Cryolipolysis and Radial Pulse Therapy

Jeffrey A. Hunt, D.O., R.V.S., discusses the efficacy and results of combined CoolSculpting® and ZWave therapy

Background Objective

Cryolipolysis treatments are normally performed for 60 minutes followed by 45 minutes massage. It takes a few weeks for the adipocytes to break down and begin absorbing. For this reason there is a 2 month wait before a second treatment can be carried out. The objective of this study was to combine weekly radial pulse therapy (using the ZWave system by Zinme) to see whether it was possible to speed the rate of fat absorption to allow shorter treatment intervals.

Study Design

In a randomized controlled study, five female patients were assigned to group A with CoolSculpting® and initial massage immediately followed by ZWave and then 4 ZWave treatments weekly. Another five female patients were assigned to group B with CoolSculpting® and initial massage only. Weekly weights and ultrasound measured fat thickness were assessed at baseline and at 1, 2, 3, 4, and 8 weeks.

Results

The average fat reduction in both groups A and B were calculated on a weekly basis for 4 weeks and then at 8 weeks. Group A with ZWave treatment had over twice the fat reduction during each week (from week 1 to week 4) when compared with group B. Over 75% of the fat reduction achieved at week 8 was realised at the week 4 visit. The fat reduction at group B was slower and much more gradual. Patients were not placed on a diet and the weights for both groups were relatively stable. Weight loss was 12.0 kg for group A and 13.5 kg for group B at week 4. At week 8, weight loss was 17.1 kg for group A and 22.4 kg for group B.

Conclusions

3-minute radial pulse wave treatments immediately after cryolipolysis and weekly for 3 more weeks results in twice the rate of fat absorption. This should allow monthly CoolSculpting® treatments and body contouring results in half the time. Whether additional fat was destroyed was not determined by this study owing to its 2-month follow-up.

Cryolipolysis has been evaluated in animal studies, and it has been shown that increased duration of cold or more extreme cold results in more fat destruction. This fat destruction occurs gradually over 3 months. To minimize adverse side-effects it is necessary to limit the cold severity and duration. It is general protocol to wait 2 months to retreat an area for further fat destruction, as it requires this much time for most of the damaged adipocytes to absorb. It has been shown that there is more fat destruction if, immediately after cryolipolysis, the area is vigorously massaged. Massage capabilities in different offices vary considerably and there have not been any studies on repeated massages to the treatment areas. For this reason, the authors attempted to deliver radial pulse waves to the treated areas for 3 minutes immediately after cryolipolysis and at weekly intervals over 4 weeks.

Methods

Ten patients were randomly assigned to one of two groups: one for radial pulse wave treatments, and the other for vigorous massage during the first treatment only. The fat layer thickness was determined by use of MyLab live ultrasounds with a gel standoff. The thickest area of fat in the centre of the treated area was measured on each side of the abdomen. The ultrasonic techs were blinded as to the patient groups. After each measurement the patients were
either weighed or weighed and given a 3 minute radial pulse wave treatment. The radial pulse wave system used was the ZWave by Zimmer and settings were at 16 Hz and 90 mJ for 2500 pulses, which takes approximately 3 minutes.

**Results**

As described in the literature, the CoolSculpting® treatments were well tolerated by the 10 subjects. There was minimal discomfort from adding the acoustic wave treatments initially, as it was comparable to the vigorous massage. As shown in Tables 1 and 2, the fat thickness was recorded for each patient at baseline and at 1, 2, 3, 4 and 8 weeks. The average fat reduction percentage was then plotted on a graph showing superior fat reduction with the combination treatment. 77% of the 8-week fat reduction was achieved at the 4-week level in group A.

**Discussion**

This study was designed to see whether there was a way to speed up fat absorption and shorten the interval between CoolSculpting® treatments. The combination treatment group appeared to also have less post-procedure discomfort, which may be reflected by faster resolution of the damaged adipocytes, and perhaps less inflammation. The authors believe there are multiple advantages to weekly radial pulse wave treatments. Weighing the patients weekly seems to make them less likely to gain weight. The shorter interval gives quicker results and more patient satisfaction. The authors believe this will result in more treatments being performed. When multiple areas and repeated treatments are done, it is possible to get the WOW results that patients desire. It would be interesting to evaluate post-procedural pain on a weekly basis to see whether there is a clinically significant difference between the two protocols, which the authors believe there is based on patient comments.

**Conclusions**

The use of weekly radial pulse treatments as an adjunct to cryolipolysis causes fat reduction at twice the normal rate for the first 4 weeks. This allows cryolipolysis treatments on a monthly schedule and body contouring results in half the time. More studies need to be performed to pool data and see whether more fat per treatment is eliminated by combining cryolipolysis and radial pulse wave therapy.

CoolSculpting is a registered Trademark of ZELTIQ Aesthetics, Inc.

### References


