

Metabolic Fat Loss

Photobiomodulation stimulates mitochondrial ATP production in fat cells which is a signal to break down stored fat.

Fat cells store their fat in the form of Triglycerides. The direct effect on the mitochondria is an increased lipolysis or breakdown of stored fat.

When there is a demand for glucose and cellular energy due to exercise, fat is mobilized - triglycerides are broken down into small free fatty acids and glycerol that easily leave the fat cell. Both enter the blood vessels of the fat tissue (your fat tissue has a lot of blood vessels)

Fat cells are not damaged in this process. They simply shrink and in some cases fat cells are naturally removed by a process of autophagy.

As they circulate the fatty acids may be utilized as a source of energy by the muscles, heart and other organs, but much of the free fatty acids and glycerol will end up in the liver. The albumin offloads the free fatty acids they are used as a fuel (or "oxidised") in different organelles in the liver cell. The end result of this process is the production of cellular energy, water and CO₂ which you breathe out.

The vibration plate pairs very effectively with photobiomodulation, as the whole body vibration simulates exercise and results in an energy deficit within the muscles. This means that the muscles are primed to utilize the free fatty acids liberated from the fat cells. Photobiomodulation itself mimics exercise and stimulates mitochondria in the muscles and tissues, not only in the fat cells.

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DO NOT TREAT

- Any active systemic infection (fevers)
- Autoimmune condition in a flare-up, or client on high dose steroids, clients using high dose cortisone/steroids (only treat once tapering to a low dose has begun)

Note any medications being used concurrently.

PROTOCOL

10 minutes PBM on back

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5 minutes of WBV before and after the PBM session (if applicable)

20-30cm Panel at 20-30cm depending on heat tolerance

- **Eye protection mandatory**

Be aware that clients may have low blood glucose levels and experience fatigue earlier on the vibration plate due to decreased appetite and muscle loss.

Vitamin D deficiency is a key obstacle to metabolic health. Encourage your clients to build a robust vitamin D level built from Ultraviolet light exposure.

Your clients will do better if they also re-establish their circadian rhythms by exposure to early morning sunlight, bright sunlight during the day (take light breaks) and shift to low light at night.