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RESEARCH ARTICLE

COMBINED METHOD OF IMPROVING THE QUALITY OF LIFE BY RELIEVING THE BACK PAIN

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ABSTRACT

This study aimed to provide those interested, details about a new method of improving the quality of life by relieving the back pain. For this purpose, we combined several physical and technological methods. In parallel with the implementation of certain evaluation tests regarding the back pain and the quality of life (Visual Analogue Scale and Nottingham Health Profile) we used specific gymnastics techniques in combination with solutions offered by two devices of great complexity (Ceragem Massage Bed and Mind Sinergy). There is a significant relationship (r = -0.71%) between the first evaluations. We proved that the pain, at any level, has a direct effect with significant impact on the quality of life. We studied eleven subjects over a period of twenty months, and we noticed a visible improvement in the quality of their life, due to the significant amelioration of the existing back pain. Respiratory gymnastics, correctly applied and simple exercises like "homework" had a decisive contribution in the effectiveness of the application of this innovative method.

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INTRODUCTION

The quality of life can be measured by using indicators that relate to specific aspects of life, such as job satisfaction, family life, financial situation, leisure time, or health. Referring to health, it has been found that pain is a stressful effect factor at all levels, mental, volitional etc. Pain can change consciousness, can effectively lead to the disappearance of life satisfaction (Murariu *et al.,* 2016). Over time, there has been remarkable progress in understanding, evaluating and controlling the pain. Pain assessment methods are classified into physiological, behavioral and psychological depending on the method of assessment (Moiceanu *et al.,* 2006): physical parameters (heart rate, sweat index, blood pressure, cortisol level, etc.); (grimaces, crying, defense gestures, etc.) or by evaluating the own description of the subjects (words, drawings, numerical classification, etc.). All specialists are trying to eliminate the pain, by various methods, using specific means of intervention (medical, psychic, physical, with specialty equipment etc.). Back pain being almost a "normal" presence for many people, we tried to use different methods, combined, adapted and applied according to certain parameters, to eleven subjects. The subjects accused chronic pain, of varying intensity, in the spine or in the lower or upper limbs.

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All subjects had a medical diagnosis, followed with a medical treatment or various recovery therapies, but they remained with the back pain (hernias, lumbar hernias, cervical protrusion, sciatica, etc.). Some of them had permanent pain, at an intensity of 2-3 on the VAS scale. Excess of medication and frequent need for recovery and rest have made them try other ways to relieve this pain. At first, we used specific respiratory gymnastics techniques, so that the diaphragm and the stabilizing spinal muscles can develop thru movements made in accordance with the breathing phases (Finta *et al.,* 2018). We were choosing the eleven subjects due to approximately similar affections. They are also part of a larger group of people coming to the gym for a few years to maintain a healthier state of health so they improve the quality of their lives and those around them. To complement the effects of gymnastics techniques, we were using two complex devices: a Ceragem Massage bed and a relaxing technology, Mind Synergy. At first, we were using these devices separately, which made the sessions complicated, so that at some point we start using them simultaneously. This change in optics led to overlapping different techniques, so we created another dimension of sensory perception for that activity. Thus, we reached a holistic approach, and the subject simultaneously got to open his mind to healing (by stimulating cerebral hemispheres) and the physical massage on the spine (mechanical elongation, physical and thermal presopuncture). The study aims to demonstrate that this group of subjects, by alleviating or even eliminating pain, has significantly improved the quality of life in all its aspects.

MATERIALS AND METHODS

We tested eleven subjects (three males and eight females) who were 32 to 60 years old. Initially, the subjects participated in two or three sessions per week. After a few months each subject stayed with a weekly session for maintenance. The sessions lasted ninety minutes and were structured as presented in Figure 1.

- Brief medical history,
- Warming-up exercises accordingly to the medical history
- Ceragem massage and mind synergy therapy (if the subject feels comfortable to have both procedures at the same time)
- Respiratory Gymnastics (considering the subject's feedback after Ceragem massage procedure)
- Home exercise plan.

We mentioned that the subjects participated (and they are still participating) consciously in the activity and they were in total agreement with the tests, the use of the equipment and the physical activity during the sessions.

Visual Analogue Scale **(VAS)** is a pain assessment method (Klimek, 2017). It consists of a horizontal line of 10 cm that the patient crosses with a vertical line (between 0 and 10) where he considers the degree of pain he is accusing at the time (fig. 2). Depending on the pain's intensity, the quotation is as following (Table 1):

Nottingham health profile – a life quality assessment scale (Moret, 1993)

This scale contains items that target multiple aspects of the subject's life (vitality, pain, emotional reactions, social isolation, sleep, physical mobility) and translates a subjective assessment into the score. Items have one point value for negative responses and 2 points value for positive ones. It is recommended to score as high as 38 questions (minimum 38 and maximum 76 points).

