

Empowering the woman: a comprehensive model of sexual anti-ageing

Abstract

Female ageing is associated with sexual decline and well-documented symptoms of decreased metabolism, increased visceral fat deposits, decreased mobility, increased incidence of body aches and impaired self-confidence, which can lead to depression, marital dissatisfaction, conflicts or apathy. Sexual decline becomes more prominent with diabetic females suffering from neuropathy that is usually a challenge, since traditional methods usually offer temporary pain relief. Hormone replacement interventions treat only part of the systemic hormonal imbalance problem, ignoring the fact that disruption in the hormonal network signifies a disruption in the entire microcosmos of cellular communications leading to bio-disorganisation and health deterioration. New vaginal rejuvenation methods aspire to resolve a complex psychophysiological issue by merely improving vaginal laxity and dyspareunia, via invasive or minimally invasive methods that often reduce sexual sensation for women, while increasing male satisfaction during intercourse. Here, we offer a more comprehensive model of female sexuality, and discuss two new research studies performed entirely on female subjects. Both studies are discussed with respect to the multi-faced, psychophysiological, composite of female sexuality, which cannot show meaningful improvement without treating both its physiological and psychological components.

Key words

► Women's health ► Vaginal rejuvenation ► Hormones ► Laser ► Radiofrequency

Sexual dysfunction among women is between 25% to 63%, and this number dramatically increases in postmenopausal women to 68% to 86.5% (Frank et al, 1978). Recent research indicates that only 56% of married women aged over 60 years (compared to 75% of men) are sexually active (Addis et al, 2006).



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Neuropathy affects up to 50% type 1 and type 2 diabetes patients, further compromising female sexuality. A study by Elyasi et al (2015) investigated 150 women with type 2 diabetes, using the female sexual index dysfunction (FSFI) questionnaire and the hospital anxiety and depression scale (HADS) questionnaires. The FSFI is a validated brief 19-item self-report measure of female sexual function that provides scores on six domains: desire, arousal, lubrication, orgasm, satisfaction and pain. Elyasi et al found that prevalence of sexual dysfunction was 78.7% in diabetes female patients. Among these, 58% indicated problems in lubrication, 50% showed decreased sexual desire, 50% arousal problems and 47.3% dyspareunia.

Overall, oestrogen decline in ageing women leads to loss of subcutaneous tissue from the pubis, atrophy of labia and shortening and loss of elasticity of the vaginal barrel. The pelvis that supports the anterior vagina shows a decreased ratio of collagen I/collagen III +V that appears to be due to a 75% decrease in collagen I in postmenopausal women (Moalli et al, 2004). The reduction of vaginal thickness of the epithelium from 8–10 layers to 3–4 leads to bleeding and burning sensations during intercourse. Loss in the species and lactic acid and increased vaginal pH affect the microbial population, leading to increased bacterial infections. Increasingly, women are choosing to alter their genital anatomy to gain greater self-esteem and diminish functional discomfort. The field of vaginal rejuvenation has been expanded by laser and radiofrequency (RF) technologies in the absence of a robust qualitative body of data on the therapeutic advantages of these technologies (Benadiba, 2010; Adrian, 2012; Alinsod, 2015). A review paper by Karcher and Sadick (2016) concludes that energy-based laser and RF technologies are likely to benefit millions of women in the hands of well-trained practitioners.

A recent study by Vizintin et al (2015) used a smooth-mode erbium laser to produce vaginal collagen and increase vaginal tissue tightness, and concluded that this non-ablative, thermal-only effects laser may be an effective and safe method for treating vaginal laxity.

Another study by Sekiguchi et al, (2013) studied 30 women treated with a single session of RF therapy at 90 J/cm². The authors reported a significant



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The field of vaginal rejuvenation has been expanded by laser and radiofrequency

improvement in sexual functioning and decreased distress relating to sexual activity at the 6-month follow-up. Women also reported decreased vaginal laxity within the first months after the RF treatment.

Furthermore, a recent laser study by Salvatore et al (2015) investigated the effects of fractional CO₂ laser on sexual function and satisfaction in 77 post-menopausal women with atrophy on the basis of the FSFI. At the 12-week follow-up, the authors found a significant improvement in the FSFI total and domain scores.

