

# Assessment results of complex rehabilitation efficiency at Evminov's preventor in patients with spine degenerative dystrophic changes

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Diseases of the musculoskeletal system occupy the 4th place in the world as the cause of disability and mortality [6, 14, 15, 18], and every fifth world's inhabitants suffers from back pain [4, 5, 11, 16]. Dystrophic degenerative changes in the spine account for up to 80 % in the adult population morbidity in our country and abroad [4, 6, 9, 16, 18]. Various epidemiological studies of neck pain in other countries report of annual prevalence ranges from 15 % to 50 % [12, 13], and in the systematic review of 2006 the average prevalence rates are 37.2 % [12]. Pronounced syndromes of spine osteochondrosis appear in the able-bodied age from 35 to 55 years [2, 8].

Preliminary studies demonstrated that systematic, dosed spine traction on the Evminov's preventor artificially activates the diffuse disc nutrition, exercises for muscle relaxation contribute to the elimination of reflex-muscular spasm arising on the background of nerve tissue compression through the hernia [1], intervertebral disc protrusion and pain-strengthening syndrome, and strength exercises on the Yevminov's preventor, performed on the background of stretching, develop spine muscular corset. This has the effect of additional damping-muscular compensation under vertical load, increasing the blood flow to the spine muscles for the additional feeding of its structures [3]. It was suggested that these conditions contribute to better assimilation and action of chondroprotectors [17].

Chondroitin sulfate is the basic component of proteoglycans that compose the cartilaginous matrix along with collagen fibers [7]. It inhibits the activity of enzymes which cause the articular cartilage degradation, and also stimulates the production of proteoglycans by chondrocytes, enhances the metabolic processes in cartilage and subchondral bone, influences on the phosphorus-calcium metabolism in cartilaginous tissue, stimulates its regeneration, participates in the construction of the bone and cartilaginous tissue basic substance [7, 17]. Chondroitin sulfate has

anti-inflammatory and analgesic properties [10, 11], it helps to reduce the ejection of inflammatory mediators into the synovial fluid, inhibits the secretion of leukotriene B<sub>4</sub> and prostaglandin E<sub>2</sub> [7, 17].

**The purpose** of the study – to study the effectiveness of the combined application of excersises at the Evminov's preventor and chondroprotectors in patients with spine degenerative dystrophic changes.

## Material and investigation methods

190 patients with various degenerative degenerative changes of the spine aged from 20 to 55 years were under supervision: women – 110 (57.9 %), men – 80 (42.1 %). All patients were divided into 2 groups: group 1 – 105 patients involved in kinesitherapy at the Yevminov's preventor, group 2 – 85 patients performing therapeutic excersises at the Yevminov's preventor combined with chondroitin sulfate.

The patients were investigated on the basis of Evminov's vertebral health center. All patients were examined by doctor-vertebrologist. Vertebral MRI demonstrated intervertebral disc protrusion was diagnosed in 117 patients (61.6 %) and disc hernia – in 25 patients (13.2 %).

In the process of treatment, all 190 patients were assigned special complexes of physical rehabilitation at the Yevminov's preventor. Evminov's method has the following distinctive features: this therpeutical physical culture complex is based on the excersises with small amplitude (up to 40 % of the possible volume of movements in the biopairs) with simultaneous spine unloading at the Evminov's preventor.

The expanded range of indications to excersises is important: admission of patients to practical excersises in the acute stage of the disease, even in

the presence of severe pain. Evminov's method involves the application in the gentle mode of motor activity of not only static, but also dynamic low-amplitude exercises (up to 50 % of the total number of exercises). Personalized physical exercises considering individual features and concomitant pathologies were developed.

For patients of group 2 with prescribed chondroitin sulfate the following treatment regimen was applied: from 10 to 20 injections with the transition to oral administration of 500-1500 mg 2 times per day. The treatment course was 4-6 months with interval 2-4 months.

### Investigation results and their discussion

In the result of investigation before the treatment appointment 139 (73.1 %) of 190 patients expressed the complaints of pain in the lumbar region, which irradiated into the leg in 23.1 % of cases; pain in the thoracic region was observed in 124 patients (65.3 %), sensitivity decrease in the upper or lower extremities – in 70 (36.8 %). Positive dynamics was registered in 2-3 months of therapy: the listed above complaints were not expressed ( $P < 0.01$ ). Painful sensations at physical loading were significantly more frequent in patients of group 1 than of group 2 (26.6 % vs. 10.6 %,  $P < 0.05$ ). Only 44 patients (23 %

vs. 36.8 % respectively) had a feeling of decreased sensation in the corresponding limbs (Fig. 1).

