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Exercise as a Potentiator of Dermato functional Therapy in Abdominal Fat Reduction: Implications for Cardiovascular Health



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Abstract

Abdominal fat is composed of two distinct compartments: subcutaneous and visceral adipose tissue. While subcutaneous fat is primarily aesthetic in concern, excess visceral fat is strongly associated with cardiometabolic disorders, including insulin resistance, systemic inflammation, and atherosclerosis. Dermato functional therapies such as radiofrequency, ultra cavitation, and passive electrostimulation (Russian or Aussie currents) have shown effectiveness in mobilizing subcutaneous abdominal fat but exert no direct influence on visceral fat. Physical exercise, in contrast, reduces both subcutaneous and visceral fat, enhances metabolic health, improves endothelial function, and lowers cardiovascular risk. When exercise is performed after dermato functional procedures, the mobilized fatty acids are directed toward mitochondrial oxidation in skeletal muscle, preventing re-esterification and contributing to systemic benefits. Evidence indicates that such combined approaches yield superior reductions in abdominal fat and may also contribute to cardiovascular prevention. This article highlights the synergistic role of exercise as a potentiator of dermato functional therapy, with implications that extend beyond aesthetics into cardiovascular health promotion.

Keywords: Abdominal Fat; Subcutaneous Fat; Visceral Fat; Exercise; Dermatofunctional therapy; Cardiovascular Prevention; Cardiometabolic health

Introduction

The reduction of abdominal fat is a central goal in both aesthetic practice and preventive medicine. Abdominal fat consists of subcutaneous adipose tissue, located beneath the skin, and visceral adipose tissue, which envelops abdominal organs and is strongly associated with cardiometabolic disease [1,2]. Excess visceral fat contributes to insulin resistance, systemic inflammation, endothelial dysfunction, and atherosclerosis, reinforcing the importance of abdominal fat reduction in cardiovascular prevention. Dermatofunctional therapies specifically target subcutaneous fat, whereas physical exercise exerts systemic effects, impacting both subcutaneous and visceral compartments while also promoting cardiovascular health. This viewpoint discusses the isolated effects of exercise, the role of dermatofunctional therapies, and the complementary benefits of combining these strategies in abdominal fat reduction, with emphasis on implications for cardiovascular health.

Physical Exercise Alone

Exercise is one of the most effective interventions for reducing body fat, particularly visceral adiposity, which in turn is less responsive to device-based approaches [3-5]. During

aerobic and resistance exercise, lipolysis is stimulated in adipose tissue, releasing free fatty acids into the bloodstream, where they circulate bound to albumin. These fatty acids are taken up by skeletal muscle, activated into acyl-CoA, transported into the mitochondria via the carnitine shuttle, and oxidized through β -oxidation, producing acetyl-CoA to fuel the tricarboxylic acid cycle and generate ATP [6,7]. These metabolic processes not only support fat loss but also improve endothelial function, reduce arterial stiffness, lower blood pressure, and enhance insulin sensitivity, thereby contributing to cardiovascular prevention [8,9]. Classic trials have shown that isolated abdominal exercise does not reduce subcutaneous fat in the abdominal region [10], while more recent evidence suggests that endurance exercise focused on the trunk may increase mobilization of abdominal fat compared to exercise of equal intensity performed elsewhere [11].

Dermatofunctional Therapy Alone

Dermatofunctional techniques are designed to reduce localized adiposity by acting directly on the subcutaneous compartment. Radiofrequency induces controlled heating of adipose tissue, promoting adipocyte apoptosis, increasing circulation, and stimulating collagen remodeling [3].

Ultra cavitation uses low-frequency ultrasound to create cavitation bubbles that disrupt adipocyte membranes, releasing triglycerides into the extracellular space [4]. Passive electrostimulation with Russian or Aussie currents generates rhythmic muscle contractions, even in a resting position, enhancing local circulation, stimulating lipolysis, and increasing metabolic activity in the treated area [5]. These methods are effective for localized reduction of subcutaneous fat but do not influence visceral adiposity or cardiovascular health directly. Without subsequent energy demand, mobilized fatty acids may be re-esterified, limiting the durability of results.

