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Anti-cellulite and slimming effect of vacuum massage - case study

Działanie antycellulitowe i odchudzające masażu próżniowego – opis przypadku

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Słowa kluczowe: masaż próżniowy, cellulit, odchudzanie

Key words: vacuum massage, cellulite, slimming

STRESZCZENIE. Cellulit, czyli obrzękowo - włókniejące zwyrodnienie tkanki podskórnej jest to miejscowa choroba metaboliczna, która rozpoczyna się głęboko w tkance podskórnej, dotyczy komórek tłuszczowych i mikrokrążenia w okolicy głównie bioder, ud oraz brzucha. Mechanizm powstawania cellulitu jest ściśle związany z zaburzeniami mikrokrążenia. Obrzęknięte tkanki uciskają naczynia krwionośne, powodując zaburzenia mikrokrążenia w skórze i tkance podskórnej, a to z kolei powoduje niedokrwienie komórek tłuszczowych. Jedną z metod terapeutycznych stosowanych w przypadku cellulitu jest masaż próżniowy, do którego zaliczamy masaż bańką chińską i bańkami szklanymi. Ten rodzaj masażu antycellulitowego wpływa na poprawę odżywienia skóry poprzez usprawnienie układu krążenia i limfatycznego. Opis przypadku dotyczył kobiety w wieku 25 lat, o wskaźniku BMI prawidłowym (21 kg/m²), o typie otyłości jabłko (WHR 1,14), leczonej farmakologicznie z powodu fenyloketonurii, odżywiającej się nieregularnie dietą ubogą w białko, ale za to bogatą w warzywa, owoce oraz płyny. Okres badania i obserwacji obejmował 30 dni, w tym 20 dni zabiegów wykonywanych co drugi dzień (na zmianę bańką gumową i szklaną) oraz 10 dni całkowitego odstąpienia od wykonywania masażu próżniowego, w celu sprawdzenia odległych wyników. Każdy zabieg rozpoczynał się od energicznego rozcierania oraz ugniatania ud, w celu uzyskania przekrwienia, a następnie właściwego masażu próżniowego. Czas zabiegu – 30 min/ udo. W trakcie badania wykonano cztery pomiary obwodów ud za pomocą miarki antropometrycznej, oraz wykonano dokumentację fotograficzną w celu sprawdzenia postępów leczenia. Pomiary oraz zdjęcia wykonano pierwszego dnia zabiegów, w połowie, na końcu oraz po 10 dniach od zaprzestania masażu. Pomiary obwodów zbierano w trzech miejscach. Pierwszy bezpośrednio nad rzepką, kolejne dwa z odstępem 9 cm od poprzedniego pomiaru w kierunku dogłowym. Największą zmianę w obwodzie uda zauważono podczas trzeciego pomiaru, po wykonaniu serii 10 zabiegów. Wizualnie cellulit zmniejszył się. Po 10 dniach od zaprzestania zabiegów efekt redukcji cellulitu był zadowalający, ale pomiary obwodów ud uzyskały wartość sprzed zabiegów. Opierając się na wynikach opisu przypadku można przypuszczać, że masaż próżniowy działa antycellulitowo, a także wpływa na zmniejszenie tkanki tłuszczowej. Powodzenie tego masażu jest jednak skuteczne przy systematycznym jego wykonywaniu. Istotnym czynnikiem jest również intensywność wykonywania zabiegu, wcześniejsze przygotowanie skóry, a także stosowana dieta. Aby móc stwierdzić skuteczność masażu próżniowego należałoby przeprowadzić badania na większej liczbie pacjentów.