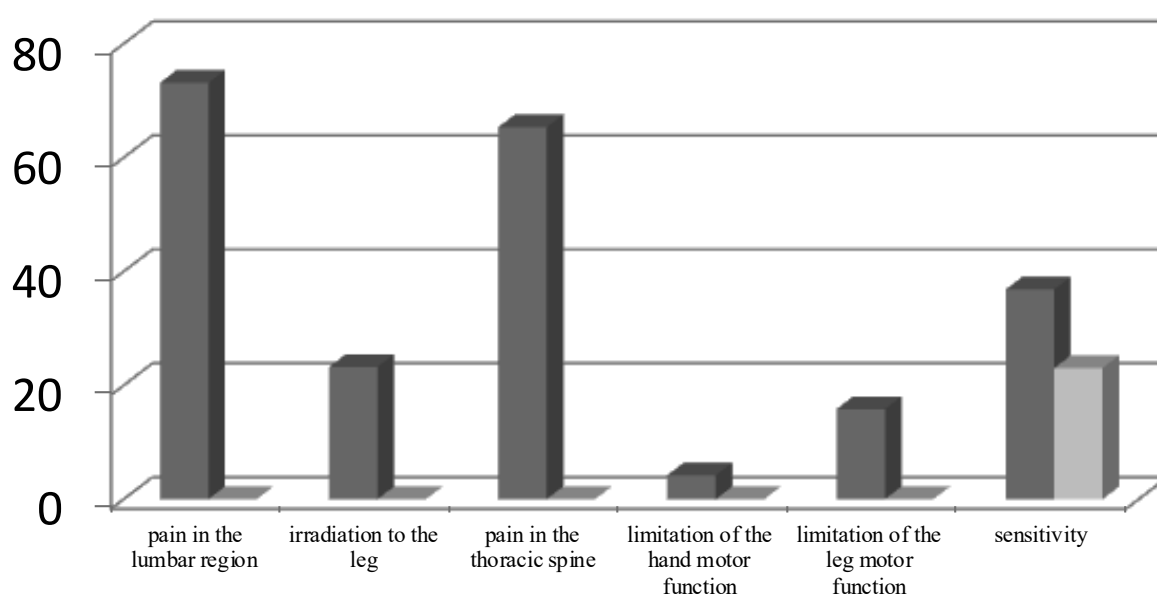
Objective examination demonstrated the painfulness at spine palpation in the investigated zone in 131 patients (68.9 %), + Neri's symptom – in 165 (86.8 %), + Lasegue's sign – in 135 (71.1 %), Wasserman's symptom and Fentz's symptom - in 80 (42.1 %) and 112 patients (58.9 %) respectively. In the course of treatment during a second examination, it was found that the listed symptoms were not noted ( $P < 0.01$ ). Only a decrease in the incidence of more than 2 times + Neri's symptom and Wasserman's symptom ( $p < 0.05$ ) was observed (Fig. 2).

In the course of treatment at re-examination the listed symptoms were not registered ( $P < 0.01$ ). Only the decrease in the incidence of more than 2 times of + Neri's symptom and Wasserman's symptom ( $p < 0.05$ ) was observed (Fig. 2).

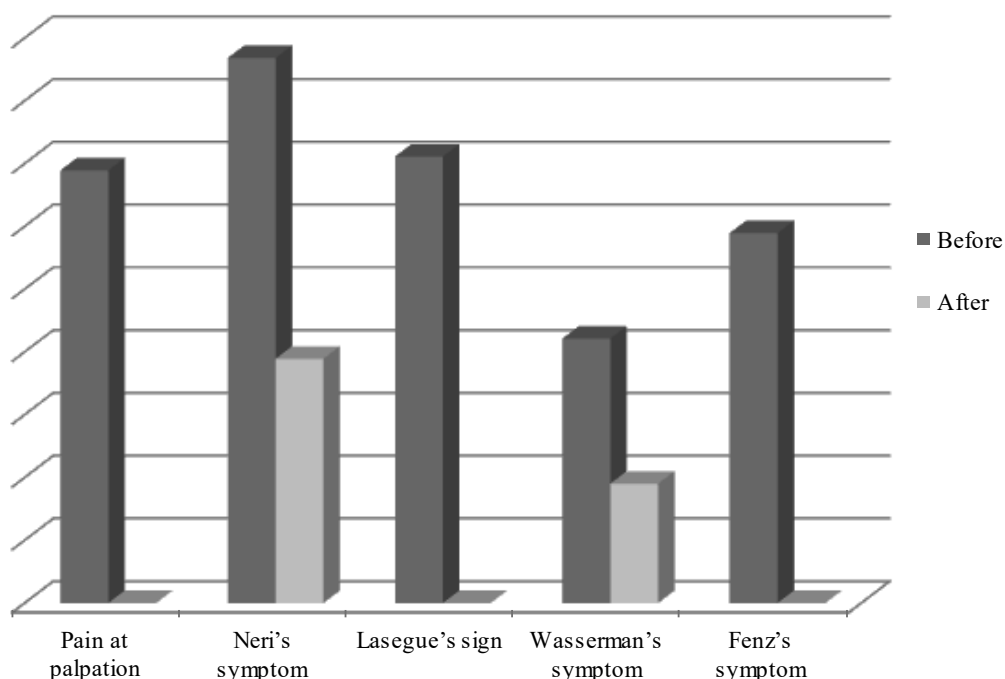
After 7-12 months of treatment the analyzed obtained data of the patients from two groups indicates the absence of the motor activity limitation of the upper limb, + Wasserman-Matskevich in patients of the 2nd group.

