



KNOW PAIN, NO GAIN!

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How many times have I heard in the fitness industry, **NO PAIN, NO GAIN?** How many times have I overheard people saying how sore they were the next day from their workout? Lets break down this misunderstood **gym motto** and analyze what exactly you feel and what exactly is happening.

At a cellular level, here is the physiology of muscle soreness

- There are two types of soreness, **DOMS** (Delayed onset muscle soreness) and **PEMS** (Post exercise muscle soreness). If you suffer from **PEMS** right after a set or workout you really are going to be in big trouble.
- Most people feel the **DOMS** 24-48 hours after a workout. The fitness industry has credited **DOMS** as feeling normal and usual. Of course, the fitness industry is usually made up of uneducated muscle heads and personal trainers who regurgitate false information.
- Muscle soreness in simplest terms is **SORENESS** or injury. Muscles do not need to be sore to have an effective workout with regards to hypertrophy or toning goals. If you train by the motto "**No Pain, No Gain**" then how do you measure injuries anymore?
- At the physiological level, if the muscle fibers are tearing, depending on how sore you are will determine how severe the injury. Muscles do not need to tear in order to grow.
- **Hypertrophy** is the definition for muscle growth. **Hyperplasia** is the definition for muscle fiber division. Muscle growth is from expanded muscle fiber volume due to an increase of blood and water being pumped into the fibers. **The Hyperplasia theory** that was never proven and is usually a myth told around gyms states that we grow more muscle fibers from tearing down existing ones.
- **Lactic Acid burn** is the feeling one gets after repeated repetitions of a particular exercise. When the muscle cells no longer have oxygen (O₂) the cells start to build up carbon dioxide (CO₂), which is a waste product.
- **Despite what we hear, LACTIC ACID does not cause our muscles to be sore the following day; it's the damage to muscle fibers that cause us to be sore the next day.**

Now lets look at what is causing the soreness that we think feels good.

- Flexibility and Stretching are two different terms. Being flexible doesn't involve forced stretching, and stretching doesn't guarantee flexibility.
- When weight training, range of motion is supposed to be **active range**. Active range is the ability to move into a specific position without an outside force pulling you into the position. **Passive range** is when an outside force is pulling your muscle into a range of motion.
- If muscle fibers are stretched past its **Active R.O.M.** there is a chance muscle fibers will tear. The greater cross-bridging of muscle fibers we have, the greater the amount of muscular contraction we get. The lesser cross-bridging of muscle fibers the greater the chances of muscles tearing and joint injury.
- A simple analogy for muscle soreness would be this; when we get a cut and it forms a scab, we don't pick the wound right? When we get soreness we should not stretch the muscle. It's trying to heal and if we stretch the muscle it's just like picking at a cut that is trying to heal.
- When we first engage in any new form of exercise, the chances of being sore the following day are greater if we **OVERTRAIN**. Remember, we must crawl before we walk.
- Do you notice that after a few weeks of training you don't feel sore? When we choose a specific **MOTOR PATTERN**, we learn to adapt and control the skeletal muscular functions. That's **Neuromuscular Adaptations**.
- Research discovered that **lactic acid** seemed to inhibit the mobilization of free fatty acids (**FFAs**) from adipose tissue. The lactic acid blocked the action of epinephrine, thereby reducing the availability of fat for muscle metabolism. Think about that the next time you want to keep feeling the excessive burn in the muscle during a workout.
- Remember this **"Exercising does not make one an Exercise Specialist any more than having surgery makes one a Surgeon!"**