Ceragem Massage Bed MB - 1101 (ro.ceragem.com)

Running between the cervical vertebrae and coccygeal vertebrae, the internal projector stimulates points along the spine that vary from person to person, specifically the pressure points in the muscles on the sides of each vertebra (fig. 3). This revolutionary feature helps ensure greater comfort and efficacy during the massage.

The bed has 12 programs: Automatic, relaxation, circulation, energy, deep sleep, area repetition, stability, health, concentration, balanced body, manual, semi-automatic (Fig. 4).

Mind synergy II **(aimgroup.ro)**

It is the most complex technology to combat stress and to induce the deep relaxation. This new version of Mind Synergy is specially designed to help all those who aim to: improving health, acquiring and retaining profound physical and mental relaxation, regenerating vital force and increasing the overall level of energy, enhancing the state of focus (ideal for those diagnosed with ADHD), reprogramming the subconscious for achieving financial success, achieving the ideal weight by self-help, reinvigorating memory and increasing learning capacity,

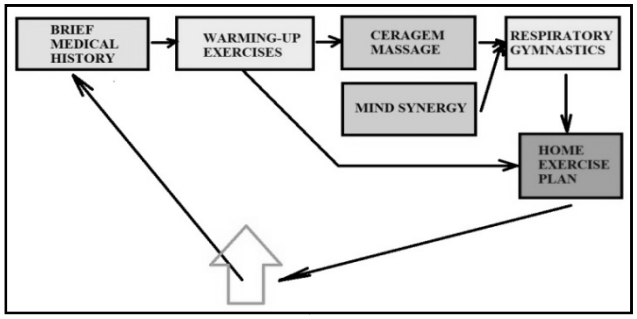

Figure 1. The structure of a therapy session

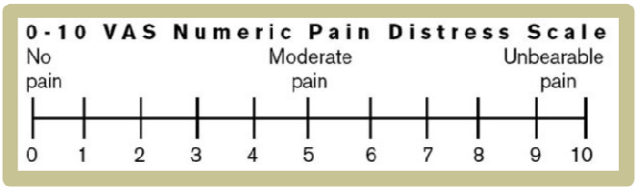

Figure 2. VAS sample (trialdatasolutions.com)

Figure 3. The internal projector

Figure 4. The programs

Figure 5. Mind Synergy II

Table 1. Visual Analogue Scale

Score	Symptomatology	Therapeutic Conduct
0	No pain	No medication needed
1	Minor-occasional irritation, minor pain access	Medication when needed
2	Minor-occasional irritation, strong pain access	Medication when needed
3	Sufficient irritation to distract attention	Moderate painkillers
4	Pain can be ignored if the patient is performing a work task, but continues to distract attention	Moderate painkillers
5	The pain can't be ignored more than 30 min.	Moderate pain killers
6	The pain can't be ignored at all, but the work tasks or the social activities can be continued.	Strong painkillers
7	Difficulty concentrating, the pain interfers with the sleep. The work tasks is continued with effort.	Strong painkillers
8	Severe limited physical activity. Reading and talking with effort.	Strong painkillers
9	Inability to speak. Crying or uncontrollable moaning, almost delirium	The strongest painkillers are partially efficient
10	Incontinence. Pain can cause death	The strongest painkillers are partially efficient

Tabelul 2. Datele testarilor cu VAS si Nottingham Health Profile

NR.	Painful time period before the test	Visual Analogue Scale			Nottingham Health Profile		
		Test 1	Test 2: after the first month (8 – 12 sessions)	Test 3: after 16 months (Aprox. 8 sessions/month)	Test 1	Test 2: after the first month (8 – 12 sessions)	Test 3: after 16 months (Aprox. 8 session/month)
1	3 years	4	2	occasionally	39 p.	50 p.	67 p.
2	1 years	6	4	1	38 p.	54 p.	68 p.
3	2 years	3	2	occasionally	40 p.	60 p.	71 p.
4	6 months	8	2	occasionally	38 p.	71 p.	76 p.
5	1 year and 4 months	2	1	1	46 p.	65 p.	72 p.
6	2 years	5	2	occasionally	38 p.	68 p.	74 p.
7	4 years	8	4	2	38 p.	62 p.	70 p.
8	6 months	2	1	0	58 p.	68 p.	74 p.
9	1 year	3	2	occasionally	47 p.	67 p.	72 p.
10	10 months	4	1	occasionally	50 p.	69 p.	72 p.
11	2 years and 3 months	2	2	1	57 p.	64 p.	68 p.
M	16.1 months	4.3	2.1	0.45	44.5 p.	63.5 p.	71.3 p.