Patients engaged in kinesitherapy at the Yevminov's preventor and taking the chondroitin sulfate complex have almost 3 times less often the pain in the thoracic spine, the limitation of the lower limb motor function, and 2 times less often – the decrease sensitivity in the limbs (table).

Second MRI was conducted in 93 patients: 46 (49.5 %) patients engaged in kinesitherapy



**Fig. 1.** Assessment of the complaints' efficiency before and during 1-3 months of treatment in patients with dystrophic-degenerative changes in the spine.



**Fig. 2.** Assessment of the therapy efficiency before and in the process of treatment in patients with dystrophic-degenerative changes in the spine.

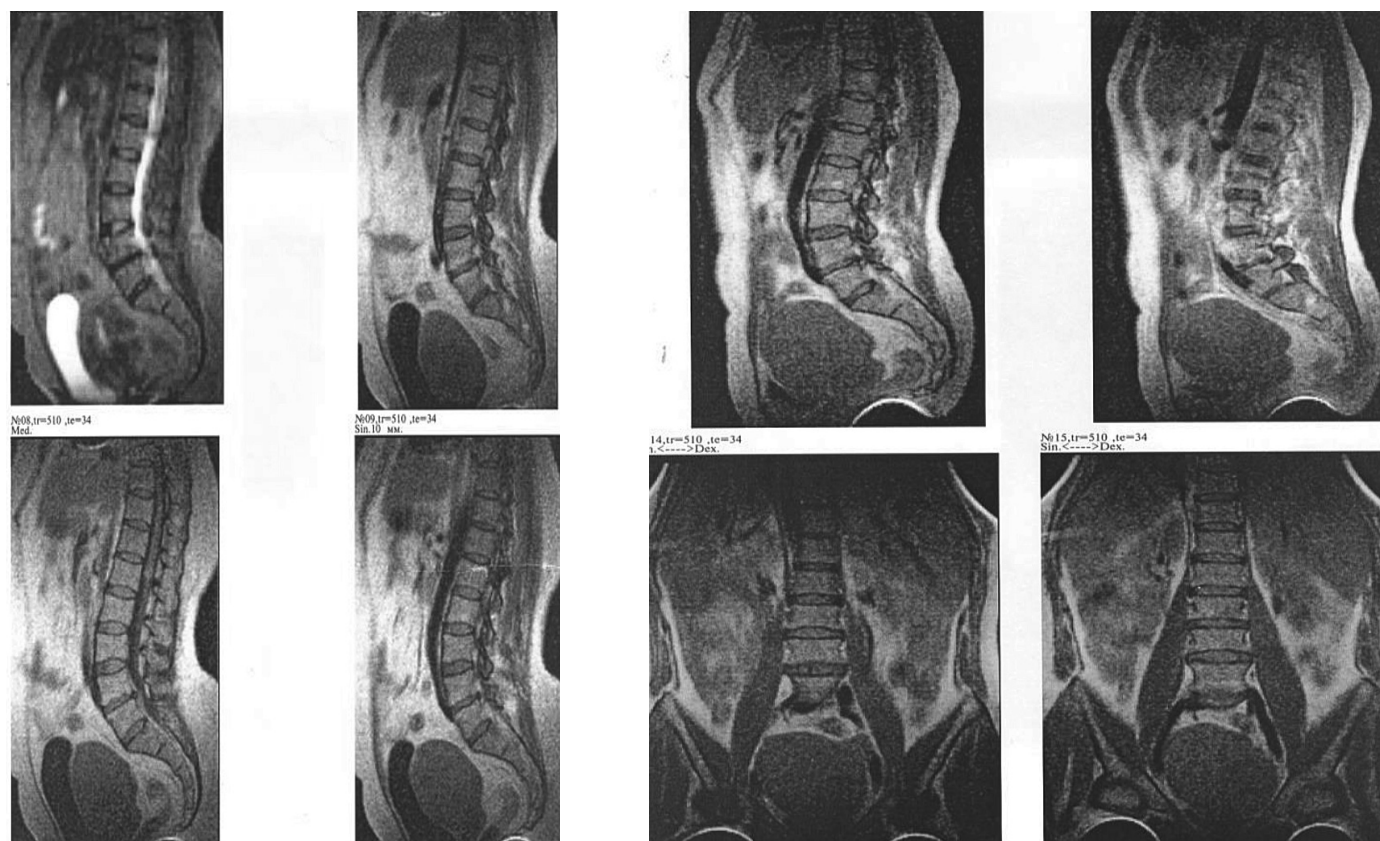
at the Yevminov's preventor; 47 (50.5 %) patients who fulfilled therapeutic exercises at the Yevminov's preventor with taking chondroitin sulfate. Patients of the group 2 demonstrated the better dynamics ( $P < 0.05$ ) – the quantity, the size of the protrusions decreased by more than 50 %, the size of the intervertebral hernias decreased almost by half (Fig. 3).