A new vaginal rejuvenation technique is based on inserting a 2 × 4 cm² compound under the posterior wall on 50 women under local anaesthesia (Park and Whang 2015; Park et al, 2015). The results showed a substantial improvement in sexual function in a year, especially for FSFI rates of satisfaction. Approximately 92.8% were satisfied with the vaginal width correction. It should be noted that these results are not statistically significant. Complications included implant exposure (5%), capsule (3.9%), and infections (1.7%).

Unfortunately, there are many problems with self-report questionnaires like the FSFI, such as the transparency of items not controlling for distortion,

ranging all the way from inadequate self-insight to deliberate faking. Measures are needed that comprise objective items and have no readily discernible connection with the items being measured, since content validity is no guarantee of validity. Women can be embarrassed to admit to problems with their sexual function, and many will deny that the problem remains, despite the expensive procedure, because such admittance would place liability on their partners and put their relationship at risk. Others will not complain unless something has gone extremely wrong.

Additionally, FSFI has been validated on women with a clinical diagnosis, such as female sexual arousal disorder or female orgasmic disorder, by basically verifying the accuracy of the diagnosis (Rosen et al, 2000; Meston, 2003). Only three of the women in Meston's study (2003) met the criteria for dyspareunia, one of the main issues studied and reported by vaginal rejuvenation studies. FSFI has not been validated in the same population of normal females included in laser and RF studies mostly represented by women who make a lifestyle choice to potentially improve their sex lives. Additionally, FSFI has not been validated in demonstrating improvement of



dyspareunia, or general dissatisfaction in the sexual aspect of interpersonal relationships. It has only been validated on confirming the diagnosis of pathological sexual dysfunction, which is not the same thing.

Comments and warnings

The different laser and RF methods touting female satisfaction from successful vaginal rejuvenation stand against the strict comments from a number of federal agencies and medical associations.

The US FDA (2018) recently issued a stern warning about procedures that destroy or reshape vaginal tissue using lasers or other energy-based devices, such as RF. The warning elaborates that 'the full extent of the risks is unknown ... reports indicate that these procedures can cause serious harm'.

Furthermore, the American College of Obstetricians and Gynecologists (2007) stated that 'women should be informed about the lack of data supporting the efficacy of these procedures and their potential complications, including infection, altered sensation, adhesions and scarring'.

An extensive review paper from Barbara et al (2017) strongly recommends that psychological and counselling is offered to all women who seek genital cosmetic surgery, firstly to help identify untreated psychiatric conditions, and secondly to help some women identify the true origin of their sexual dysfunction problems that may be interpersonal or in nature. Earlier research has also underlined the association between body dysmorphic disorder, a psychiatric condition, and the request for cosmetic surgery (Barbara et al, 2015).

Non-invasive strategies

On the opposite end lie non-invasive strategies claiming to improve vaginal atrophy and dryness, such as lubricants and oestrogen, plus replacement therapy (Bachmann and Leiblum, 2004). This part of research brings us closer to the hormonal imbalance that is intricately related to sexual problems (Shaw et al, 2013).

A systematic review and meta-analysis of randomised controlled trials found a positive correlation between hormone therapy (oestrogen alone or in combination with other hormones) and improvement in sexual function in women with menopausal symptoms or in early menopause (Nastri et al, 2013). However, the results of these studies suggest that hormone therapy is primarily beneficial in alleviating pain during intercourse, whereas evidence specific to increased sexual desire and female satisfaction is lacking (Santoro et al, 2016).

The most important criticism of hormone therapy is its narrow focusing on the symptom without considering of the possibility that female sexual

behaviour, self-confidence and satisfaction may be intrinsically related to hormonal balance, a complex constellation of over 200 hormones that have been discovered in the human body that depends on both optimum concentration levels of individual hormones and their interactions at different ages.

