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2026

25 OCTOBER, 2026

TORONTO, CANADA



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NON-PHARMACOLOGICAL APPROACHES TO RESTORING AUTONOMIC HOMEOSTASIS AND PSYCHO-EMOTIONAL STATUS IN PATIENTS WITH NEURASTHENIA

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<https://doi.org/10.5281/zenodo.23131444>

Abstract: Neurasthenia may manifest through psycho-emotional stress, increased fatigue, sleep disturbances, anxiety, irritability, and functional disturbances of the autonomic nervous system. In the rehabilitation of patients with neurasthenia, non-pharmacological approaches aimed at restoring autonomic homeostasis and improving psycho-emotional well-being may be an important component of comprehensive care. The aim of this study is to provide a scientific rationale for a comprehensive non-pharmacological rehabilitation approach for patients with neurasthenia. The proposed rehabilitation program includes psychoeducation, optimization of sleep hygiene, breathing exercises, relaxation techniques, therapeutic physical exercise, gradual adjustment of physical activity, and psychotherapeutic support.

Keywords: neurasthenia, autonomic homeostasis, autonomic dysfunction, psycho-emotional status, comprehensive rehabilitation, non-pharmacological rehabilitation, relaxation, breathing exercises, psychoeducation, sleep hygiene.

Introduction: Neurasthenia is associated with increased fatigability, reduced physical and mental performance, irritability, sleep disturbances, psycho-emotional tension, and various autonomic symptoms. Persistent psychological stress, insufficient sleep, excessive intellectual workload, and inadequate recovery may contribute to functional disturbances of the nervous and autonomic systems.

Autonomic dysfunction may manifest as palpitations, excessive sweating, dizziness, sleep disturbances, anxiety, headaches, fluctuations in cardiovascular parameters, and



reduced tolerance to physical or mental stress. These symptoms may negatively affect quality of life and prolong the rehabilitation process. Research conducted by Uzbek specialists has demonstrated the clinical significance of autonomic and psycho-emotional disturbances. In particular, studies of children and adolescents with neurocirculatory dystonia have examined the relationship between psycho-emotional characteristics, personality traits, and psycho-autonomic regulation [1,2]. A study involving Uzbek children and adolescents demonstrated the significance of psycho-emotional and psycho-autonomic changes in patients with neurocirculatory dystonia. The authors emphasized the relationship between emotional tension, personality characteristics, and autonomic regulation [2]. Instrumental assessment of autonomic regulation has also been investigated in Uzbekistan. Materials published by the Higher Attestation Commission describe the use of cardiointervalography for identifying neurovegetative changes and improving rehabilitation approaches in patients with autonomic dysfunction [3]. These findings support the importance of evaluating autonomic homeostasis together with psycho-emotional status rather than relying solely on subjective symptoms. Therefore, the development of a comprehensive non-pharmacological rehabilitation approach aimed at restoring autonomic balance and improving psycho-emotional well-being is of considerable clinical and scientific interest.

Aim of the Study: The aim of the study is to provide a scientific basis for a comprehensive non-pharmacological rehabilitation approach aimed at restoring autonomic homeostasis and improving psycho-emotional status in patients with neurasthenia.

Materials and Methods: The proposed study includes patients aged 18–45 years with a clinically established diagnosis of neurasthenia. The autonomic status of patients may be assessed using the Kerdo vegetative index and heart rate variability parameters. The psycho-emotional status may be evaluated using the Spielberger–Hanin State-Trait Anxiety Inventory (STAI), while the severity of fatigue may be assessed using the Multidimensional Fatigue Inventory (MFI-20). The proposed non-pharmacological



rehabilitation program consists of several complementary components: psychoeducation, sleep-hygiene optimization, breathing exercises, relaxation techniques, therapeutic physical exercise, gradual increase in physical activity, and psychotherapeutic support. Psychoeducation is aimed at improving patients' understanding of neurasthenia, autonomic symptoms, stress-related mechanisms, and methods of symptom management. Sleep-hygiene interventions include establishing a stable sleep and wake schedule, reducing excessive intellectual and emotional activity before bedtime, and improving the conditions necessary for adequate rest. Breathing exercises and relaxation techniques are intended to reduce psycho-emotional tension and support autonomic regulation. Therapeutic physical activity should be individually adapted according to the patient's functional capacity and gradually increased. The rehabilitation effectiveness may be assessed by comparing autonomic, psycho-emotional, and fatigue-related indicators before and after the rehabilitation program.

Expected Results: The implementation of a comprehensive non-pharmacological rehabilitation program is expected to contribute to a reduction in autonomic symptoms, improvement in sleep quality, reduction in anxiety, and decreased general fatigue. Changes in autonomic regulation may be assessed using the Kerdo vegetative index and HRV parameters. Psycho-emotional changes may be evaluated using the STAI, while changes in fatigue may be assessed using the MFI-20. The combination of clinical, instrumental, and psychometric methods may provide a more comprehensive assessment of rehabilitation outcomes. Local studies have demonstrated the potential value of cardiointervalographic assessment for identifying neurovegetative disturbances and evaluating rehabilitation interventions [3]. Therefore, the integration of HRV or cardiointervalography with standardized psychological questionnaires may improve the objectivity of rehabilitation assessment.

Discussion: Autonomic and psycho-emotional disturbances in neurasthenia should be considered as interconnected functional processes. Therefore, a rehabilitation strategy focused on only one symptom may be insufficient for comprehensive recovery. Research



conducted in Uzbekistan has demonstrated the clinical polymorphism of autonomic dysfunction and the importance of psycho-autonomic regulation. Studies among Uzbek children and adolescents have reported associations between emotional tension, personality characteristics, and neurocirculatory or autonomic disturbances [1,2]. Non-pharmacological rehabilitation has several potential advantages because its components can be individually adapted to the patient's clinical condition and functional capacity. Psychoeducation may improve the patient's understanding of symptoms and increase adherence to rehabilitation recommendations. Sleep-hygiene measures may help establish a stable sleep pattern. Breathing and relaxation exercises may contribute to the regulation of psycho-emotional tension, while appropriately prescribed physical activity may support functional recovery. Psychotherapeutic interventions may additionally help patients identify stress-related factors and develop more effective coping strategies. However, the effectiveness of each individual rehabilitation component should not be assumed without appropriate clinical evidence. The duration, frequency, intensity, and sequence of rehabilitation procedures should be standardized in future controlled studies. The use of objective measures such as HRV together with standardized psychometric instruments such as STAI and MFI-20 may provide a multidimensional assessment of treatment response.

Conclusion: Neurasthenia may be accompanied by both autonomic dysfunction and psycho-emotional disturbances, making a comprehensive rehabilitation strategy clinically relevant. A non-pharmacological rehabilitation program incorporating psychoeducation, sleep-hygiene optimization, breathing exercises, relaxation techniques, therapeutic physical activity, gradual physical-load adjustment, and psychotherapeutic support may provide a structured approach to restoring autonomic homeostasis and improving psycho-emotional well-being. The combined assessment of the Kerdo vegetative index, HRV, STAI, and MFI-20 may allow autonomic, psycho-emotional, and fatigue-related changes to be evaluated comprehensively. Uzbek scientific research provides a local methodological basis for studying autonomic dysfunction, psycho-



autonomic regulation, and rehabilitation using clinical, instrumental, and psychological assessment methods [1–3]. Further controlled clinical studies are needed to determine the effectiveness, optimal duration, and most appropriate combination of non-pharmacological rehabilitation interventions in patients with neurasthenia.

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