

## **DENS THERAPY EFFICIENCY IN EXCESSIVE BODY WEIGHT AND OBESITY**

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Obesity is one of the most prevalent diseases in the developed countries. Presently, it has become an urgent medical and social issue. In Russia according to the Institute of Nutrition of the Russian Academy of Medical Sciences obesity and excessive body mass are found in 30% and 25% of able-bodied urban population respectively.

The significance of the obesity problem is determined by the development of severe concomitant diseases, such as Type 2 diabetes mellitus, arterial hypertension, atherosclerosis, dyslipidemia, osteoarthritis, etc. With the increase of the body weight there increases the probability of development of these diseases. Evidently, decrease of body mass by 5-15% results in significant decrease of manifestation of concomitant diseases.

**The purpose of this study** is to evaluate the efficiency of dynamic electrical neurostimulation in treatment of excessive body weight and obesity.

### **Material and methods**

Thirty female patients aged 20 to 60 years underwent a course of DENS therapy. All of them were administered general clinical and endocrinological examination. When the first course of therapy was started, the main complaint of these patients was the excessive body weight.

All the studied patients were divided into four groups according to their body mass index (BMI) to evaluate the results of the study. BMI (obesity classification was accepted by WHO in 1997) is calculated by the formula: body weight (kg)/height (m).

All the women underwent three courses of DENS therapy during the period of 6 months. Classical methods of DENS therapy described in the Manual were used. The average time of one procedure was 30-50 min daily five times a week. The course consisted of 9-12 procedures. Low calorie diet was introduced only beginning from course 2-3 in 14 women (46%).

## Results.

Control study (height, weight, BMI) was conducted in 1 and 6 months after treatment (Table 2).

**Table 1.**  
Distribution of patients in the groups depending on the BMI prior to DENS therapy

Types of obesity (groups)	Body mass index kg / m <sup>2</sup>	Number of patients
1 – excessive body weight	25-29.9	14
2 – obesity of the 1 degree	30 –34.9	12
3 – obesity of the 2 degree	35 – 39.9	3
4 – obesity of the 3 degree	over 40	1

**Table 2**  
Dynamics of body mass decrease depending on the study group following 1 and 3 courses of DENS therapy

Group	Average body mass decrease following 1 course (% of the initial value)	Average body mass decrease following 3 courses (5 of the initial value)	
		Diet	No diet
1	0.8	10.3 (7 persons)	15
2	1.8	9.4 (6 persons)	6
3	1.7	10.5 (1 person)	2
4	7.4		1

**Table 3**  
Distribution in the groups depending on the BMI following the treatment

Types of obesity (groups)	Body mass index kg / m <sup>2</sup>	Number of patients
1 – excessive body weight	25-29.9	15
2 – obesity of the 1 degree	30 –34.9	6
3 – obesity of the 2 degree	35 – 39.9	2
4 – obesity of the 3 degree	over 40	1

## Conclusion:

1. Body mass decrease from 1 to 10 kg was attained in 96% of patients (29 women). Body mass remained the same in one woman.
2. Six women from the group with excessive body weight (18%) were transferred to the group with normal body weight.
3. No body mass increase was registered in one woman during the 6 month follow-up, so it can be assumed that DENS therapy was effective as a preventive method of body mass decrease.

4. DENS therapy combined with a diet meets the requirements of step-by-step methods of moderate body weight decrease taking into account the value of BMI.
5. Application of DENS therapy combined with dietary efforts enables to attain better results (Tabl.2).
6. All the studied patients went smoothly through the procedures and experienced the improvement of intestine function and stabilization of blood pressure.

## **References**

1. Butrova S.A. Obesity (Etiology, pathogenesis, classification). – Moscow 2000.
2. Chernyshev V.V., Malaxov V.V. et al. Manual on the use of DENAS device as dynamic electrical neurostimulation therapy. – Ekaterinburg 2003.