



1. INTRODUCTION

Despite increased focus on health and fitness, stress and obesity rates in the U.S. are at an all time high^{2,15}. Athletic training theory and techniques have seen dramatic changes, which has resulted in higher levels of competition and athletic achievement⁴. It is more important now than ever to carefully select modes of exercise that have the greatest benefit in all areas of health and fitness as well as athletic performance.

The 40 minute Fitwall class structure has been designed to be efficient in all areas of fitness. 40 minutes allows for free fatty acids to be released into the bloodstream for utilization (at 20 minutes) and used for fuel during exercise. This class schedule also includes movements targeting cardiovascular health, flexibility, balance, strength, power and decompression.

Research for this paper was conducted at the Welltec Human Performance Lab in Albuquerque, N.M. to analyze the effectiveness of Fitwall equipment and exercise programming. Four areas were specifically studied: Activation, Balance, Caloric Consumption and Decompression.

2. ACTIVATION

Activation of the central nervous system (CNS) occurs when the body is subjected to any type of stress, emotional or physical. Using heart rate variability, we found that the postural threat position of Fitwall exercises (heels not supported and hands clinging to the wall as seen in Figure 1), causes an increased sympathetic response. This in turn causes increased parasympathetic tone, which can reduce the stress response (Cortisol secretion)¹⁶ in similar future situations. This fear of falling (FoF) may also have neuromuscular benefits such as anticipatory postural control (APA).^{5,8} APA may have benefits including reduced chance of musculoskeletal injuries and improved athletic performance.

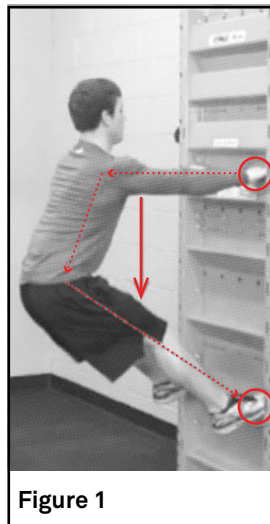


Figure 1

3. BALANCE AND STABILITY

Fitwall programming contains movement patterns that significantly increase balance and stability, which has been shown to improve athletic performance, strength, speed, vertical jump, and to reduce injury rates for hip, knee, ankle and lower back.^{8,9,11,12}

Fitwall is a novel method of performing these movement patterns as athletes are in a vertical position that mimics many 'real world activities'. These movement patterns are likely to be even more effective in eliciting balance and stabilization, resulting in improved athletic performance and injury prevention because of the direction of forces during these movement patterns.

4. CALORIC CONSUMPTION

The Caloric Consumption study was performed at a Fitwall studio and in the Welltec Human Performance Lab. It was found that a Fitwall workout burns an unusually high amount of calories during a 40 minute exercise session, which is likely attributable to the vertical training method, high intensity interval training and the work/recovery optimization using heart rate monitoring. These study's saw an increase in Resting Metabolic Rate of 24% (24 hours after the workout) to 57% (1 hour after the workout) by participating in a Fitwall session.

We have also concluded that the high EPOC or "afterburn" experienced by Fitwall athletes is attributable to the mode of exercise (vertical training), program design and intensity levels.

DECOMPRESSION

Evaluation of Fitwall movements in relation to other studies found that Fitwall exercises contain movements that have been shown to reduce knee, lower back, elbow, shoulder and ankle pain.^{2,3,4,5}

Fitwall's low impact, unloading and decompressive exercises can reduce frequency and intensity of chronic joint symptoms. There is also strong evidence that range of motion and flexibility are improved, which may result in improved athletic performance.

5. CONCLUSION

After research and review of Fitwall exercises and classes, it was concluded that there are several unique benefits not found in other exercise modalities. Activation of the sympathetic nervous system, balance and stabilization benefits, increased caloric consumption, metabolic rate and the closed chain, low impact movements make for an efficient workout routine.

Typically, separate modes of exercise are required to achieve the above benefits, however it was found that one 40 minute Fitwall training session ³ times per week achieves these results, while minimizing risk for injury or overtraining.



EFFICIENCY OF FITWALL

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