SUMMARY. Cellulite - local metabolic disease that begins deep in the subcutaneous tissue, refers to fat cells and microcirculation mainly in the hips, thighs and abdomen area. The mechanism of cellulite is strictly connected with impaired microcirculation. Swollen tissue compresses blood vessels causing disturbance of microcirculation in the skin and subcutaneous tissue, which in turn causes fat cells ischemia. One of the therapeutic methods used in the case of cellulite is a vacuum massage, which includes Chinese cupping massage, and glass bubbles. This type of anti-cellulite massage affects the skin nutrition by improving the circulatory and lymphatic systems. The case report concerned a woman aged 25, with a normal BMI (21 kg / m²), and apple obesity type (WHR 1.14), treated pharmacologically due to phenylketonuria, irregularly nourished with a low protein diet, but rich in vegetables, fruit and fluids. The study and observations period lasted 30 days, including 20 days of treatments conducted every other day (glass bubble and bubble gum by turns), and 10 days of total withdrawal from the vacuum massage, in order to examine the long-term results. Each treatment began with vigorous rubbing and kneading the thighs in order to obtain congestion, and then the appropriate vacuum massage. The treatment time - 30 min. per thigh. During the study there were four thigh circuits measurements performed using the dipstick anthropometric as well as a photographic documentation completed in order to examine the progress of treatment. The measurements and photographs were taken on the first day of the treatments, in the middle of the treatments, and at the end of the treatments also after 10 days of the massage withdrawal. The circuits measurements were collected in three different places. First directly on the patella and another two at a distance of 9 cm from the previous measurement in the cephalad direction. The greatest change in the circumference of the thigh was noted during the third measurement, after a series of 10 treatments. Visually, the cellulite decreased. Within 10 days after treatment cessation the effect of the reduced cellulite was satisfactory, but the thighs circuits measurements obtained the

same value as it was before treatment. Based on the case description one can assume that the vacuum massage reduces the cellulite and also the body fat. The success of this massage is effective only with the systematic performance. An important factor is the intensity of performing the treatment, a prior preparation of the skin, and also an appropriate diet. In order to assess the effectiveness of vacuum massage there should be studies carried out on a larger number of patients.

INTRODUCTION

Cellulite (lipodystrophy), which fibrotic degeneration of subcutaneous tissue is the local metabolic disease beginning in the deep subcutaneous tissue referring to fat cells and microcirculation primarily in the hips, thighs and abdomen area. [1]. The main cause of the formation of the "orange peel" can be considered as an uneven distribution of fatty deposits, which are located within collagen fibers. When the amount of body fat increases, fat deposits squeeze through the skin and form unsightly bulge on the surface of the skin. The cellulite mechanism is also closely associated with impaired microcirculation. Swollen tissue compresses blood vessels, causing disturbance of microcirculation in the skin and subcutaneous tissue, which in turn causes ischemia of fatty cells [2]. As a result, there is a deformation of the outer layer of the skin, resulting in a decrease in the flexibility of the affected body part. We can distinguish three stages of cellulite:

- Step I - the changes are caused by venous and lymphatic stasis only visible in bruising; this phase begins with the accumulation of fat in the adipocyte, and they are still prominent.
- Step II - adipocytes compressing blood vessels, which blood flows through are reduced; at this stage a swelling can be a symptom occurring as the irregular protuberant surface of the skin, there is also the characteristic drop in the flexibility changes that can be obtained by compression of a skin fold.

- Stage III - at this stage circulatory disorders get worse around accumulated adipocytes they begin to accumulate deposits of collagen and ground substance of connective tissue, which results in fibrosis of certain parts of the subcutaneous tissue, the skin has an uneven corrugated surface, there are lumps and swelling, the changes are already visible without skin compression.
- Stage IV - collagen deposits begin to transform into hard nodules that compressing blood vessels and nerves, they cause pain, skin is wrinkled with visible and palpable hardenings; changes can rest, and the visibility is increased muscle tension at [3,4].

Ways to get rid of a lot of cellulite. The simplest methods to "fight" with a defect include: change of diet, adequate hydration (at least 1.5 liters of water per day), physical activity (running, cycling, briskly walking, swimming), massaging the body in the shower with a rough sponge to stimulate circulation, alternate shower (hot water 40 seconds from the neck down, 20 seconds, the cold from the ankles to the waist - 4 replicates). For a little more complex capabilities, requiring third parties and financial effort, the fight against cellulite qualifies: lymphatic drainage, vacuum massage, mesotherapy, application of creams / scrubs cellulite.

In this work we used the method of vacuum massage with a glass bulb. Massage bubbles (Chinese glass) were taken from folk medicine. Originally, this massage was performed for the treatment of influenza and other infectious diseases. Bubbles draw air forming a vacuum. When touching the bubbles to the body layer of the skin with blood vessels and lymph is sucked, when we start to make moves sliding float accelerate blood in the veins and lymph vessels, which gives the congestion effect. Thanks to the fat cells that are better supplied with blood, and your body is able to get rid of unnecessary metabolites in a faster way from our body, and improves the nutrition of the skin by improving the flow of tissue fluids.

