

Zerona

Dr Chantal Sciuto describes her experiences with a low level five-diode 635nm laser for body contouring

Parmacodynamics involves the effects of drugs on a cell, which can be analogous, endogenous or exogenous and have a response after binding a specific cell. Zerona, a low level laser manufactured by Erchonia, works in the same way for body contouring. Band resistors stimulate the pathways to suppress cellulose pathology. This laser targets photoreceptors to stimulate these path-

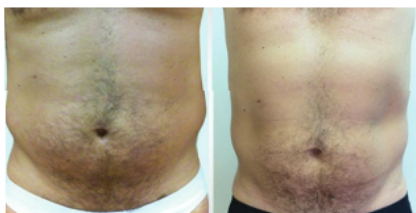
ways and pathological function.

While drugs can metabolise and alter cells to interact with other targets, Zerona's mechanism of action has no comparable adverse events.

Zerona is a low level laser made of five 635nm laser diodes. Zerona emits nearly 45 billion photons per second, of which around 27 billion reach the subdermal tissue.



The adipocytes are responsible for the storage of lipids and their diameter can expand by more than 20 times for greater storage. Zerona has been shown to target the photoreceptor cytochrome c oxidase, a terminal enzyme positioned within the



The total loss in average for the patients was 9.1cm in the waist, hips, and thighs. FDA clinicians described a 7.5cm reduction in two weeks as meaningful. Zerona was FDA-cleared in 2010 for the reduction of subcutaneous fat mass of the waist, hips, and thighs as determined via circumferential reduction

cell mitochondria. Stimulation of this receptor induces a transient rise in adenosine triphosphate along with reactive oxygen species (ROS). An increase in ROS can induce lipid peroxidation, a process in which ROS reacts with cholesterol molecules found throughout the outer cell membrane.

This process induces no apoptosis. There are no dead adipocytes—the cell remains viable after evacuation of the lipid contents. It is a fast process—the adipocyte collapses within 18 minutes. The adipocyte membrane deteriorates, liberating the lipid contents. As the cell remains viable, there is no apoptosis but the cells can still act on proteins. There is therefore

no loss of skin tone. The fatty debris enters the interstitial space, regulated by the lymphatic system. These hypertrophic adipocytes are linked to an elevation in serum low density lipoprotein and triglyceride. Reduced adipocyte cell volume restores a lean state modulating serum chemistry.

In one placebo-controlled, randomised, double-blind study at four centres, 67 participants were treated every other day with the Zerona laser for two weeks, totalling six treatments. Each treatment comprised 20 minutes at the front and another 20 minutes on the back. Evaluation was baseline in the first week, the second week and a follow-up after two weeks.

Compared with baseline the study endpoint levels revealed a significant decrease of -12.32 points ($p < 0.01$). Participants demonstrated a statistically significant mean reduction in low-density lipoprotein levels of 12.05 points, a 13% reduction at study endpoint ($p < 0.005$).

HDL levels exhibited an average reduction of -0.895 points ($p > 0.05$)—almost stationary. Following the modified Zerona procedure coupled with diet recommendations, patients revealed an overall reduction of -6.6 inches across the waist alone as well as all other categories. A 7.5cm reduction in two weeks was determined meaningful by FDA clinicians.

At our clinic, we treated 48 patients; 36 women and 12 men aged 28–57. We focused treatment on the adipocytes and localised area.

When treating patients with lasers, we never treat anyone who is pregnant, breast feeding, has a pacemaker or a BMI over 30. I don't treat fickle patients, such

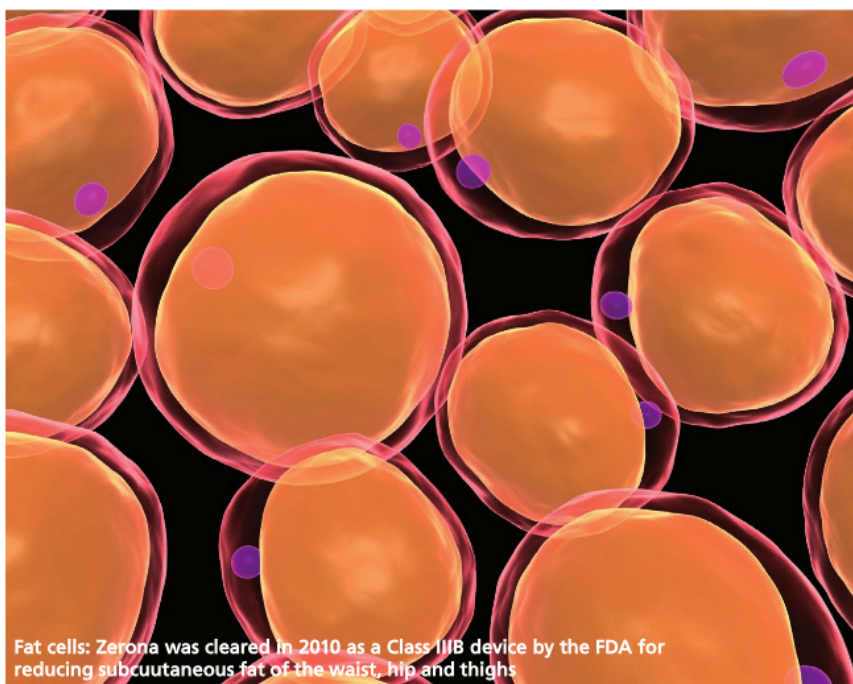
as those who want to see a result on the same day.

Before treatment, I take photographs of the front, back, both sides and the circumference measurements, depending on the area to treat. Men and women require different areas of treatment. I was particularly interested in the triceps and treated two patients with this machine with good results. The protocol is 20 minutes on the front and 20 minutes on the back. Over the last two months, for some patients I have used an intensive protocol of every day except Sundays—ten treatments over two weeks.

It is important to give patients information about daily dietary supplements, topical therapy and physical activity. After treatment, we carried out a follow-up 15 or 30 days after the last treatment. We took photos and circumference measurements. Following treatment, the clinical study showed a reduction of 103–91 in the LDL level. According to FDA guidelines, a change from start to end during a clinical study is considered relevant if it is 15% or more. There was a reduction in HDL cholesterol.

Visual results also showed a reduction in cellulite retention and improvement in tone. This laser involves minimal pain, invasion or inflammation. It involves no surgery or skin damage, no recovery time and no significant side effects have been reported.

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Fat cells: Zerona was cleared in 2010 as a Class IIIB device by the FDA for reducing subcutaneous fat of the waist, hip and thighs