ESSENTRICS® ACADEMY

LEVEL 4 STUDY GUIDE

STRENGTHENING EXERCISES

LEARNING OBJECTIVES

Having completed the first three certifications, you are now familiar with the power of the Essentrics Techniques and how relaxation can be incorporated within every exercise. You understand the multitude of benefits Essentrics can deliver: it can heal, increase flexibility, relieve pain, reverse chronic conditions, and reshape the body. During this final certification training, you will learn how and why Essentrics strengthens the muscles, as well as the importance of strength and the impact it has on our bodies at a cellular level. You will also learn which exercises and techniques can be specifically used to strengthen or tone the body, all while increasing flexibility.

To complete your Level 4 Evaluation, you should know**:**

- Which muscular imbalances are related to either tight musculature or muscle weakness
- Which muscles should be engaged to correctly perform each exercise
- The value of incorporating both components of strength: endurance and power
- How relaxation can be used as an effective technique to achieve strength
- The relationship between the agonist and antagonist muscle groups
- The structure and role of connective tissue in strength, stability, and body shape

TEACHING OBJECTIVES

Correcting Muscle Imbalances

- A balanced body requires every muscle to be equally strong and flexible. You must learn how to effectively isolate target muscles to teach your students how to perform movements efficiently.
- You will discover how addressing muscle imbalances corrects posture and alignment.
- We will be refining your ability to teach alignment and load path, so that each exercise is safe.
- You will learn how to apply cues that help bridge the gap between the mind and body, producing a strong sense of body awareness.

Balance and Stability

- Understanding the synergistic relationship between muscles and connective tissue is essential in order to enhance balance, stability, and overall performance.
- You will learn how to teach your students to develop control over their body, and to have an awareness of how they hold themselves. Imagery, Alignment, and Pulling Up are useful techniques to help your clients increase Balance and Stability.

Endurance & Power

- You must be able to effectively use Essentrics Techniques to achieve both strength and power.
- Doing rapid fast-twitch movements in short bursts will increase speed, power and agility.
- Doing slow, controlled movements for an increased duration of time will increase endurance.
- Which techniques and exercises are effective in increasing power?
- Which techniques and exercises are effective for increasing endurance?

OBJECTIVES and/or BENEFITS
The goal of each Essentrics exercise and what you gain out of it.

HEALTH & WELLNESS ***Essentrics will ….***	**BODY SHAPING & AESTHETICS** ***Essentrics develops ….***	**SPORTS PERFORMANCE** ***Essentrics is for …***
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 a client's objective is to tone abs, you can explain:
"Contracting your abs and stomach muscles as you pull your arms up towards the ceiling will tone your stomach muscles in their elongated position."

ESSENTRICS TECHNIQUES
Techniques are applied within our Essentrics exercises in order to achieve certain goals. They allow us to accomplish our desired objectives.

POSITIONAL TECHNIQUES *Defined as: a position used to target the correct muscle groups and ensure that load path is equally distributed throughout the body*	**JOINT MOVEMENT TECHNIQUES** *Defined as: a technique that moves the muscles within or surrounding a joint*	**NEUROMUSCULAR TECHNIQUES** *Defined as: a technique used to trigger a response in the nerves and muscles*
Neutral C	Movement Within a Stretch	End of the Stretch *(myotatic reflex)*
Neutral Elongation	Rotation Within the Joint	PNF *(Golgi tendon reflex)*
Alignment	Rotation of the Joint	Isotonic Contractions: concentric & eccentric
Turnout	Movement of the Joint	Isometric Contraction
Isolation	Overextension	Resistance
Short Lever / Long Lever	Pulling Up	Relaxation
	Pulling Out	Imagery
	One-Directional Stretch	Deep Breathing
	Multi-Directional Stretch (two-directional or more)	Agonist / Antagonist
	Lever Stretch	Ballistic Movement
		Music

ESSENTRICS TECHNIQUES FOR STRENGTHENING

As a Level 4 Instructor, you will be expected to apply what you have learned throughout your entire certification process to teach your students how to successfully rebalance all 650 muscles with equal strength and flexibility. You are expected to use a combination of strengthening and flexibility techniques to obtain a healthy, balanced muscle.

NEUROMUSCULAR TECHNIQUES

- In order to increase strength and mobility in the muscles we need to be able to access the full range of motion in each joint. If someone is tight and cannot move, they will not be able to strengthen their muscles with correct alignment and effectively rebalance all 650 muscles.
- In level 4, you are expected to use the neuromuscular techniques to release tension in muscles and correctly align the body for the exercise *before* you begin the exercise. It is pointless to do a strengthening exercise if you are not able to engage the target anatomy. Never underestimate the strengthening benefits of working slower and smaller.
- Focus on techniques that position the body in a way that allows you to effectively target anatomy to tone muscles, improve power, and increase endurance.

Relax to Strengthen

- Relaxation is a surprisingly powerful technique for strengthening—it enables us to move without tension in the muscles. Without that added resistance, we can stretch further and move deeper into a movement/exercise. Moving deeper into an exercise allows us to lengthen the lever and increase the load. For example, think about relaxing during a Windmill. As we reach to the end of the stretch, our lunge deepens, increasing the load on the legs and core that support the body as we pull away from center.
- Relaxation is also an effective technique that allows us to engage target anatomy. Clients with muscular imbalances will often automatically recruit tight overworked muscles instead of the target anatomy. For example, consider arm exercises. Many people instinctively use their upper trapezius to lift the arms. To effectively target and strengthen deltoids and arms muscles, they need to relax their shoulders and neck *first*.
- Relaxation can be achieved through cueing, breathing, PNF, and use of imagery. Review Classical Stretch Season 11, the Age Reversing Workouts and the Pain Relief Workouts for effective relaxation cues and how to use this technique for strengthening.