A CASE REPORT

Cellulite - local metabolic disease that begins deep in the subcutaneous tissue, refers to fat cells and microcirculation mainly in the hips, thighs and abdomen area. The mechanism of cellulite is strictly connected with impaired microcirculation. Swollen tissue compresses blood vessels causing disturbance of microcirculation in the skin and subcutaneous tissue, which in turn causes fat cells ischemia. One of the therapeutic methods used in the case of cellulite is a vacuum massage, which includes Chinese massage, and glass bubbles. This type of anti-cellulite massage affects the skin nutrition by improving the circulatory and lymphatic systems. The case report concerned a woman aged 25, with a normal BMI (21 kg / m²), and apple obesity type (WHR 1.14), treated pharmacologically due to phenylketonuria, irregularly nourished with a low protein diet, but rich in vegetables, fruit and fluids. The study and observations period lasted 30 days, including 20 days of treatments conducted every other day (glass bubble and bubble gum by turns), and 10 days of total withdrawal from the vacuum massage, in order to examine the long-term results. Each treatment began with vigorous rubbing and kneading the thighs in order to obtain congestion, and then the appropriate vacuum massage. The treatment time - 30 min. per thigh. During the study there were four thigh circuits measurements performed using the dipstick anthropometric as well as a photographic documentation completed in order to examine the progress of treatment.. Measurements collected circuits in three places. The first directly above the kneecap (P1).

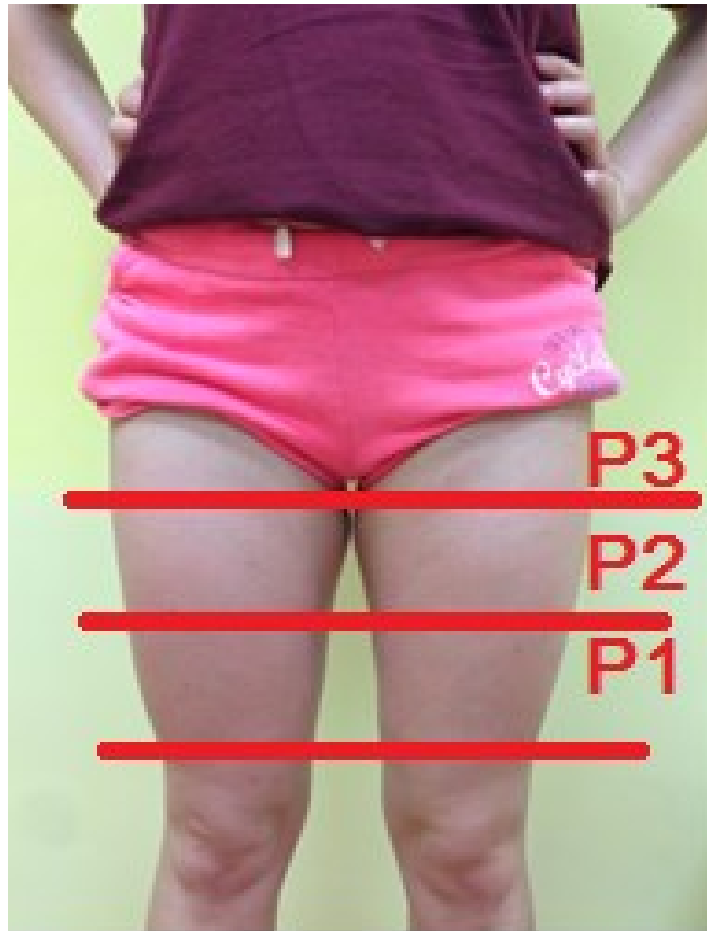


Figure 1. Sites of measurement circuits thighs.

RESULTS

The greatest change in the circumference of the thigh was noted during the third measurement, after a series of 10 treatments (T2). In the measurement of T2 - cellulite apparently decreased. 10 days after cessation of treatment (T3), the visual effect of cellulite reduction was satisfactory, but the measurements obtained thighs circuits baseline or slightly increased. Detailed analysis of the measurements is in Figures 2 and 3.

