

ESSENTRICS® ACADEMY

LEVEL 3 STUDY GUIDE

FLEXIBILITY & THERAPEUTIC EXERCISES

LEARNING OBJECTIVES

The objective of this level is to teach you how to use the Essentrics program to unlock your clients' bodies, helping them release tension and increase flexibility. This will allow your clients to achieve the flexibility, therapeutic, and body shaping benefits of the Essentrics program.

To complete your Level 3 Evaluation, you should know:

- How to identify common mistakes related to Level 3 Flexibility Exercises and cue your clients to prevent making them.
- The muscle imbalances that cause common mistakes associated with Level 3 exercises. You should be able to explain how the activation of certain muscles can restrict someone's range of motion, preventing them from executing the exercise correctly.
- How to modify exercises to accommodate people with limited range of motion by cueing Positional, Joint Movement, and Neuromuscular techniques.
- How to teach Level 3 Flexibility exercises and sequences while cueing the appropriate techniques to release tension and increase flexibility.

TEACHING OBJECTIVES

Rebalance the Full Body

- No matter what your client's goal, injury, or imbalance may be, you must always rebalance every muscle within every Essentrics Workout.
- Within every Essentrics Flexibility Sequence, always aim to rebalance the joint(s) you are targeting.
- There is no single stretch or exercise that will free your clients from pain. The Essentrics Program must always be done in its entirety, with the main objective of rebalancing the whole body.

Addressing Common Mistakes

- A key objective of this level is for you to know the common mistakes associated with each exercise so you will instinctively cue to prevent clients from making them.
- Knowing the common mistakes of each exercise is the first step to leading a safe and productive workout. When you are working with someone who has tight, weak, or atrophied muscles and congealed connective tissue, you must understand what is preventing your client from doing the exercise correctly. This requires studying the muscles involved with the exercise so that you know which muscles need to relax, which need to be engaged, and which part of the anatomy just needs to move!

Teaching Relaxation

- To effectively increase range of motion and promote the therapeutic benefits of Essentrics, you must learn to teach your clients how to relax.
- *See Neuromuscular Techniques: Relaxation*

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FLEXIBILITY & THERAPEUTIC EXERCISES

OBJECTIVES and/or BENEFITS

The goal of each Essentrics exercise and what you gain out of it.

HEALTH & WELLNESS <i>Essentrics will</i>	BODY SHAPING & AESTHETICS <i>Essentrics develops</i>	SPORTS PERFORMANCE <i>Essentrics is for ...</i>
Increase Mobility	Overall Slenderizing	Flexibility
Improve Posture	Long Lean Muscles	Strength
Release Tension	Flattened Abs	Agility
Increase Energy	Toned Legs & Glutes	Power
Relieve Pain	Sculpted Arms	Speed
Reverse Signs of Aging	Thinned Waist	Range of Motion
Loosen Fascia	Defined Back Muscles	Injury Prevention
Teach Body Awareness	Weight Loss	Rebounding from Injuries
Assist in Injury Recovery		Rebalancing the Full Body
Reduce Scar Tissue		

Note on Essentrics Objectives and/ or Benefits:

- Familiarize yourself with your students' fitness objectives or goals and learn the science behind how each Essentrics exercise and technique can help accomplish a specific objective.
- Explain the WHY and HOW behind each exercise or technique pertaining to their objective.

Example:

If your client has lower back pain from working at a desk all day, you can explain:

"Using the arms to pull up towards the ceiling is an excellent way to stretch the muscles related to the spine and decompress the lower back."

NEUROMUSCULAR REFLEXES

Golgi Tendon Reflex:

The Golgi Tendon Reflex is one of the most complex reflexes involved with movement, and its multidimensional function is only partially understood.

What should be appreciated is the Golgi Tendon Reflex's sensitivity to muscle contraction and its function to protect the tendons by triggering relaxation in the muscle. Through this induced relaxation of the muscle, we permit our muscles to lengthen without the tension that would otherwise restrict movement.

Proprioceptive Neuromuscular Facilitation (PNF):

CONTRACT- RELEASE- RELAX- STRETCH

PNF is an effective way of using the *Golgi Tendon Reflex* to assist in muscular relaxation. The Golgi tendon reflex operates as a protective feedback mechanism to control the tension of an active muscle by triggering relaxation before the tendon tension becomes high enough to cause damage. By contracting the muscle, we trigger the *Golgi Tendon Reflex* which then induces relaxation. When you release the muscle, the muscle will be more relaxed and prepared to stretch further. Although there are many applications of PNF, we use PNF throughout every Essentrics Workout.