If the replacement of one or two hormones could solve the ageing problem, symptoms would not start to pile up manifested in terms of decreased metabolism, increased visceral fat deposits, hair loss, decreased mobility, increased incidence of body aches and impaired self-confidence. Hormonal imbalance is a complex systemic problem defined by decreases in certain hormones (e.g. sex hormones, thyroid and growth hormones), which may be further aggravated by toxicity, and increases in other hormones (e.g. cortisol). A systemic problem that involves several intertwined components becomes a gestalt, a whole that is more than the sum of its parts that takes a life of its own. This is why it cannot be solved by treating only part of the problem, like performing vaginal rejuvenation, or replacing particular hormones. A concrete example to illustrate this abstract problem is a modern painting with several parts of a face subtracted, and yet, the face shape and identity remain, despite the omissions. Similarly, the process of substituting a few hormones that cause hormonal imbalance, thus eliminating certain aspects of the hormonal imbalance does not equal to hormonal balance. An example of the intricacy and complication of the hormonal balance construct is given in the analysis that follows. Sexual desire and decreased female orgasms are believed to be regulated by neuromodulators (neurotransmitters and hormones) of excitatory pathways (dopamine, norepinephrine, melanocortins, oxytocin, etc) and inhibitory pathways (serotonin, opioids, endocannabinoids), in addition to oestrogen, progesterone, testosterone, cortisol, etc. Sex steroid hormones are synthesised from cholesterol and exert pleiotropic effects, notably in the central nervous system. Due to their anti-inflammatory, antioxidant and anti-apoptotic properties, sex steroids also exert neuroprotective properties in the brain, particularly after central nervous system insults such as stroke and traumatic brain injury (Diotel et al, 2010). Sex steroids are delivered from the gonads to target cells, including immune cells. Immune cells possess an extensive capacity to generate and metabolise sex steroids. Sex steroid secretion by immune cells could confer paracrine signalling effects in neighbouring cells within metabolic tissues. Immune cell intracrinology appears to reveal key mechanisms underlying immune cell-mediated metabolic regulation. Rubinow (2018) explored the potential relevance of immune cell intracrine function to the regulation of energy

balance, body weight, body composition and insulin sensitivity. This is only a small part of a system with multiple dynamic parts forming a whole that becomes a gestalt, defined as more than the sum of its parts. How can you change a gestalt that is more than the sum of its parts by only replacing a few parts?

Weight gain, especially an increase in visceral fat, can often be the centrepiece of female insecurity. Obesity predicts the incidence of several major chronic diseases, including diabetes, cardiovascular disease and certain types of cancer, especially for women facing the menopause transition (Nappi and Kokot-Kierepa, 2012; Ippoliti et al, 2013).

Numerous laser and RF studies report successful results in reducing subcutaneous but not visceral fat, and several of these studies do not appear to produce statistically significant results or be well controlled. One of these studies included 518 patients. No significant side effects or adverse events were reported. The procedure was well tolerated, with 89% of respondents reporting a positive perception of treatment duration and 96% reporting minimal to tolerable discomfort. Survey results demonstrated 73% patient satisfaction and that 82% of patients would recommend the cryolipolysis procedure to a friend. None of these results appears statistically significant with the exception of the 96% of subjects who reported minimal to tolerable discomfort (Dierickx et al, 2013).

Another study Chang et al (2014) aimed to assess the efficacy, safety, pain and satisfaction levels of the combination therapy of focused ultrasound and RF for improving body contours. They report a mean reduction in circumference of 3.91 ± 1.8 cm ($p \leq 0.001$). Fat thickness reduction was 21.4 and 25% on the upper and lower abdomen, respectively, in MRI measurements; however, only two out of their 32 subjects underwent MRIs. Their satisfaction survey based on a single short questionnaire (normally more than one questionnaire should be adopted for cross-reference and study validity and reliability) showed a 71.9% satisfaction, a result that is not statistically significant.

A recent study used a novel effortless exercise method for 3 weeks, found statistically significant increases in Free T₃ ($p < .05$) and overall skeletal muscle mass ($p < .05$), accompanied by a statistically significant decrease ($p < .001$) in the very low-density lipoprotein (VLDL), Triglycerides decrease ($p < .001$), visceral fat reduction ($p < .001$) and body fat mass decrease ($p < .05$) (Sofra-Weiss, 2019). A significant mean waist circumferential reduction of T value -5.45 cm ($p < .001$) and T value of -4.73 cm from the abdomen ($p < .001$). Mean T value for weight loss in kilograms was -3.32 ($p < .001$). More research is now conducted with this novel effortless exercise method, exploring long-term levels of leptin, ghrelin and adiponectin on the basis