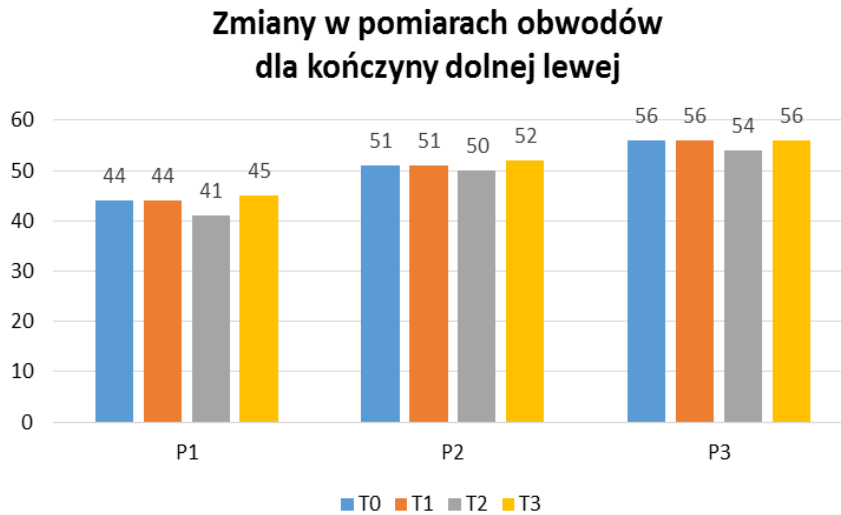


Figure 2. Changes circuits for the left lower limb

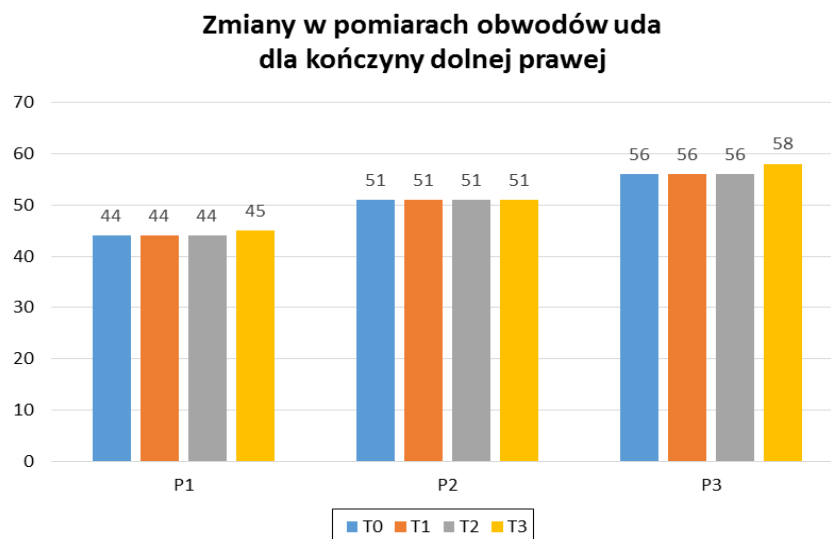


Figure 3. Changes circuits for the right lower limb

See also obtained a visual change when using a series of vacuum massage treatment (Figure 4). The first two pictures from the left - before using the massage, the last two pictures after a series of treatments.



Figure 4. Changes in visual thighs under vacuum massage

DISCUSSION

This research shows that massage using bubble reduces cellulite, and reduces body fat. The results are shown in the systematic enforcement of treatments and healthy eating and active lifestyle. Only all these elements guarantee cellulite reduction, body fat, and certainly the patient feel better. A series of 10 treatments of vacuum therapy of this case gave the effect of reducing circuit able to 3 cm, but they resulted in cessation of fat gain equal to the circumference of the initial and 1 cm larger than the original. Be aware of the characteristics between individuals unit applied diet and disease from occurring during the menstrual treatments which resulted in a final effect of therapy.

Similar studies on the effectiveness of the treatment of cellulite and body shaping Fiałkowska conducted research team [5]. The study involved 20 women aged 20-52 who used vacuum massage. Treatments were performed 2 times per week for 5 weeks. The duration of each treatment was 40 minutes. In order to assess the efficacy of vacuum therapy measurements were taken of selected circuitry of the body (arm, buttocks, thighs, shins, ankles) and the severity of cellulite. The measurements were performed twice: before treatment and after a series of 10 treatment sessions. After analyzing the results, it was found that the average body weight of tested prior to the start of the vacuum treatment was 61.33 kg, and after a series of 10

treatments 60.43 kg. The difference between the mean body weights before and after treatment was 0.9 kg. Eight of 20 women weight has not changed. With the decrease of body weight also decreased BMI average of 0.32. Our results are consistent with the Fiałkowski's results.

