Vibroliposuction: Liposuction/Liposculpture Assisted by Compressed Air

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ABSTRACT

Vibroliposuction, the state of the art in techniques of liposuction/liposculpture, was invented in Belgium and presented for the first time in October, 1997. This vibropneumatic system uses special cannulas between 3 and 5 mm wide and of different lengths. The passage of the air through the machine (Euromi, Belgium) induces movements that permit lysis of the adipose tissue and aspiration of the emulsified fat. Based on experience with various liposuction techniques, the author concludes that this kind of liposuction is much less traumatic for the patient, causes fewer hematomas, less swelling, and thus brings about a quicker recovery.

INTRODUCTION

FISCHER(1) AND ILOUZE(2) were the first pioneers of liposuction, a technique to remove fat from the human body through small incisions using suction machines and large cannulas.

Pierre Fournier,(3,4) using just a syringe, completely revolutionized liposuction, with the added advantage of being cheaper and with no special maintenance or assistance needed. He taught us that fat could not only be aspirated but also used to reshape the body, creating the concept of liposculpture: a method to manage and transfer fat, using small cannulas or needles.

Ultrasound liposculpture was introduced and presented by Zocchi.(5) It became the ideal refinement of liposuction and achieved improved results in difficult and/or fibrous regions and for correcting classic liposuctions.

Jeffrey Klein(6–11) introduced the concept of tumescence with his formula, which, through continuous investigation, he has altered and improved.

Vibroliposuction, introduced by Ângelo Rebele, is the most recent and modern technique in liposuction. Malak, a Belgian physician, invented the machine used in this technique. We were invited by the inventor and manufacturer to make the first presentation of this machine and have collaborated in all phases of its improvement.

MATERIALS

Since December, 1997, we have performed more than 5,000 vibroliposuction procedures (Table 1).

The vibroliposuction system used consists of a small machine, Lipomatic® (Euromi, SA, Ensival, Belgium) (Fig. 1), that works with compressed air. It is easy to handle, weighs less than 700 g, is easy to clean, and may be sterilized in an autoclave or other system. Specific cannulas (Fig. 2) of different lengths and diameters (3–5 mm) can be used. The passage of air induces back and forth movements with a
### Table 1. Vibrolipo suction Procedures Performed

<table>
<thead>
<tr>
<th>Location</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>Submental region</td>
<td>69</td>
</tr>
<tr>
<td>Under arms</td>
<td>14</td>
</tr>
<tr>
<td>Arms</td>
<td>171</td>
</tr>
<tr>
<td>Breasts</td>
<td>91</td>
</tr>
<tr>
<td>Abdomen</td>
<td>762</td>
</tr>
<tr>
<td>Gluteus</td>
<td>92</td>
</tr>
<tr>
<td>Hips</td>
<td>1304</td>
</tr>
<tr>
<td>External thighs</td>
<td>951</td>
</tr>
<tr>
<td>Internal thighs</td>
<td>781</td>
</tr>
<tr>
<td>Knees</td>
<td>648</td>
</tr>
<tr>
<td>Ankles</td>
<td>26</td>
</tr>
<tr>
<td>Flanks</td>
<td>444</td>
</tr>
<tr>
<td>Legs</td>
<td>46</td>
</tr>
<tr>
<td>Total</td>
<td>5399</td>
</tr>
</tbody>
</table>

The cannulas vibrate and have a rotation and translation movement. At the back of the machine, three tubes are connected: the inlet, the outlet of the air, and the third for suction of the fat. We use various sources for the air: compressor, bottle gas, or any other source. The pressure is regulated between 2.5 and 4.00 Bars and is switched on and off by a foot pedal.

The goal is to break down the fat so that it is emulsified and aspirated at the same time.

### TECHNIQUE

The tumescent fluid used is based on Klein’s formula and we add the following to each 1000 cc of 9% saline solution warmed to 37°C: 1 ampoule epinephrine, 1 mg/ml; 4 cc sodium bicarbonate, 8.4%; 40 cc lidocaine 2% without epinephrine.

It is not common to use more than 2000 cc per procedure. We do not recommend extensive tumescence. For optimal vasoconstriction, one should wait at least 30 min. In our experience there is no relationship between the volume of infiltration and the fat removed. To induce tumescence we use a closed-pressure system from Byron (Fig. 3) with Klein cannulas 2 mm in diameter (Fig. 4). In the postoperative period patients can take a daily shower and use moderate compression. All patients undergo a manual lymphatic drainage program for 1 month starting immediately after surgery. Medication after surgery consists of an oral antibiotic, anti-inflammatory, and analgesic (the latter is rarely used). We recommend massage with an anti-inflammatory cream twice a day, until the bruising disappears. Sun block protection is recommended on the small scars and ecchymoses. In our practice we use a 15 × 3 mm cannulas for chin, face, gynecomastry/breast lipodystrophies (Fig. 5) and legs; and 20 × 3 mm cannulas for arms (Fig. 6), breasts, legs (Figs. 9,10), and superficial vibroliposuction in any region of the body. The cannulas most often used to work large areas (Figs. 7,8) are 4 and 5 mm ones.

The association of more than one anatomical region depends on the total amount of tumescence and lidocaine to be used. We have con-
confirmed that it is safer and more comfortable for the patient to perform vibroliposuction in more than one session when indicated and necessary. Apart from the recovery being quicker, patients are less limited in their everyday life. With the use of vibroliposuction it is rare to spend more than 2 hours on surgery even in cases of extensive extraction. The mean time between administering the anesthesia and completing the vibroliposuction is between 45 min and 2 h. The valuable contribution of prior vibroliposuction in breast reductions with vertical scar, especially in severe hypertrophies or gigan- masties, should be emphasized.

Our average infiltration speed is 150 cc/min and the aspiration speed is 34 cc/min. We have removed as little as 50 cc and as much as 7,700 cc in one session. The fat removed in three or four successive sessions can total up to 21,000 cc.

**DISCUSSION**

In our opinion, the best indicator for liposuction is localized fat and localized lipodys-

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**FIG. 3.** The infiltration system used to induce tumescence.

**FIG. 4.** Infiltration needle (Klein cannula 2 mm in diameter).

**FIG. 5.** A. View of a 23-year-old patient before vibroliposuction and (B) eight months after.
FIG. 6.  A. View of a 41-year-old patient before vibroliposuction. B. View 6 months after.

FIG. 7.  A. View of the patient, 33 years old, before vibroliposuction. B. View 24 months after the procedure.

Fig. 8.  A. View of a 26-year-old patient before vibroliposuction. B. Appearance 8 months later.
Fig. 9.  A. View of a 32-year-old patient before vibroliposuction. B. View six months after.

Fig. 10.  A. View of a patient, 52 years old, before vibroliposuction. B. View at 29 months after 3 sessions.
REFERENCES


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