Skeletal Muscle Mass Before and After 10 Treatments

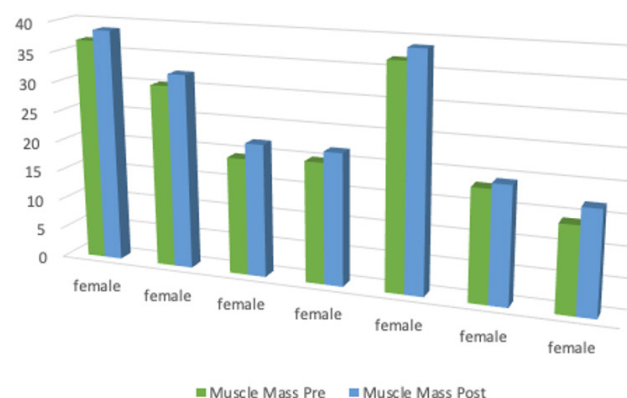


Figure 1. Results show a statistically significant increase in skeletal muscle mass after ten treatments

of the clinical observation of a significant reduction of hunger and sustained weight loss for several months after at least 12 treatments.

Psychological issues and sexuality

A dramatic example of how psychological issues can undermine not only sexuality, but overall health, is evidence converging on a constellation of factors that appears to predispose some individuals to develop cancer more readily, or to progress more quickly through its stages. These factors include:

- ▶ Certain personality traits or coping styles, which were discussed under the rubric of Type C personality
- ▶ Difficulty in expressing emotions
- ▶ An attitude or tendency toward helplessness and hopelessness (Temoshok, 1987).

Individuals with Type C personality keep their feelings under wraps, never express anger and rarely acknowledge fear and sadness. They maintain a façade of pleasantness, even under the most painful or aggravating circumstances. They strive excessively to please the people that surround them, and even authority figures and strangers. Type C personality is the polar opposite of Type A personality, defined by pathological impatience, highly charged competitive tendencies and the frequent expression of anger and hostility, while being consistently focused on their own needs.

Other studies Basson (2001) found that psychological factors that diminished arousability were identified in 85%, while depression contributing to low sexual desire was identified in 43% of them. Androgen deficiency (the cause suggested by referring doctors) contributed to low sexual desire in only 25% of these 47 women.

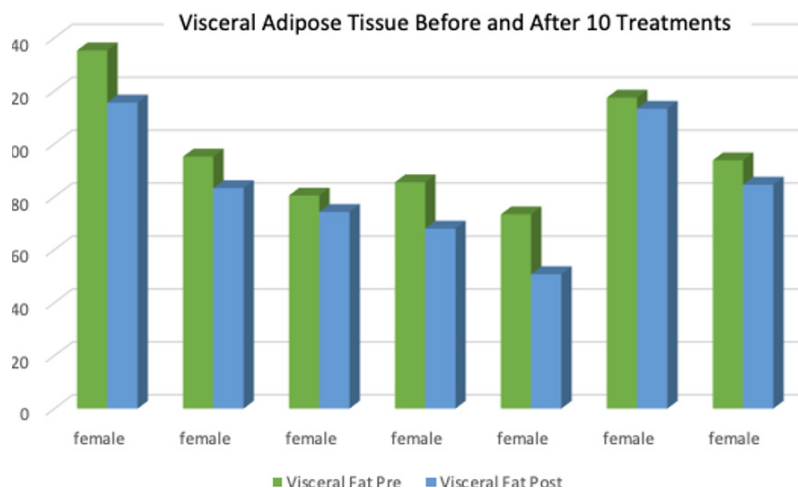


Figure 2. Visceral adipose tissue results before and after 10 effortless exercise treatments show a statistically significant decrease in Visceral adipose tissue ($p < 0.001$)

Methodology and results: Study 1

Data from 26 females aged 48–66 was collected over a period of 7 years (2013–2020) during psychotherapy. Subjects were given a battery of tests that included the MMPI, the FSFI, the Rorschach and the Thematic Apperception Test (TAT), a medical questionnaire and a consent form, which all subjects signed. All females had previously received a vaginal rejuvenation with energy-based technologies like laser and RF, and at least three laser or RF body sculpting procedures. All subjects had been in psychotherapy for at least one year. The reason for psychotherapy was lack of overall satisfaction in interpersonal relationships that included sexual issues, mild depression and anxiety. None of these women were on any psychiatric medication. The Rorschach and TAT questionnaires revealed no major psychiatric issues in any of these women.