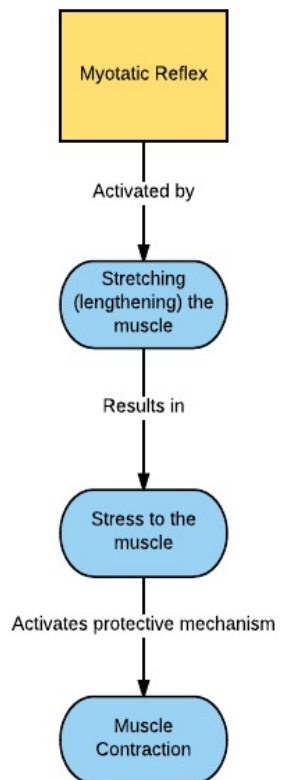
Myotatic Reflex:

Whenever we begin to lengthen a muscle, our body will naturally resist the stretch by creating tension. This is known as the myotatic reflex (sensitive to muscle stretch). The amount of contraction that the myotatic reflex triggers is proportional to both the speed of the stretch and the degree of the stretch. Therefore, the faster we stretch, the faster the muscle contracts—and the deeper we stretch, the greater the tension created in the muscle. Once the muscle spindles (a sensory neuron that detects the change in length of muscle fibers) adapt to the new length, the myotatic reflex subsides (less tension in muscle) and then you can stretch further.

Important note on Going to the End of the Stretch:

While the myotatic reflex is automatically triggered whenever there is a change in length of the muscle, we can control how much and how fast this reflex (contraction/ tension) is generated. Because the myotatic reflex is proportional to both the rate (speed) and the degree (amount) of the stretch, you must be cautious to move slowly and not too deep into a stretch when you are working with someone in pain. The objective of working with someone in pain is to relieve tension, so we want to avoid causing unnecessary tension by rushing into a stretch too fast or too deep. For someone who is very tight or in pain, we can most effectively increase their mobility by moving slowly through a comfortable range of a motion.

Going to the End of the Stretch also increases the length of the lever. As we know from Level 1, the longer the lever, the heavier the load. This means that the muscles must work harder to support a heavier load. While this is an excellent strengthening technique, it will not be as effective if we are trying to relax or release tension from a muscle. In Level 3, the focus is on flexibility and healing. Using the End of the Stretch technique must be done in moderation and you must understand how to harmonize with the neuromuscular reflexes to safely increase flexibility without creating undue tension.



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LEVEL 3 ANATOMY GUIDE

ANATOMY STUDY GUIDE

Level 3 and 4 require that you demonstrate a working knowledge of anatomy and physiology. As an Essentrics Instructor, you should know which muscle you are targeting within a given stretch or exercise and how these muscle movements impact the rest of your body. Knowing your anatomy will help you understand how to rebalance the full body by effectively cuing your students which muscles to target, relax and engage in any give exercise.

If your client is suffering from pain, an injury or a chronic condition (you may be unfamiliar with the specific condition), it is essential that you understand *what* is not functioning properly and how the related anatomy is affected. The only way to distinguish if something is not functioning properly is to understand what it's proper function should be.

If this is your first time learning anatomy- you are not alone! See our tips and educational resources at the end of this document to help you successfully incorporate this knowledge into your learning repertoire and better help you teach Essentrics.

Muscles and their Movements:

You will be expected know the following information about Muscles and their Movements for your Live Evaluation:

- **Muscle Names:** see chart provided below for the exact muscles you should be familiar with
- **Muscle Attachment points:** indicate which bone the muscle is attached to. Please note that you only need to refer to the name of the bone the muscle is attached to based on the skeleton list provided in this document.
- **Muscle Function:** What are the primary actions of the muscle. How does it lengthen, how does it shorten?

Here are some sample questions you will be asked in your Live Evaluation:

1. What are the _____ muscles' origin and insertion (attachment) points, indicate which bones the muscle is attached to.
2. What are the Primary actions & functions of the _____ muscle
3. Which Level 3 Essentrics Flexibility exercise(s) would target and lengthen the _____ muscle? *(if you are taking the Level 3 exam)*
4. Which Level 4 Essentrics Strengthening exercise(s) would target and strengthen the _____ muscle? *(if you are taking the Level 4 exam)*