### Conclusion

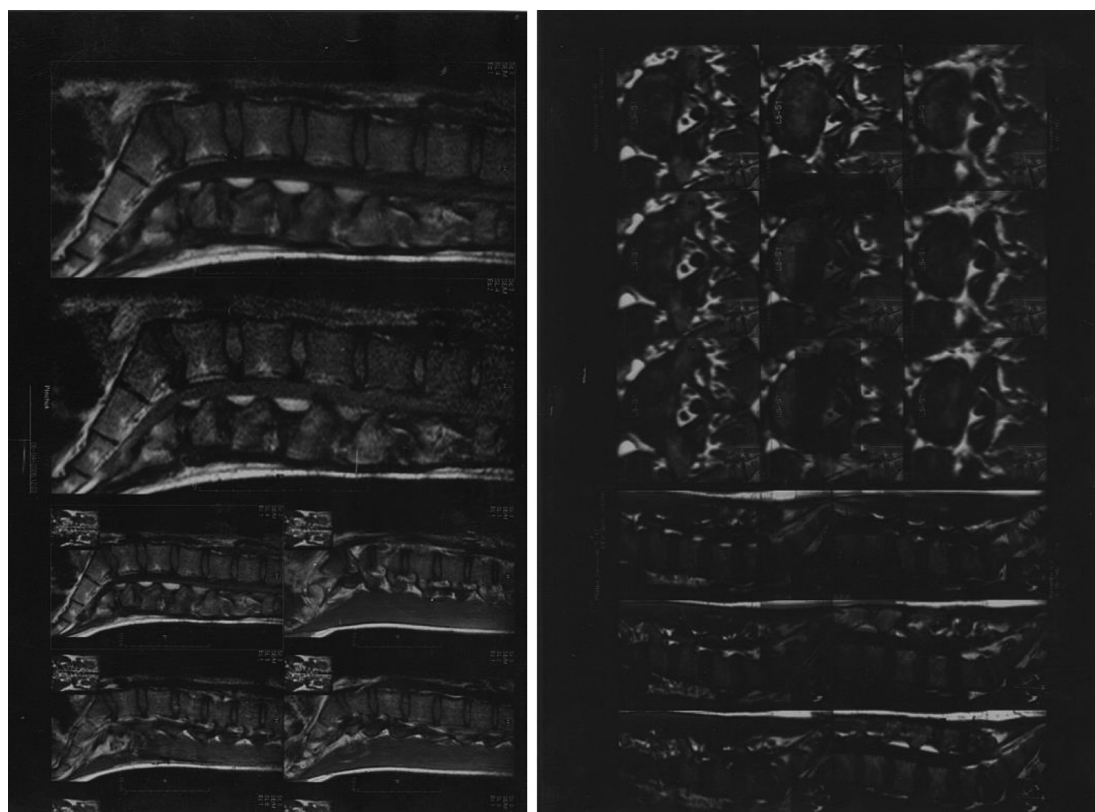
In the complex rehabilitation of patients with degenerative dystrophic changes in the spine for intensive cartilaginous tissue regeneration, the integrated approach is more effective (excercises at the Yevminov's preventor in combination with chondroprotector chondroitin sulfate).