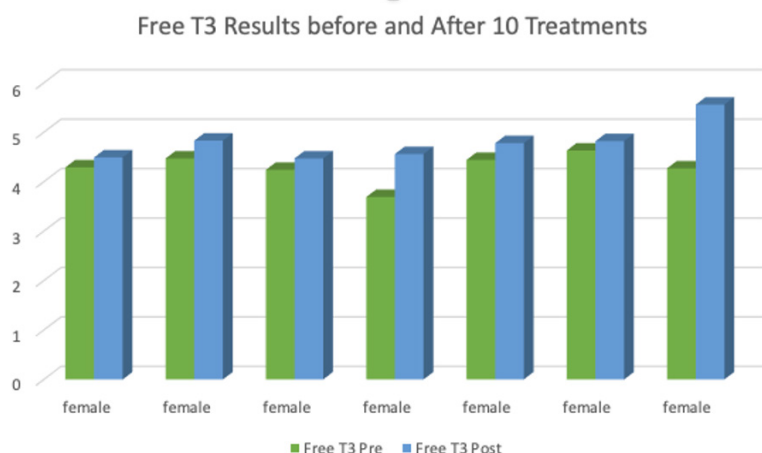


Figure 3. Free T3 results on subjects blood tests before and after 10 effortless exercise treatments show a statistically significant increase in Free T3 ($p < 0.05$)

Most women (98%) reported that both surgical and minimally invasive vaginal rejuvenation interventions that included laser and RF procedures were successful in terms of significantly reducing pain or discomfort during vaginal penetration. However, when a distinction was drawn between personal sexual satisfaction and that of sexually fulfilling their partners, these statistically significant results were reversed. 98% of women admitted in strict confidence that although it was a relief not experiencing pain during intercourse, some of the sexual sensation they had prior to the vaginal rejuvenation had either dissipated or was mostly muffled. All of these women had reported improved orgasms in their FSFI questionnaires given to them after their vaginal rejuvenation, so it is not clear if they had simply been untruthful, or whether they were referring to their partners' orgasms rather than their own. The same 24 females were recently offered four treatments in the course of 12 days, every 3 days, with a new extremely low-energy technology that has been clinically shown to decrease inflammation and increase tissue thickness and speed up the healing of wounds. The technology was originally used in tissue healing studies (Adey, 1980; Gardner et al, 2002; Sofra-Weiss, 2018). The rationale for using such extremely low-energy technology in wound healing is related to the concept of power frequency windows in the human body. While strong oscillating electromagnetic fields have shown no easily measurable or obvious effects on humans or living systems, much weaker oscillating fields have been shown to affect living systems in often dramatic ways (Adey, 1980). The logic that 'if a strong field has no effect, then a much weaker one will not either', only applies to non-living systems of inert matter and may be valid once we are dealing with living systems (Oschman, 2005; Zhou and Uesaka, 2006).

This novel intervention offers a pleasant soothing experience despite being imperceptible. The technology is represented by a device that emits four complex signals at a variety of discrete specific times that range from four to 24 seconds. Signals are comprised of sine and square waveforms, with frequencies ranging from 0.25 – 10 000 Hz. The four signals are combined into their resultant, and they are transmitted simultaneously via a pair of four grade ultra-silver-plated microphone cables with stainless surgical steel leads attached to their ends. The leads must make contact with the patient's skin. In this case, the long round lead was inserted into the patient's vagina and the other lead was placed on the vulva. Leads were sanitised prior to each usage. During treatment, the device's voltage output ranges from 0.003 μ V to 0.5 μ V (μ V = 10⁻⁶ volts) depending on the frequency. The device's current output ranges

from 50 na to 150 na (na = 10–9amperes).

A total of 69% of the subjects reported a definite improvement in a pleasurable sensation during intercourse and increased incidence of orgasms, after the four treatments, while 31% reported minor or no improvement. These results were statistically non-significant with women who had previously undergone vaginal rejuvenation with energy-based technologies. Better results have been clinically observed with women who had no prior vaginal interventions.

Seven of these females obtained their own blood tests measuring Free T₃ and Triglycerides. They also made available their MRIs which they had financed on their own, before and after receiving 10 treatments, over the course of 4 weeks, with another novel effortless exercise technology originally invented at London University. This technology has clinically and experimentally shown a decrease in visceral fat and VLDL and an increase in muscle mass and Free T₃ (Sofra-Weiss, 2019). The device offers a voltage-driven signal that results in an 8-second full body contraction every 2-second rest time. Maximum voltage is 25V at 500 Ω and 100V at 10 000 Ω with a net charge of 0.001 Amps at 500 Ω , 0.004 Amps at 2000 Ω and 0.00025 Amps at 1000 Ω with a leakage of 0.007 μ A (10–6Amps).