The effectiveness of massage Chinese cupping is shown in clinical research team led Kurpiewski [6]. The study consisted of checking which of the offices used in cosmetology anti-cellulite massages were the most frequently used and what was their effectiveness. The test was performed on a sample of 121 people divided into groups. The first group consisted of 50 people, the other 51 people, the third 20 people. The study involved people of all ages. In the first study, the greatest number of respondents were aged 30-35 (36%) in the second aged 19-20 (66%), the third 18-25 (40%). The method of the study was a diagnostic survey, through which collected data on the effectiveness of specific anti-cellulite massage. Most of the respondents replied that anti-cellulite massage, which benefited the most in the study cosmetology, massage is a Chinese cupping. Most of the respondents using a series of at least two types of massage, the Chinese cupping massage chosen as the most effective treatment.

Satisfactory effects of vacuum massage with a suitable oil, algae-Tisochrysis lutea also obtained Eris [7]. The study was conducted in a group of 30 women aged 29 to 66 , with visible signs of cellulite with varying degrees of sophistication. Randomly selected study participants were in good health. Provided game control after 2 weeks of use and cosmetic game terminal after 4 weeks. Over the period of application of products not study participants changed their way of life, they do not give up any cosmetic treatment or not to change the general method care. They used oil once daily in the evening, massaging it in circular motions on the surface of the thighs. To enhance the effect of Chinese cupping massage performed 3 times a week (every 2-3 days). To monitor the progress of cellulite treatment is selected thermography technique, which enabled an assessment of the severity of cellulite by recording the skin surface temperature changes in the areas covered. Measurements of apparatus after two weeks of

treatment, showed an increase in skin moisture of the surrounding area of cellulite on average 24%, while in 81% of patients over 31% increase in skin hydration reduction in the depth, volume and number of depressions of the skin of 22% of all patients, decrease the degree of unevenness of the medium 8%. Studies show the performance and cosmetic properties of essential oil of Chinese cupping against cellulite. Measurements of apparatus after two weeks of treatment, showed an increase in skin moisture of the surrounding area of cellulite on average 24%, while in 81% of patients over 31% increase in skin hydration reduction in the depth, volume and number of depressions of the skin of 22% of all patients, decrease the degree of unevenness of the medium 8%. Studies show the performance and cosmetic properties of essential oil of Chinese cupping against cellulite. Measurements of apparatus after two weeks of treatment, showed an increase in skin moisture of the surrounding area of cellulite on average 24%, while in 81% of patients over 31% increase in skin hydration reduction in the depth, volume and number of depressions of the skin of 22% of all patients, decrease the degree of unevenness of the medium 8%. Studies show the performance and cosmetic properties of essential oil of Chinese cupping against cellulite.

The reduction circuits, skinfold thickness and depressions around the thigh in the treatment of cellulite using endermology have shown in their studies and Ortonne Queille Roussel [8] in 30 women with an average age of 30 ± 8 years. The women were held therapy sessions twice a week for 35 minutes. Reduction in thigh circumference after discontinuation was recorded in 93% of women and it was on average 1 cm. The thickness of the fold of skin has an average decrease of 0.8 cm in all patients women. By measuring ultrasound was a decrease in the cavities caused by changes in orange peel thigh average of 0.78 mm. After 6 months of therapy, women who undergo maintenance treatments (1 session / month or 2 sessions / month), the effect remained.

