

## Breath to Rep Ratio

The most important quality about exercise is the movement. The movement tells us everything we need to know ranging from performance, level of condition, injury risk, and the amount of body awareness. Movement stems from a foundation. You move with your limbs and you stabilize your trunk.

It is easier to understand the importance of movement and stability by imagining moving your limbs while having the proximal body part stable. For instance, if you want to only move your foot, you have to steady your knee. If you want to only move your knee, you have to steady your hip. If you only want to move your hip, you have to steady your trunk. Now, attempt to move all three.

From crawling, walking, running, squatting, jumping, and anything else you can picture, the elite are able to efficiently stabilize the trunk and only move the intended parts. Ever see an Olympic sprinter compared to an average sprinter? Don't worry about who is faster. Look at the movement. The Olympian has virtually no movement in the trunk, while only moving the shoulders, and legs. The average sprinter as you have seen will also have shoulder and leg movement, but they will have excessive trunk rotation with lots of other uncontrolled movements of the head and spine as they run.

The common reality is that all movement stems from the trunk with stability of the pelvic girdle, shoulder girdle, and spine.

The tying factor that stabilizes these structures is breathing. The air we breathe does so much for our body. It provides oxygen for our bodies. It creates a balance for sphincter regulation. And it provides stability of the trunk by creating Intra-Abdominal Pressure (IAP).

The core is a term we all hear very often. The popularity of the core is illustrated in exercises, in low back health, and in general correlation with high level athletic performance. We hear several things about "the core".

"The stronger the core, the better the athlete..."

"Oh, you have low back pain? Strengthen your core."

"To strengthen your core, do these exercises."

Core strength is a reflection of the efficient regulation of IAP. Core strength is a reflection of how well you can breathe and generate sufficient IAP. Intra-Abdominal Pressure creates a strong core. What is the first thing you do before you go under that heavy squat rack? You take a deep breath...

Why?

To make your core "tight"--- to generate intra-abdominal pressure. Having the appropriate IAP to reflect the activity will allow you to focus on exactly what is needed to move during the activity and have less compensations during the movement. The term is called bracing. When you breathe correctly to generate sufficient IAP, you brace the core. Bracing of the core provides stability of the torso. Breathing is essential for your quality of movement and even your quantity of movement. If you hold your breath for too long or have an inappropriate rhythm of breathing, your quality of movement suffers, your risk of injury increases, and your endurance level decreases.

Every activity, every exercise, every movement, requires a certain breath to rep ratio. For example, a swimmer will have one breath for every 2-8 strokes or, if in competition with a short distance, the swimmer will most likely only come up for air once or twice! The breath to rep ratio for swimming is important.

Let's look at a runner. A runner will not take a breath for every stride. A runner will have a continuous rhythm of breathing while running throughout the cycle. This aerobic training requires an efficient rhythm of breathing. An irregularity in breathing rhythm will affect the running performance.

A boxer, unless they are unleashing a flurry of punches, will most commonly have a 1:1 breath to punch ratio. Whether a jab, cross, hook, or uppercut, these boxers know that the punching power comes from exhalation upon full extension of the punch.

A weight lifter, training with an anaerobic program, will most commonly utilize a 1:1 breath to rep ratio. They inhale to generate sufficient IAP, squat down, and exhale upon rising. The appropriate breathing during anaerobic training will dictate how well you move, how much you move, and lower your risk of injury.

A greater amount of stability is required with movement than standing still. Now add a bar of weight on your back applying the same concept. If you think you can hold your breath during exercise and do your best, you are fooling yourself. It may get you through 1-3 reps, or however long you can hold your breath, but you are sure to suffer thereafter.

The appropriate breath to rep ratio is crucial for you to be able to efficiently perform lifts with high quality, high quantity, and lower risks of injury. The greater the stress, the more complex the movement, the more stability is required. Stability starts with the trunk. Stabilize the trunk with Intra-Abdominal Pressure. Develop the appropriate breath to rep ratio.

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