducing movement, and isometric, devoid of motion**. Uncover the intricacies of these muscle **dynamics for a nuanced understanding**.

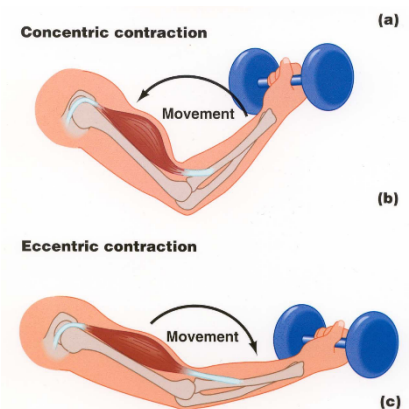
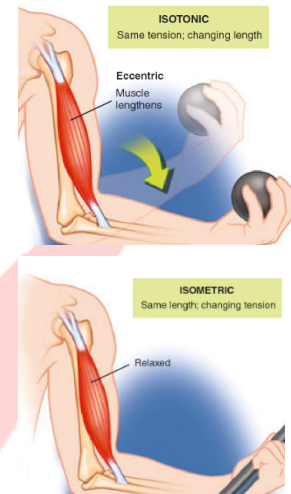
✓ Concentric Contraction

Concentric contraction, a **prevalent muscle** activation in weight training, occurs when muscles generate force as they shorten. A classic example is **the bicep curl lifting a dumbbell toward your shoulder** showcases the muscle swelling and bulging, illustrating this type of contraction.

✓ Eccentric Contraction

Muscles exhibit two primary types of contractions: concentric and eccentric. In eccentric contraction, **muscles generate force while lengthening** function.

This opposing form of muscle activity plays a crucial role in understanding **the dynamic nature of muscle**. Explore the **bicep's eccentric contraction** during weightlifting for enhanced strength and mass. Combining eccentric and concentric contractions yields optimal results in training, **but beware of increased injury risk**. Activities like walking and **squats exemplify eccentric movements**.





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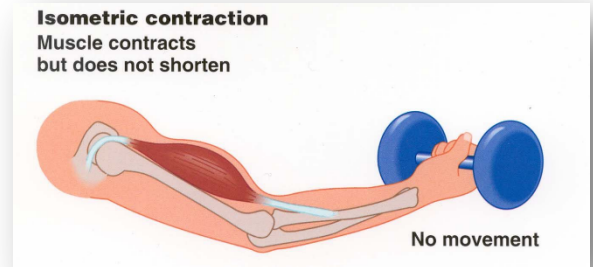




✓ Isometric Contraction

Muscles generate tension without shortening, known as isometric contraction, where force is **produced but length remains constant**.

Examples include **holding a weight at a 90° elbow angle** or maintaining a plank position. **In yoga, poses like the plank and static holds** cultivate isometric muscle development, enhancing strength without changing length, fostering overall fitness.



Conclusion

In the intricate realm of yoga instruction, profound knowledge of muscle anatomy and joint dynamics is paramount. **With over 600 muscles intricately woven into the human body**, a yoga trainer's expertise extends to discerning the functions of these muscles.

The anterior muscles facilitate pushing, while the posterior counterparts excel in pulling. **Understanding joint flexion and extension is crucial** flexion denotes a decrease in the angle between bones, while **extension signifies an increase**.

The nuanced concept of hyperextension enters the narrative when a joint surpasses its normal maximal extension, **embodying the intricate harmony of yoga practice**.



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Concentric contraction

Describes a muscle shortening under tension, bringing bone attachment points closer and prompting joint movement. **The prime mover, or agonist**, effectively drives specific joint actions, while antagonists resist the agonist's movement, remaining **mostly passive and lengthening as the agonist contracts**.

Eccentric contraction

Transpires when a muscle produces tension insufficient for movement, instead slowing the movement in the opposite direction due to an external force.

Ballistic movement

Swift actions with minimal resistance, such as throwing a ball. Delve into isometric contractions, **where muscles exert force equal to opposing forces**. In exercises like plank or wall push, **muscle length remains constant, maintaining joint positions for effective strength building**.

Mastering concentric contractions is vital for muscle growth, yet poses joint strain risks. Engaging in eccentric and isometric exercises before and after workouts minimizes this risk.

Integrate all three contractions in your Asana practice to enhance muscle balance, strength, and reduce injury likelihood. Embrace slow, **steady movements for optimal muscle and joint activation during your yoga journey**.



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"SURRENDER"

WHATEVER PRESENT LIFE MOMENT IS NOW

ACCEPT it as if you chose it
because your person that makes
your own choices in life don't
blame others for your ignorance.

Always "work with life facts" not against
them, make your current reality
your best friend.

Don't make facts your enemy.
Truth finds all sins don't risk suffering.

When you accept your "Now" you will
transform into a more complete
humble simple Spirit.





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