End of the Stretch

- Going to the End of the Stretch is an excellent technique that should be used to improve strength and mobility. As we go to the end of the stretch, we lengthen the lever, increasing the load.
- The improved mobility that allows us to reach further into the End of the Stretch creates another need: we must use strengthening techniques to pull ourselves back in, protect the joints, and strengthen muscles.

Eccentric Strengthening

- Eccentric strengthening involves contracting the muscle as it is being lengthened. This helps to build long, lean muscles and protects joints from over-stretching. You can cue this technique effectively by using Imagery and Resistance.
- With each exercise, ask yourself, *which muscle group is being lengthened*? Then, focus on resisting your movements by eccentrically contracting that muscle group. This is how you continue to get stronger without plateauing. It's *not* about reaching further at a certain point. It's about holding yourself back.
- Example: During a side lunge, you might cue students to 'push your ribs out'— something that could be difficult for a client whose ribcage is tight and immobile. But for someone who is mobile or has been practicing Essentrics for years, it might be effortless. In this case, we need to resist the movement to maximize strengthening. Try lifting one arm up and popping your ribs out. Now try contracting the muscles around your waist, and slowly push the ribs out as you simultaneously resist the movement. This is not only incredibly slenderizing, but it is also much safer to work like this because it will prevent you from over stretching your joints.

POSITIONAL TECHNIQUES

Alignment

- The human body has 360 joints, which must be kept well-aligned to prevent torsion or strain on a joint and successfully recruit the full musculature. At this point in your certification, we expect you to effectively teach, cue, and demonstrate perfect alignment within each Essentrics exercise. Use the Positional, Neuromuscular, and Joint Movement techniques to teach your students how to achieve and maintain correct alignment.
- The objective is to strengthen and rebalance muscles around the joints with the skeleton in perfect alignment.
- Which exercises and positions are especially prone to misalignment?
- If someone struggles to execute perfect alignment in a position, which techniques would be most effective to unlock the joint in order to achieve and maintain correct alignment?
- How does having perfect alignment in a position or exercise allow us to effectively isolate and recruit target anatomy?

JOINT MOVEMENT TECHNIQUES

Pulling Up

- Pulling Up should be applied during nearly every Essentrics exercise—even in Neutral C! Pulling Up allows your students to successfully decompress their joints by preventing them from sinking.
- Visualize pulling up with the lower attachment of the abdominal muscles on the pelvis. Try to prevent the lower back from arching to obtain a neutral position of the pelvis.

LEVEL 4 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)*

Muscles from **THE ANTERIOR, POSTERIOR AND LATERAL VIEW**

ANTERIOR MUSCLES OF THE TOP THREE

- SCM
- Scaleni
- Pectoralis Major
- Pectoralis Minor
- Rectus Abdominis
- Internal & External Obliques
- Intercostal muscles
- Diaphragm
- Transverse Abdominis

ANTERIOR MUSCLES OF THE BIG FOUR

- Iliopsoas: Psoas Major + Iliacus
- Quadriceps muscle group: Rectus Femoris, Vastus Medialis, Vastus Lateralis, Vastus Intermedius
- Sartorius
- Tibialis Anterior

POSTERIOR MUSCLES OF THE TOP THREE

- 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, Multifidis, Sempspinalis
- Latissimus Dorsi
- Quadratus Lumborum
- Serratus Posterior Inferior

POSTERIOR MUSCLES OF THE BIG FOUR

- 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

- Serratus Anterior
- Internal & External Oblique
- Intercostal Muscles

LATERAL MUSCLES OF THE BIG FOUR

- 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

ANTERIOR:

- Anterior Deltoid
- Coracobrachialis
- Biceps Brachii
- Brachialis
- Flexor compartment of lower arm

POSTERIOR:

- Posterior Deltoid
- Teres Major
- Triceps
- Extensor compartment of lower arm

LATERAL:

- Middle Deltoid
- Brachioradialis

ROTATOR CUFF:

- Subscapularis
- Infraspinatus
- Supraspinatus
- Teres Minor

MEDIAL MUSLCES OF THE BIG FOUR

- Gracilis
- Pectineus
- Adductor Brevis
- Adductor Longus
- Adductor Magnus
- Peroneus Longus

LEVEL 4 ANATOMY GUIDE

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
Cranium Shoulder girdle • Clavicle • Scapula (shoulder blades) Arm / Hand • Humerus • Radius • Ulna • Carpals (8) • Metacarpals (5) • Phalanges (14) Vertebrae • Cervical spine - C1-C7 • Thoracic spine - T1-T12 • Lumbar spine - L1-L5 • Sacrum (4 fused) • Coccyx (tailbone) Thoracic cage • Manubrium • Sternum • Ribs (12)	Hip bones • Ilium / Iliac crest • Ischium / Ischial Tuberosity (sit bones) • Pubis / Pubic Symphysis Leg / Foot • 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.

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*
    - Contact training@essentrics.com for reduced cost
    - 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*
    - https://www.studyblue.com/#home
    - Build your own flashcards online to help learn and memorize muscle names and actions
- *Essential Anatomy 5*
    - https://itunes.apple.com/ca/app/essential-anatomy-5/id596684220?mt=8
    - 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

- 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
- 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.
- https://www.coursera.org/
- http://www.saylor.org/courses/bio302/
- http://www.KenHub.com

LEVEL 4 ANATOMY GUIDE

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

ANTAOMY 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

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=BdRqLrCF_Ys