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Muscles from THE ANTERIOR, POSTERIOR AND LATERAL VIEW		
ANTERIOR MUSCLES OF THE TOP THREE		ANTERIOR MUSCLES OF THE BIG FOUR
<ul style="list-style-type: none"> • SCM • Scaleni • Pectoralis Major • Pectoralis Minor • Rectus Abdominis • Internal & External Obliques • Intercostal muscles • Diaphragm • Transverse Abdominis 		<ul style="list-style-type: none"> • Iliopsoas: Psoas Major + Iliacus • Quadriceps muscle group: Rectus Femoris, Vastus Medialis, Vastus Lateralis, Vastus Intermedius • Sartorius • Tibialis Anterior
POSTERIOR MUSCLES OF THE TOP THREE		POSTERIOR MUSCLES OF THE BIG FOUR
<ul style="list-style-type: none"> • Splenius Capitis & Cervicis • Levator scapula • Upper Trapezius • Middle Trapezius • Lower Trapezius • Rhomboid Major & Minor • Superficial Erector Spinae Muscle Group: Spinalis, Longissimus, Iliocostalis • Deep Erector Spinae Muscle Group: Rotatores, Multifidus, Semispinalis • Latissimus Dorsi • Quadratus Lumborum • Serratus Posterior Inferior 		<ul style="list-style-type: none"> • Gluteus Maximus • Deep Lateral Rotators of the Hip: Piriformis, Obturator Internus, & Externus, Gemellus Superior & Inferior, Quadratus Femoris • Hamstrings muscle group: Biceps Femoris, Semitendinosus, Semimembranosus • Gastrocnemius • Soleus • Tibialis Posterior
LATERAL MUSCLES OF THE TOP THREE		LATERAL MUSCLES OF THE BIG FOUR
<ul style="list-style-type: none"> • Serratus Anterior • Internal & External Oblique • Intercostal Muscles 		<ul style="list-style-type: none"> • Gluteus Medius • Gluteus Minimus • Tensor Fasciae Latae (TFL) • Iliotibial band (IT band) Note this is a band of fascia rather than a muscle. It is the superior attachment for TFL, G Med & G Max
MUSCLES OF THE ARM & SHOULDER		MEDIAL MUSCLES OF THE BIG FOUR
ANTERIOR: <ul style="list-style-type: none"> • Anterior Deltoid • Coracobrachialis • Biceps Brachii • Brachialis • Flexor compartment of lower arm POSTERIOR: <ul style="list-style-type: none"> • Posterior Deltoid • Teres Major • Triceps • Extensor compartment of lower arm 	LATERAL: <ul style="list-style-type: none"> • Middle Deltoid • Brachioradialis ROTATOR CUFF: <ul style="list-style-type: none"> • Subscapularis • Infraspinatus • Supraspinatus • Teres Minor 	<ul style="list-style-type: none"> • Gracilis • Pectineus • Adductor Brevis • Adductor Longus • Adductor Magnus • Peroneus Longus

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Bones, Joints and Connective Tissue

You will be expected know the following information about Bones, Joints and Connective Tissue for your Live Evaluation:

TOP THREE BONES	BIG FOUR BONES
<p>Cranium</p> <p>Shoulder girdle</p> <ul style="list-style-type: none"> • Clavicle • Scapula (shoulder blades) <p>Arm / Hand</p> <ul style="list-style-type: none"> • Humerus • Radius • Ulna • Carpals (8) • Metacarpals (5) • Phalanges (14) <p>Vertebrae</p> <ul style="list-style-type: none"> • Cervical spine - C1-C7 • Thoracic spine - T1-T12 • Lumbar spine - L1-L5 • Sacrum (4 fused) • Coccyx (tailbone) <p>Thoracic cage</p> <ul style="list-style-type: none"> • Manubrium • Sternum • Ribs (12) 	<p>Hip bones</p> <ul style="list-style-type: none"> • Ilium / Iliac crest • Ischium / Ischial Tuberosity (sit bones) • Pubis / Pubic Symphysis <p>Leg / Foot</p> <ul style="list-style-type: none"> • Femur • Patella (kneecap) • Fibula • Tibia (shinbone) • Calcaneus (heel bone) • Tarsals (7) • Metatarsals (5) • Phalanges (14)

Connective Tissue & FUNCTION

FASCIA - The stretchy connective tissue that forms a protective web in our body, enveloping all muscles and surrounding every cell of the body.

CARTILAGE - Provides a frictionless surface. Cushions and prevents wear on articular surfaces.

LIGAMENTS - Attach bone to bone. Have minimal elasticity and little or no ability to repair themselves if torn or overstretched.

TENDONS - Connect muscle to bone. Have minimal elasticity and little or no ability to repair themselves if torn or overstretched.

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Additional Resources

There are many anatomy sources, books, and online or live courses to help you learn the relevant anatomy required to pass your Level 3 and 4. If you are new to learning anatomy, then we recommend taking a local or online Anatomy course to give you a better structure.

