

# Selective Radiofrequency and Radial Pulse Wave Therapy

**Chris Bailey, MSD, CLT, discusses the efficacy and results of combined Vanquish and ZWave therapy.**



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**Background Objective** Vanquish treatments are normally performed in a series of four 30 minute weekly treatments for fat reduction. The objective of this study was to combine weekly Vanquish treatments with radial pulse wave therapy (using the ZWave system by Zimmer) to see whether it was possible to speed and/or improve results, in a similar fashion to what Dr Jeffrey A. Hunt was able to demonstrate by combining ZWave with CoolSculpting.

**Study Design** In a randomized controlled study 9 female patients were assigned to group A with weekly Vanquish and ZWave treatments.

Another 9 female patients were assigned to group B with Vanquish only. Weekly weights and circumferential measurements were taken at baseline and at 1,2,3, and 8 weeks.

**Results** Group A with the ZWave treatment showed 64% greater inch loss at 8 weeks when compared to Group B. Group A started noticing results faster and had much higher overall satisfaction with the treatment. Patients were not placed on a diet and weights for both groups were relatively stable. Weight loss was -0.62 lb for Group A and -0.5 lb for Group B.

Group A had a higher incidence of swelling during the series of treatments; in some cases presenting as hard lumps or nodules. However all resolved spontaneously with in 2-3 weeks.

**Conclusions** 6-minute radial pulse wave treatments immediately after weekly Vanquish treatments result in much greater total inch loss. In addition to improving CoolSculpting results as demonstrated by Dr Hunt, ZWave is an effective addition to Vanquish treatments to increase patient outcomes.

The quest for faster, more effective non-invasive body contouring technologies has continued to pick up speed over the past several years. This trend is driven largely by consumers sometimes unrealistic expectations and demands for "surgical" type outcomes not only without surgery, but without any discomfort or recovery time as well.

One of the newest technologies in this pursuit of the perfect body contouring therapy is the Vanquish. The Vanquish device made by BTL Industries (Prague, CR) uses so-called selective focused-field radiofrequency to overheat fat without touching the patient's body.

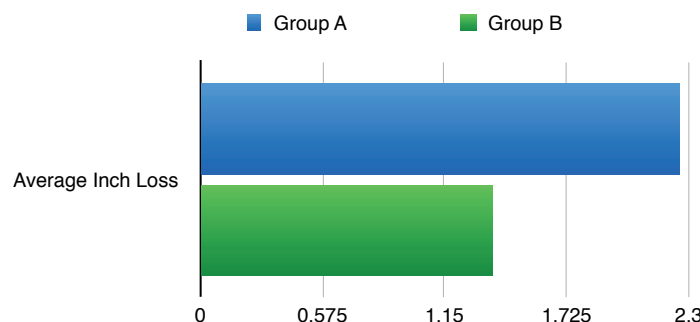
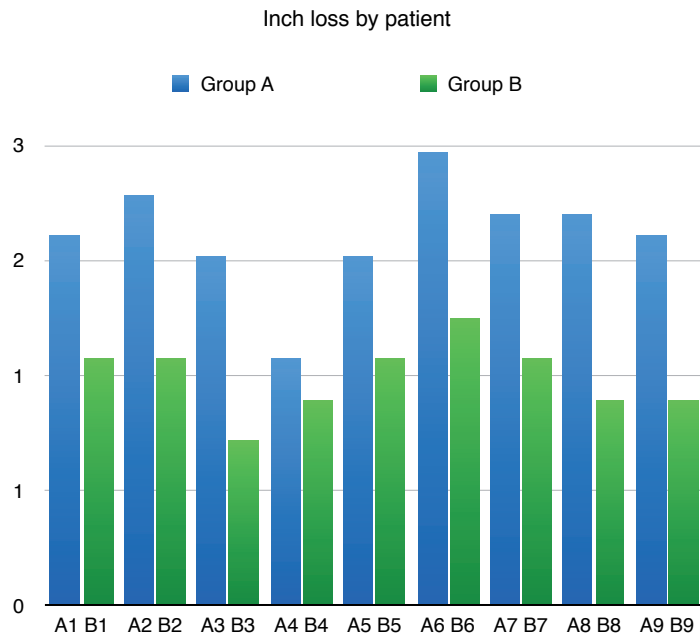
This overheating of the fat has been shown to destroy fat cells and produce very favorable body contouring results.

We have used combination therapies for skin rejuvenation to enhance outcomes in the aesthetic industry for several years. However, there has not been as much widespread use of combination therapies in body contouring.

Dr Jeffrey A Hunt was recently able to demonstrate the great improvement in CoolSculpting results when combining radial pulse wave therapy after cryolipolysis. For this reason, weekly Vanquish treatments were combined with radial pulse wave therapy (using the ZWave system by Zimmer) to see whether it was possible to improve results, in a similar fashion to what Dr. Hunt was able to produce by combining ZWave with CoolSculpting.