The signal is emitted via 16 channels isolated by separate transformers via silver-plated four grade microphone cables that are connected to gel pads, which are attached on the body. The two waveform controls each have 12 square complex waveforms, each composed out of 4 000 sine frequencies added onto each other on the basis of the original London University formula. The 12 waveforms on the left are manually combined with the 12 waveforms on the right to form 144 combinations that give different types of 8-second contractions every 2 seconds, depending on the waveform combination. All waveforms are rectangular in shape and have their own specific resultant frequencies that vary from 55 Hz to 888 Hz.

Prior to treatment, each subject lay on a massage bed while the gel pads and cables from the 16 channels of the device were attached onto the body. The cables from 10 of the channels were attached onto the gel pads of the waist and abdomen and the cables from the six remaining channels were attached onto the gel pads placed along the lymphatic system pathways of the legs and arms to enhance lymphatic drainage during treatment. During the treatment, the device's controls were turned towards the operator, so that the subject could not see how the operator handled the device. The operator was trained on how to operate the device but had no other knowledge related to the device. During treatment both the operator and the subjects observed a series of 8-second visible

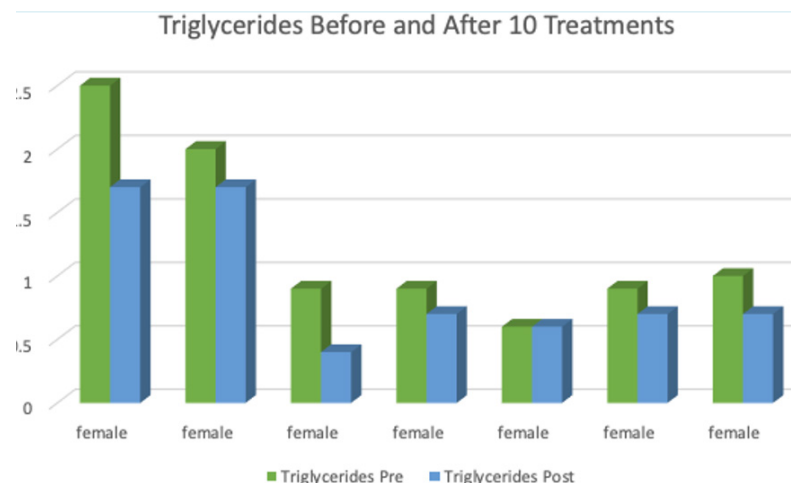


Figure 4. Triglycerides results on subjects' blood tests before and after 10 effortless exercise treatments show a statistically significant decrease in Triglycerides ($p < 0.05$)

contractions that were repeated every 2 seconds, 1000 times during the treatment. Contractions were involuntary, involving the entire body's coordinated musculature contracting simultaneously in a rhythmical manner as during physical exercise. The contractions were experienced by the subjects as vigorous, yet painless and effortless. Subjects did not receive any specific instructions on adding exercise to their lifestyle or reducing their alcohol and food intake. Overall, subjects did not do anything to change their lifestyle during the 4 weeks of the 10 treatments until the post-treatment MRIs and blood tests that took place around 2–3 weeks later, and which each subject financed on their own.