- *Level 1 Manual- Principles of Essentrics, 2018 Edition*
 - o Contact training@essentrics.com for reduced cost
 - o Includes updated anatomy & physiology sections, and the concepts that drive the program such as the sliding filament theory and our muscle reflex intelligence – with additional diagrams, anatomy charts, and a revised glossary as aids.

Study Tools

- *Study Blue*
 - o <https://www.studyblue.com/#home>
 - o Build your own flashcards online to help learn and memorize muscle names and actions
- *Essential Anatomy 5*
 - o <https://itunes.apple.com/ca/app/essential-anatomy-5/id596684220?mt=8>
 - o In-app purchase (muscle systems pro) include additional muscle and skeletal content to be downloaded and accessed from within the app. Including muscle insertion and origin points, skeletal bone parts and surfaces and 100s of animations dealing with movements for each articulation.

Online Courses

- o https://www.edx.org/course?search_query=anatomy
 - Founded by Harvard University and MIT, edX is an online learning destination and MOOC provider, offering high-quality courses from the world's best universities and institutions to learners everywhere.
 - Many courses are *free* – with option to pay for a verified certificate of completion (at a considerably low rate) which you can showcase on your LinkedIn or website
- o <https://www.khanacademy.org/science/health-and-medicine/human-anatomy-and-physiology/introduction-to-muscles/v/myosin-and-actin>
 - Instructional videos breaking down complicated concepts related to anatomy and physiology.
- o <https://www.coursera.org/>
- o <http://www.saylor.org/courses/bio302/>
- o <http://www.KenHub.com>

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Recommended Videos

You do not need to memorize the information in these videos, but you should understand the basic concepts.

FUNCTIONS OF THE NERVOUS SYSTEM

The body is controlled by the brain. Every movement we make, whether voluntarily or non-voluntarily, starts with the brain. To effectively understand the human body and how we use the neuromuscular techniques in Essentrics we need to understand how the brain works. Remember that the primary function of the brain and nervous system is to protect us and keep us alive.

<https://www.khanacademy.org/science/health-and-medicine/human-anatomy-and-physiology/nervous-system-introduction/v/motor-unit>

MOTOR UNIT

If you decide to lift your arm, what happens after that? What happens if you can't lift your arm- what isn't happening? Why do our muscles shrink and how do we prevent atrophy?

<https://www.khanacademy.org/science/health-and-medicine/human-anatomy-and-physiology/nervous-system-introduction/v/motor-unit>

MUSCLE STRETCH REFLEX

You must be aware of reflexes and how they impact our muscles and joints. This video does not specifically refer to PNF (Golgi Tendon reflex) or the Myotatic reflex but it does describe why these reflexes happen. Understanding how the reflexes work will help you to be able to use the reflexes to control the tension in the muscles.

<https://www.khanacademy.org/science/health-and-medicine/human-anatomy-and-physiology/nervous-system-introduction/v/muscle-stretch-reflex>

ANATOMY OF A MUSCLE CELL

Overview of how the muscle fibres are structured- beginning with the entire muscle and further examining the most basic unit of muscle contraction. Use this video as a reference when studying the anatomy of muscle fibres to visualize how the muscles contract and shorten on a cellular level.

<https://www.khanacademy.org/science/health-and-medicine/human-anatomy-and-physiology/introduction-to-muscles/v/anatomy-of-a-muscle-cell-1>

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MYOSIN AND ACTIN

Myosin and Actin are the two protein filaments that are the basis of movement in our skeletal muscles. Use your fingers to visualize the myosin and actin sliding past one another. Visualize what would happen if there was a limited movement in this basic cellular level and how that might affect the body.

<https://www.khanacademy.org/science/health-and-medicine/human-anatomy-and-physiology/introduction-to-muscles/v/myosin-and-actin>

LIGAMENTS, TENDONS AND JOINTS

Essentrics is a fitness program designed to protect our ligaments, tendons and joints. To protect them, and keep them safe we must learn their function, range of motion and how much movement they are designed for.

<https://www.khanacademy.org/science/health-and-medicine/human-anatomy-and-physiology/skeletal-system/v/ligaments-tendons-and-joints>

Put it all together:

CRASH COURSE: SKELETAL MUSCLES

<https://www.khanacademy.org/partner-content/crash-course1/partner-topic-crash-course-bio-ecology/crash-course-biology/v/crash-course-biology-130>

THE FUZZ SPEECH

After watching the previous video watch this video and think about the movement of the muscles, myosin and actin and how the fuzz applies to this movement. What would happen if there was no sliding action? What would happen if there was only a limited sliding action?

https://www.youtube.com/watch?v=_FtSP-tkSug