ISSN: 2690-909X

Review Article

Advances in Neurology and Neuroscience

Some Physiological Aspects of Vibrostimulation in Hydrorehabilitation

Giorgi Parulava[1*], Eduard Feroyan[2] and Nana Malania[3]

[1]*Doctor of Biological Sciences, Professor. Georgian State University of Sport,Georgia*

[2]*Doctor of Biology, Associate Professor, Georgian State University of Sport,Georgia*

[3]*Doctor of Medicine, Associate Professor, Tbilisi Balneological Spa Resort,Georgia*

[*]Corresponding Author
Giorgi Parulava, Doctor of Biological Sciences, Professor. Georgian State University of Sport,Georgia.

Submitted: 2026, Jun 04; **Accepted**: 2026, Jun 30; **Published**: 2026, July 10

Citation: Parulava, G., Feroyan, E., Malania, N. (2026). Some Physiological Aspects of Vibrostimulation in Hydrorehabilitation. *Adv Neur Sci, 9*(3), 01-03.

Abstract

Vibrostimulation in hydrorehabilitation shows new horizons for restoring health and well-being. In the years 2018-2023, the research conducted by us in the Tbilisi balneological clinic confirms that vibrostimulation is one of the fundamental components of the hydrorehabilitation process. In the practice of neurology and orthopedic pathologies, this implies the restoration of muscle function, activation of tendon reaction, along with this, a fundamental change in receptor regulation. Pathological proprioceptive stimulation and changing the action of the entire receptor field. Antagonistic muscle work and the resulting change in the pathological motor activity of a person, which leads to positive dynamics. It is a highly effective procedure to increase the effectiveness of other restorative treatment methods and therapeutic approaches. It was determined that as a result of vibrating hydrobaths, pain disappeared or significantly decreased in 90.7% of patients, static disorders in 63.3% and tension symptoms in 91.2%. Also, a higher frequency of loss of palpable sensitivity was observed in many trigger points compared to the control groups. The article presents the long-term results of thorough research and clinical experience, which allows us to achieve the maximum rehabilitological benefit, restore the patient's health and improve his quality of life.

Keywords: Procedure, Vibrostimulation, Hydrorehabilitation, Vibration, Stimulation, Sensitivity, Effect, Neurology, Orthopedics, Methods, Limbs

1. Introduction

Vibrating stimulation in hydrorehabilitation is a method that combines mechanical-vibration effects on the body with water procedures and achieving a comprehensive positive effect on the body [1]. Vibration, in defined doses, activates mechanoreceptors, improves blood and lymph flow, ensures muscle activation, and hydrorehabilitation uses water temperature, chemical and mechanical effects, which promotes body relaxation, rehabilitation and general well-being [2,5,7,10]. Vibration, as a therapeutic tool, was used at various times in the practice of rehabilitation of patients with pathologies of the nervous system [3,4,5]. The "Charcot shower" (Figure 1) is noteworthy, which involves directing the flow of water to certain parts of the body. Also "Vichy shower", which is a unique hydrotherapy procedure. Taking a shower is done in a lying position (picture 2) and underwater shower-massage, which is widely used in everyday life in the form of a jacuzzi (picture 3).

Figure 1: Charcot Shower

Figure 2: Vichy Shower

Figure 3: Underwater Shower Massage

In addition, it is commonly known that tinnitus occurs in diseases such as: acute infectious diseases, acute skin infections, heart failure, acute kidney disease, uncontrolled hypertension, diabetes, and cerebrovascular disorders [1,19].

2. Goals and Objectives

The purpose of the article is to present the need for a more in-depth study of the topic of hydrorehabilitation and the effectiveness of including vibrostimulation elements, characterized by specific

approaches to technical work, specific vibration parameters, the use of different modules of the vibration platform, and a wide range of subsequent positive physiological dynamics. The task of the article is to present the effectiveness of vibrostimulation procedures in combination with other methods in hydrorehabilitation.

3. Materials and Methods

Due to the invention of devices necessary for generating vibration, vibration stimulation is more widely used in the therapeutic range. In particular, such devices as "EMA" for vibration massage, "Tonus-1", "Bodrost", a special device for vibration baths "Волна", Ultrathin bodi Slimmer [15,16,17,18]. The work is done using descriptive, survey and analysis methods.