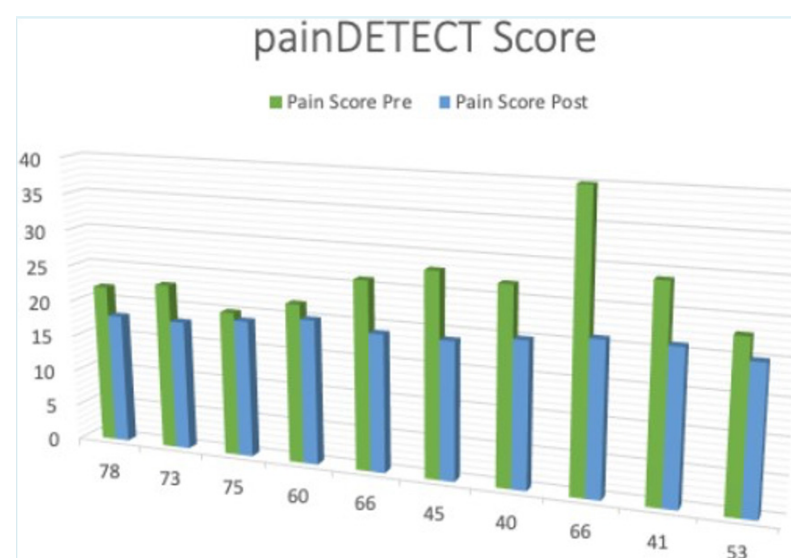


Figure 5. The painDETECT questionnaire showed statistically significant results at $p < 0.01$ probability level. Age did not seem to play a significant difference with respect to relief from neuropathic symptomatology. For ex. a 66 year-old subjects showed greater improvement several other younger subjects



In 2018, the US FDA issued a stern warning about procedures that destroy or reshape vaginal tissue using lasers, as the full risks are unknown

One-tailed t-test for dependent variables and the Mann-Whitney U test were used to analyse the data. Results were statistically significant on all four variables tested: skeletal muscle mass ($p < 0.05$) (Figure 1), visceral adipose tissue: $p < 0.01$ (Figure 2); free T₃: $p < 0.05$ (Figure 3); and triglycerides: $p < 0.05$ (Figure 4). The free T₃ increase was within the normal range, spiking from the lower end to the higher end of the normal range. This consistent elevation in T₃ among all subjects suggested that, while hormonal secretion remains within the normal limits, a woman will function at her metabolic peak in terms of Free T₃ after undergoing 10 treatments of effortless exercise.

Methodology and results: study 2

Diabetes has four major complications: neuropathy, retinopathy, nephropathy and vasculopathy. This study focused on the neuropathic symptoms of 10 subjects ages 41–78 years old.

Neuropathy is the dysfunction of one or more peripheral nerves, typically causing numbness, tingling, sharp pain, poor mobility and weakness that have an additional adverse effect on female sexuality. The pathologic basis for diabetes neuropathy includes both metabolic, vascular and immune pathogenesis

models (Gries et al, 2003; Addis et al, 2006). Experimental models of metabolic pathogenesis of neuropathy postulate that severe hyperglycemia can produce reduction in nerve conduction velocity and axonal shrinkage. Vascular pathogenesis models demonstrate that the severity of polyneuropathy is associated with an increase in basement membrane area and endothelial cell degeneration (Cameron et al, 2001). The immunologic/inflammatory pathogenesis demonstrates asymmetric nerve fibre loss and lymphocytic epineurial inflammation resembling vasculitis. Clinically, diabetes neuropathy has always been a challenge, because traditional treatments result in temporary symptoms' relief.

In this study, a new technology was used that was also used in Study 2 (Sofra-Weiss, 2018; Sofra Polyxeni, 2020). The device stores 9 600 signals synthesised on the basis of a proprietary mathematical formula out of sine and square waveforms with resultant frequencies ranging from 0.25–10 000 Hz. Four signals are composed out of a second proprietary mathematical formula and emitted simultaneously at different time intervals ranging from 3–24 seconds, on the basis of a specific timing sequence determined by a third proprietary mathematical formula. Signals

are emitted via a pair of four grade ultra-silver-plated microphone cables with stainless surgical steel leads attached to their ends, which are placed onto the patient's skin, where the pain is. The leads were sanitised prior to each usage. During treatment, the device's voltage output ranges from

0.003 μV to 0.5 μV ($\mu\text{V} = 10^{-6}$ volts), depending on the resultant frequency. The device's current output onto the skin ranges from 25 na to 100 na (na = 10-gamperes).

All subjects had been diagnosed with diabetes neuropathy for an average of 8 years. For the purpose of this study, subjects were once again screened for neuropathy by a variety of measures, including a clinical interview conducted by a licensed dermatologist, their medical history, their symptomatology in the past year and the subjective peripheral neuropathy screen (SPNS), which has been tested for validity and reliability. Reliability, internal consistency, construct validity and criterion related validity have been confirmed with the SPNS (McArthur, 1998).

Subjects' neuropathic pain symptoms before and after treatment were measured by the Pain Detect Questionnaire (PD-Q). The PD-Q is a reliable screening tool with high sensitivity, specificity and positive predictive accuracy (Freyenhagen et al, 2006). Additionally, the subjects' neuropathic pain symptoms were assessed by their treating physician, who explored the incidence of the following variables before and after treatment: numbness, pain sharpness, burning sensation, tingling sensation, sensitivity to touch and muscle weakness.