For women, Broszencka and Kowalewska in his publication „ cellulite as a cosmetic defect and natural methods to combat it "[9] conducted research on a group of 30 women, to find out how big the problem of today's women is cellulite and how to fight it. The survey contained 17 questions about cellulite. It followed her that Cellulite affects most women - 66.6%. This is a common problem independent of age. Based on the survey you can bring that out cellulite occurs in most women, and its causes are different. They can be divided reasons connected with functioning of the body, ie. Hormonal disorder associated with cardiovascular, nervous, metabolic problems and weaknesses of the subcutaneous tissue. 57% of women who use cosmetics anti-cellulite, noticed a slight improvement. 100% of women who use cosmetics several times a week, noticed improvement. 100% of women who use cosmetics more than once a day, noticed a big improvement. Regular use of anti-cellulite cosmetics brings so satisfactory results. Moreover, 60% of women who noticed little change in cellulite reduction, non-carbonated drinks a lot of water. Among the women who noticed the average effect of reducing cellulite, 60% exercises, 80% performs anti-cellulite scrub and apply anti-cellulite cosmetics. Cellulite reduction is possible through treatments office, but also effective and simple ways are achievable household means. Self performing a massage or a peeling often brings tangible results. Daily use of anti-cellulite cosmetics, according to the manufacturer, also reduces the existing changes.

Ersek led the study with the use of LPG endermology for 4 months on 22 women aged 24-48 [10]. Each test involved a minimum of 7 sessions lasting 45 minutes (1-2 times per week), and six out of 22 participants aged over 14 treatments. In three of those women who completed treatment and at 14, the two have completed at least 7 said average weight gain of 1.51 kg and 0.66 kg, whereas the other was a significant decrease in body weight by an average of 0.61 kg. Circuits body decreased in all an average of 1.38 cm. One of the women, who practiced during

physical activity study gained weight, and increased her all circuits. This was associated with increased muscle mass. Ersek based on their research said.

This research shows that cellulite is a common problem on women of all ages. The stage changes the orange peel is dependent on many factors, which do not always have an impact. Anti-cellulite massage Chinese cupping is a cheap and effective way to combat orange peel. However, to maintain its effects would simultaneously lead an active lifestyle and rational nutrition. The presented results show the effectiveness of a variety of methods cellulite but should proceed on a larger group of individuals and carry out checks in order to determine the duration of effects.

CONCLUSIONS

1. Based on the case description one can assume that the vacuum massage reduces the cellulite and also the body fat.
2. The success of this massage is effective only with the systematic performance.
3. An important factor is the intensity of performing the treatment, a prior preparation of the skin, and also an appropriate diet.
4. In order to assess the effectiveness of vacuum massage there should be studies carried out on a larger number of patients.

REFERENCES

1. Załęska – Żyłka I., *Cellulit jako problem medyczny*, Problemy Higieny i Epidemiologii 2008, 89(4): 487-491.
2. Noszczyk M. (red.), *Kosmetologia pielęgnacyjna i lekarska*. PZWL Warszawa 2010.
3. Jefremienko D., *Wszystko o cellulicie cz.1*: (www.vitalia.pl).
4. Martini M.C., *Kosmetologia i farmakologia skóry*. Wydawnictwo Lekarskie PZWL, Warszawa 2009.
5. Fiałkowska I, Kulis A, Chitryniewicz J., *Ocena wpływu serii 10 zabiegów terapii próżniowej na redukcję cellulitu i modelowanie sylwetki ciała*, Polish Journal of Cosmetology 2014r, 17(1): 58-61.
6. Kurpiewska E, Sadzińska E, Wedman A. *Skuteczność masażu w redukcji cellulitu*, Studenckie Zeszyty Naukowe WSiZ, Warszawa 2016, 119-136.
7. Eris I. *Ocena skuteczności działania i właściwości kosmetycznych olejku, zawierającego wyciąg z algi *Tisochrysis lutea*, z bańką chińską przeciw cellulitowi*, Czasopismo "Świat Przemysłu Kosmetycznego 2016; 2: 30-32.
8. Ortonne J-P, Queille-Roussel C, Duteil L. *Treatment of cellulite: Effectiveness and sustained effect at 6 months with Endermologie demonstrated by several quantitative evaluation methods*. *Nouv Dermatol* 2003, 22: 261-269.
9. Broszencka A, Kowalewska M. *Cellulit jako defekt kosmetyczny i naturalne metody jego zwalczania [w]: Stan skóry wykładnikiem stanu zdrowia*. Red. Anna Goździalska, Jerzy Jaśkiewicz, wydawnictwo Krakowskiej Akademii im. Frycza Modrzewskiego, Kraków 2012, 60-62.
10. Ersek Robert A. *Noninvasive Mechanical Body Contouring: A Preliminary Clinical Outcome Study*. *Aesth Plast Surg* 1997, 21: 61-67.