**Methods**

Eighteen female patients showing subcutaneous fat tissue on the abdomen and love handles were randomly assigned to two groups; one for Vanquish with ZWave and one for Vanquish only. The subjects were instructed to maintain their standard diet and lifestyle during the course of the study. Baseline weight was taken and monitored throughout treatment series.



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Measurements were taken at specified reference points using a spring loaded circumference tape measure to help avoid measurement inconsistencies. Two of the subjects in Group A were prior non-responders to Vanquish treatments.

## Study Protocol

The Vanquish treatments were performed according to the protocol recommended by the manufacturer. The patient laid underneath the device's ergonomically designed applicator positioned over the targeted area approximately 1cm above the skin using supplied spacer to ensure proper distance between applicator and treatment area. A maximum power of 200 watts was used with the intention to heat the target tissue to the therapeutic temperature. The energy and applicator positioning were adjusted to optimize tuning during the course of the session.

Following each Vanquish treatment, patients in Group A were given a 6-minute radial pulse wave treatment using the ZWave by Zimmer. Abdomen was treated with 3200 pulses at 16Hz and 90mJ. Both left and right love handle were treated with 1200 pulses each at 16Hz and 90mJ. (Treating abdomen and each love handle at the referenced settings takes approximately 6 minutes).

Nothing followed Vanquish treatments for patients in Group B. Both groups were given four 30 minute Vanquish treatments performed once per week.

## Results

Vanquish treatments were well tolerated by the 18 subjects. There was no discomfort from adding the ZWave. However, all subjects in Group A experienced more swelling in the treatment area. Four of these subjects swollen area's presented as harder lumps or nodules, (some as large as an egg) posing minor discomfort for the patient, described much like the feeling of a deep bruise. None of the non ZWave study subjects experienced this phenomenon. However we have seen these harder nodules form in approximately 5% of patients who we have treated outside this study. In all cases, nodules resolved spontaneously within 2-3 weeks.

As shown in tables 1 and 2, weight and single measurement abdominal circumference were recorded before the 1st treatment and four weeks after the 4th treatment.

The individual and average circumference reduction was then plotted on a graph showing significantly greater circumferential reduction for the combination treatment.

Table 1 Group A with ZWave

Group A Patient	Baseline Weight	Ending Weight	Weight Change	Baseline Abdominal Circumference	Post Abdominal Circumference	Inch Change
1	139.2	141.2	2.00	34.375	32.125	2.25
2	140	138.6	-1.40	35.5	33	2.5
3	152.8	151.6	-1.20	36.5	34.375	2.125
4	126.8	128.4	1.60	32.5	31	1.5
5	125.2	124.6	-0.60	32.25	30.125	2.125
6	148	143.4	-4.60	34.5	31.75	2.75
7	141.8	145.4	3.60	35.375	33	2.375
8	148	145	-3.00	33.5	31.125	2.375
9	144.8	142.8	-2.00	39.5	37.25	2.25
Ave	140.73	140.11	-0.62	34.89	32.64	2.25

Table 2 Group B without ZWave

Group B Patient	Baseline Weight	Ending Weight	Weight Change	Baseline Abdominal Circumference	Post Abdominal Circumference	Inch Change
1	178.4	178	-0.40	43	41.5	1.5
2	145.6	149.6	4.00	38	36.5	1.5
3	109.6	109.4	-0.20	29	28	1
4	182	183.4	1.40	40	38.5	1.5
5	176	175	-1.00	37.5	36.25	1.25
6	163.2	159.2	-4.00	37	35.25	1.75
7	183	181	-2.00	44	42.5	1.5
8	156.8	154.4	-2.40	35.25	34	1.25
9	130	129.4	-0.60	32.5	31.375	1.125
Ave	158.29	157.71	-0.58	37.36	35.99	1.375

## Discussion

The study was designed to see if it was possible to get closer to the goal of greater patient outcomes without surgery, discomfort or recovery time. The results of this study support there are definite advantages to adding ZWave treatments to Vanquish. In addition to greater outcomes, adding ZWave was able to produce results in 2 patients who were prior non-responders to Vanquish treatments. It is not clear if the result was produced by the greater trauma to the fat cell caused by the ZWave, or if the ZWave helped the body more efficiently clear the body of destroyed fat cells or both. This combination protocol also seems to produce more consistent, predictable outcomes in all patients. The selection of number of pulses and ZWave settings was somewhat arbitrary. Whether more radial wave pulses per treatment or higher energy settings would result in additional circumferential reduction has not been assessed. The average weight and abdominal circumference of participants in Group B were larger than those of Group A, it is not known how this may or may not have factored into the results.

## Conclusions

The use of radial pulse wave treatments as an adjunct to Vanquish treatments produces 64% greater circumferential reduction than Vanquish alone. In addition, it produces more consistent, predictable results and greater patient satisfaction.