Two 15-minute treatments were delivered every 3 days for a period of 1 week. All subjects were instructed to suspend all pain medication during the two treatments.

One-tailed t-test for dependent variables was used to analyse the data. Results revealed a statistically significant improvement before and after treatment where p value was 0.0015 ($p < 0.01$) indicating that over 100% (985%) of individuals subjected to this treatment experience relief in their neuropathy after two treatments (*Figure 5*). Difference score calculations are given below:

- ▶ Mean: -6.5
- ▶ $\mu = 0$
- ▶ $S_2 = SS/df = 236.5/(10-1) = 26.28$ $S_2M = S_2/N = 26.28/10 = 2.63$
- ▶ $SM = \sqrt{S_2M} = \sqrt{2.63} = 1.62$
- ▶ T-value Calculation $t = (M - \mu)/SM = (-6.5 - 0)/1.62 = -4.01$.

Results on all subjective variables assessed by the treating physician (numbness, pain, sharpness,

burning sensation, tingling sensation, sensitivity to touch and muscle weakness) went from positive prior to treatment, to negative after the second treatment. All subjects reported neuropathic pain relief and increased mobility.

Seven out of 10 of these subjects reported permanent neuropathic pain relief that was sustained for at least 1 year following the two treatments. Three subjects re-experienced neuropathic symptoms after three months and returned for follow-up treatments.

Conclusion

The scope of these studies was to offer a multidimensional perspective designed to improve quality of life. The human body and mind operate together in the same person and treating only one without treating the other cannot possibly help patients reach an optimum level of contentment. For example, female sexuality does not exist in a vacuum, but it is affected by several physiological, intrapsychic and interpersonal components.

Study 1 found a discrepancy between high scores on the FSFI and the true feelings of women who had previously undergone vaginal rejuvenation procedures with energy-based technologies. Study 1 also explored a new method of vaginal rejuvenation on women who had previously received vaginal rejuvenation interventions with energy-based technologies. A total of 69% of the subjects reported a significant increase in sexual sensation, while 31% of them reported a minor increase in sexual sensation or no change. These results may have been compromised by the possibility of scar tissue formed in the vaginal canal following the usage of energy-based technologies, posing a difficulty in reinstating sexual sensation.

The US FDA has not approved vaginal laser treatments for what is known as vulvovaginal atrophy, a condition that often accompanies menopause and can include symptoms like vaginal dryness, painful intercourse and urinary incontinence, emphasising that the safety and effectiveness of these treatments is unproven. A recent study by Gordon et al (2019) reported four cases that demonstrated complications after completion of three consecutive laser treatments for vaginal rejuvenation. Complications included fibrosis, scarring, agglutination and penetration injury, including vaginal tearing, bleeding and scar tissue formation, ultimately causing obstructions. Overall, intercourse became more painful after laser treatments than it was before. However, this sample is too small to draw any reliable conclusions.


Overall, in the absence of a lie scale and further exploration of hormonal imbalance or other contributing psychological factors, self-report questionnaires or clinical interviews posing straight forward questions may be simply collecting inaccurate

data rendering the study's validity and reliability questionable at best. Without a full diagnostic profile including both psychological and physiological data, it is unclear how many women are really satisfied by vaginal rejuvenation interventions performed by energy-based devices.

Study 2 explores methods to improve neuropathy in ten diabetes patients. Neuropathy is also experienced by a large number of individuals that have not been diagnosed with diabetes. Musculoskeletal pain (MP) is generally addressed by physiatrists, orthopaedists and rheumatologists who are not traditionally trained in psychology or sexual medicine, therefore, the sexual or psychological concerns of women with MP often go unaddressed. A review article by Rosenbaum (2010) reported that lack of mobility and MP can restrict intercourse and limit sexual activity. The authors recommended sexual and relationship counselling in addition to rehabilitative treatment.

Empowering women means first understanding both the physiological and psychological female dynamics, and then devising or adopting methods and interventions that can safely and genuinely help women improve their psychophysiological health, sexuality and interpersonal relationships. The female dynamic profile should be based on a comprehensive assessment of overall health status, hormonal balance, optimum weight, emotional organisation and psychological stability. This article lists some new safe and effective technologies to be taken into consideration in treating women.

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Key points

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CPD reflective questions

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