Table 3. Correlations between VAS and Nottingham Health Profile

	Nottingham Health Profile		
VAS	Tn1	Tn2	Tn3
Tv1	-0.71%		
Tv2		-0.48%	
Tv3			-0.42%

improving sleep, reaching the deepest harmony on all the levels of well-being (Fig. 5). Mind Synergy is ISO 9001 certified, the most widely used and applied standard for meeting the quality of the goods. Whatever the reason, if you return it within 30 days of purchase, you get the money back. The warranty accompanying the product is valid for 24 months. Eugen Birgaoanu, design engineer Mind Synergy, won 1st Prize at the Nikola Tesla (Inventions and Innovations) Festival, Novi Sad, Serbia, October 2012; The gold medal in 2011 at the Nikola Tesla festival.

Disclaimer

The apparatus presented above is not a medical device and is not intended for the diagnosis, treatment or cure of diseases, therefore it does not replace indications or medications prescribed by the physician. The beneficial effects of these technologies stimulate the optimal functioning of the body and are complementary to any other form of treatment or therapy.

Respiratory gymnastics

We used respiratory gymnastics to prevent ventilator dysfunction, to improve muscle contraction and the flexibility of the joints involved in the respiratory act, to correct vicious positions of the spine, respiratory pathways permeability, prevention of the respiratory pathways complications, exercise training and recovery after effort (Stan, 2009).

Data analysis

We were processing the collected data using SPSS v. 20 for Windows. The confidence coefficient for statistical significance is 95%. At the first session, we tested the subjects with VAS and Nottingham Health Profile. Over the twenty months, we repeated these tests every three months. Because the subjects did not come all at the same time, we end up having the first testing, the second one and the final one. The data is presented in Table 2. We noticed that the average of the second test decreased by half and in the third test it dropped to 0.

The problem is that there are occasional occurrences of the pain, not at the same intensity, not with the same frequency, not with the same impact but it is not 0. To calculate the correlations between the VAS scale and the Nottingham Health Profile, we need to put a zero value instead of the word "occasionally". As a result, the correlation between Tv3 and Tn3 should be considered with caution (Table 3). There is a significant relationship (r = - 0.71%) between the first evaluations. We proved that the pain, at any level, has a direct effect with significant impact on the quality of life. The second test shows a good but lower link than the first, in fact, almost half. This fact shows that each subject, according to several factors, has its own evolution. At the last test, the difference is significant (r = -0.42%).

DISCUSSION

Considering the mechanical action of the bed rollers on the spine, we should mention that there are studies that demonstrate that stretching is the most effective in recovering moderate deficiencies (Abdulrahim *et al.,* 2012). However, in this study, techniques are not used separately, but complementing each other. A recovery only by using the massage bed cannot produce long-term effects if it is not supported by gymnastic techniques that will strengthen the paravertebral muscles, in particular. Mind Synergy technology is based on the study and practice of Francis LeFebure, which has shown that certain sensations in the form of bright (phosphenic) dots generated by audio-visual brain stimulation (light and alternating left / right sound) trigger profoundly beneficial effects in the whole structure of the human being (mental, physical and spiritual). This type of approach is also used in the case of visual prostheses (Perez-Yus *et al.,* 2017). In our case, we used the technique to open the mind to healing (by stimulating cerebral hemisphere frequencies).

Conclusion

We can say that this combined method produced the expected effect, by reducing pain and improving the quality of life. This effect extends to the environment in which the studied subjects live and work, so it can be said that indirectly many people benefit from this method outlined in this study. This shows that each subject, depending on the frequency of the sessions, the degree of involvement, the time spent working at home, the environment in which they work, can come out sooner or later from the pain-induced state and the effects of pain on all the components of life. With this study, we only made a review of some new ways of applying recovery methods, and in the future, we will present that in detail. This good connection is a result of strong correlations between lumbar force and weight projection on the middle and heel areas. In the 12 year-olds, the body balancing is achieved by muscle tension and a projection of weight to the middle area and heels, mainly due to the contraction of the lumbar muscles. In the 16 year-olds, due to the development of sensory and motor control systems, the dependence on lumbar muscle tension no longer exists. It is necessary to have at each sport training distinct exercises to develop the ability to maintain the balance of the body in the most difficult situations.

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Conflicts of interest: None declared.

Key points

- To complement the effects of gymnastics techniques, we were using two complex devices: a Ceragem Massage bed and a relaxing technology, Mind Synergy.
- At first, we were using these devices separately, which made the sessions complicated, so that at some point we start using them simultaneously.
- Thus, we reached a holistic approach, and the subject simultaneously got to open his mind to healing (by stimulating cerebral hemispheres) and the physical massage on the spine (mechanical elongation, physical and thermal presopuncture).

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