4. Discussion and Results

A comparative analysis of the effect of vibration when using the vibrostimulation method in hydrotherapy on various pathologies in clinical experimental conditions showed that it has a pronounced trophic, analgesic, anti-inflammatory and reparative-regenerative effect. In the rehabilitation of patients with pathologies of the nervous system, vibration stimulation is used in sensory-algic, spastic-paretic and neurotrophic syndromes [2,7,8,14,15]. The mechanism of the analgesic effect of vibration stimulation is probably similar to that of "TENS", but it becomes more effective due to the stimulation of mechanoreceptors of the skin, muscles, tendons, bone and cartilage tissue that perceive vibration, the Vater-Pacinian corpuscles and other vibroreceptors [4,6,9,12]. Studies on the effectiveness of vibration therapy on the course of neurological manifestations of osteochondrosis have shown that as a result of vibration baths, pain disappeared or decreased in 90.7% of patients, statistical disorders in 62.1% and tension symptoms in 91.2%, as well as a significantly higher frequency of disappearance of palpable sensitivity was observed in many trigger points, compared to the control group. The use of vibration stimulation in hydrotherapy is considered one of the components of the fundamental approach to the rehabilitation of neurological and orthopedic problems [10,12,13,14]. In orthopedic practice, it restores muscle function, activates tendon reactions, and also improves blood and lymph flow. In neurological practice, along with the response of the musculoskeletal system, it fundamentally changes the regulation of receptors, alters pathological proprioceptive stimulation and the functioning of the entire receptor field, The function of antagonist muscles. As a result, we obtain changes in pathological motor activity, which leads to positive dynamics in the rehabilitation process.

5. Conclusion

Thus, vibrostimulation is a distinctive technique in hydrorehabilitation. It is a highly effective procedure for enhancing the effectiveness of other methods of rehabilitation treatment and treatment. The advantage of this method is the diversity of approaches associated with variations in the frequency of vibration, the dynamics of frequency and range regulation during treatment, methods of application, torso positioning, angular characteristics of limb positioning. A strictly defined combination with other methods to increase the effectiveness of rehabilitation is characterized by positive dynamics, and the results obtained are noticeable. Before starting hydrorehabilitation procedures, it is strongly recommended to consult a specialist in order to determine the most appropriate course of rehabilitation activities and avoid potential risks associated with existing contraindications. This approach will allow you to achieve maximum rehabilitation benefits, restore the patient's health and improve his quality of life.

References

1. Feroian E., Parulava G., Daraselia T. - Aquatherapy, textbook. Tbilisi, 2024. p. 447. /in Georgian/.
2. О. Г. Коган, В.П. Найдин. Медицинская реабилитация в неврологии и нейрохирургии. Москва: Медицина, 1988. — 303 с.
3. Мелзак Роналд . Загадка боли / Р. Мелзак , пер. с англ. П. Е. Черниловской , ред. Крыжановский Г. Н. — Москва: Медицина, 1981. — 232 с.
4. Мумин А.Н., Волотовская А.В. Вибротерапия. Методическое пособие. Минск БелМАПО, 2007.
5. Growth and regeneration of axons in the nervous system! Ed. M. Berry. Bazel. Karger, 1982, 125 p.
6. Levit K., Makourkova M. Priruska k provadeni postizometricke relaxsace. Praha 1981. 238 p.
7. Medical rehabilitation/Eds. L. S. Halstead, M. Grabois. – New York: Reven Press, 1985. – 354p.
8. Wall P. D., Melzack R. Textbook of pain // Edinburgh: Churchill Livingstone, 1994. — P. 15–36.
9. https://l.livelib.ru/book/158736/readpart-klinicheskaya-diagnostika-v-nevrologii/~7
10. https://m.ponervu.ru/lechenie/vibroterapiya
11. https://alvilit.ru
12. https://iphk.ru
13. https://stormoff.ru
14. https://luciano-wellness.ru/about/blog/gidroterapiya/
15. https://www.medcomp.ru/catalog/product/apparat-tonus-1-dt-50-3/
16. https://www.temu.com/ul/kuiper/
17. https://violity.com/ua/119600865-vibromassazher-bodrost---sssr
18. https://www.sanatory-mashuk.ru