Combined Effects: The Kinetic Advantage

When dermatofunctional therapies are combined with exercise, their effects become complementary. Dermatofunctional interventions induce local lipolysis and mobilization of fatty

acids from the subcutaneous compartment. Exercise performed immediately after the session provides the necessary metabolic demand for these fatty acids to be transported to skeletal muscle and oxidized in mitochondria, preventing re-esterification and ensuring effective fat utilization. This synergy not only optimizes aesthetic results but also amplifies systemic benefits: enhanced lipid oxidation reduces ectopic fat deposition, improves cardiometabolic profile, and contributes to lowering cardiovascular morbidity [6-9] (Figure 1). Clinical studies support this rationale: the combination of radiofrequency or shockwave therapy with aerobic exercise has been shown to produce greater reductions in abdominal subcutaneous fat compared to exercise alone [12]. Similarly, radiofrequency followed by moderate aerobic exercise led to superior decreases in waist circumference and adipose tissue thickness compared to sham protocols [13].

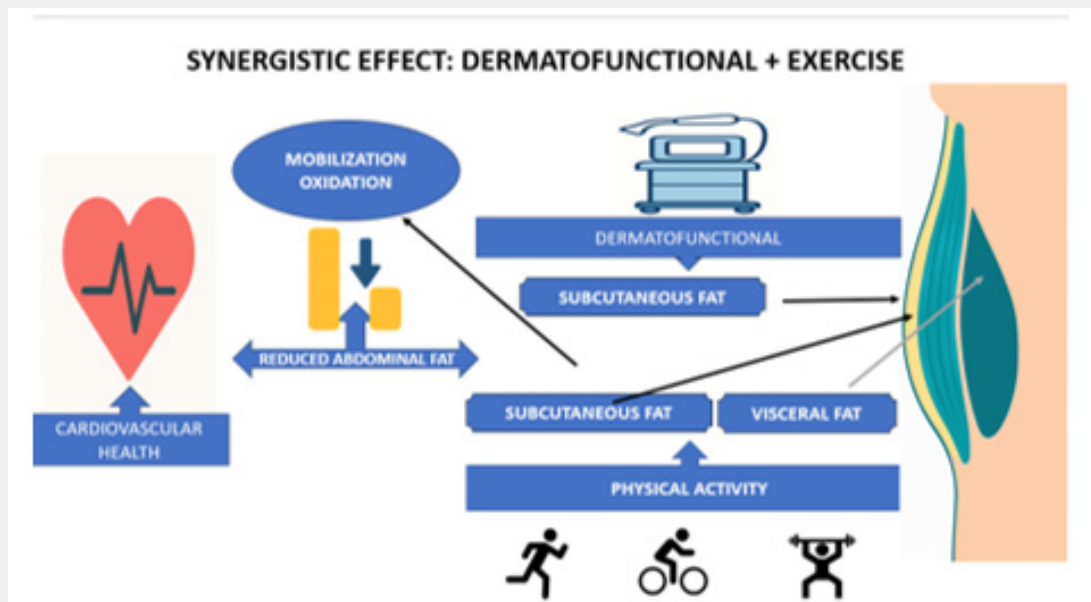


Figure 1: Synergistic effect of dermatofunctional therapy combined with exercise and its implications for cardiovascular health.

Conclusions and Recommendations

Exercise is an indispensable complement to dermatofunctional therapies for abdominal fat reduction. While dermatofunctional interventions such as radiofrequency, ultra cavitation, and passive electrostimulation effectively mobilize subcutaneous fat, exercise ensures oxidation of these fatty acids, reduces visceral fat, and improves cardiovascular health. Integrating both approaches maximizes outcomes, bridging aesthetic practice and preventive cardiology.

Recommendations

- Clinical protocols should include aerobic or combined aerobic-resistance exercise immediately after

dermatofunctional sessions to maximize fat oxidation.

- Passive electrostimulation (Russian/Aussie currents) may be used before exercise to increase fatty acid availability for subsequent utilization.
- Patients should be counseled that dermatofunctional methods target subcutaneous fat, while exercise impacts both subcutaneous and visceral fat with cardiovascular benefits.
- Future research should assess lipid flux, cardiovascular markers, and long-term outcomes of combined approaches in clinical populations.

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