#### The treatment effecticiency in different groups after 7-12 months.

Indicators	Group 1 (n=105)		Group 2 (n= 85)	
	Before treatment	After treatment	Before treatment	After treatment
Pain in the lumbar region	66,7 %	0	69,4 %	0
With irradiation to the leg	80,0 %	25,7 %	71,8 %	14,1%
Pain in the thoracic spine	49,5 %	20%	81,2 %	7,0 %
Limitation of the hand motor function	25,7 %	3,8 %	14,1%	0
Limitation of the leg motor function	64,8 %	5,7 %	54,1 %	1,2 %
Decreased sensitivity in the extremities	45,7 %	4,8 %	34,1 %	2,3 %
Neri's symptom	88,6 %	11,4 %	89,4 %	10,6 %
Wasserman's symptom	77,1 %	2,8 %	51,8 %	0
<b>MRI indicators</b>				
The average number of IVP in one patient (M ± m)	1,98±0,20	1,09±0,18	2,5±0,25	1,19±0,16
The average size of IVP (M±m)	5,5 ±2,30	3,0±1,22	6,1±1,90	2,7±0,37
The average number of IVH in one patient (M ± m)	0,68±0,19	0,41±0,17	0,83±1,12	0,63±1,30
The average size of IVH (M±m)	8,51±2,41	5,43±1,53	8,98±2,64	4,35±2,98



a



б

**Fig. 3.** a – MRI before and after treatment of the patient XX of group 2; b - MRI before and after treatment of the patient XY of group 2.

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**ASSESSMENT RESULTS OF COMPLEX  
REHABILITATION EFFICIENCY  
AT EVMINOV'S PREVENTOR IN PATIENTS  
WITH SPINE DEGENERATIVE  
DYSTROPHIC CHANGES**

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**Purpose** – to study the effectiveness of complex application of exercises at the Evminov's preventor in combination with chondroprotectors in patients with spine degenerative dystrophic changes.

**Material and methods.** 190 patients aged from 20 to 55 years were under supervision in the Evminov Vertebral Health Center. The following groups were investigated: group 1 – 105 patients engaged in kinesi-therapy at Evminov’s preventor, group 2 – 85 patients performing therapeutic exercises at Evminov’s preventor in conjunction with chondroitin sulfate.

**Results.** Analysing the obtained data, the patients of group 2 demonstrated more than 2 times decrease of the extremities’ sensitivity, pain in the thoracic spine, limitation of the lower limb motor function, more than 50 % decrease in the protrusions’ number and size, almost 2 times decrease in the size of inter-vertebral hernias.

**Conclusion.** In complex rehabilitation of patients with degenerative dystrophic changes of the spine for intensive regeneration of cartilaginous tissue, integrated approach is more effective (exercises at Evminov’s preventor in combination with chondroprotective agent – chondroitin sulfate).

**Key words:** degenerative dystrophic changes of the spine, chondroitin sulfate, intervertebral hernia, inter-vertebral protrusion, Evminov’s preventor.

### РЕЗУЛЬТАТИ ОЦІНКИ ЕФЕКТИВНОСТІ КОМПЛЕКСНОЇ РЕАБІЛІТАЦІЇ ПАЦІЄНТІВ З ДИСТРОФІЧНО-ДЕГЕНЕРАТИВНИМИ ЗМІНАМИ ХРЕБТА НА ПРОФІЛАКТОРІ ЄВМІНОВА

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**Мета** роботи – вивчити ефективність комплексного застосування занять на профілакторі Євмінова у поєднанні з прийманням хондропротекторів у пацієнтів з дистрофічно-дегенеративними змінами хребта.

**Матеріал і методи дослідження.** Під наглядом у вертебрально-оздоровчому центрі Євмінова перебувало 190 пацієнтів у віці від 20 до 55 років. Виокремлено наступні групи: 1 група – 105 пацієнтів, що займаються кінезітерапією на профілакторі Євмінова, 2 група – 85 пацієнтів, що виконує лікувальні вправи на профілакторі Євмінова в комплексі з прийманням хондроїтину сульфату.

**Результати дослідження.** При аналізі отриманих даних у пацієнтів 2 групи більш ніж 2 рази відзначається зниження чутливості в кінцівках, болю в грудному відділі хребта, обмеження рухової функції нижньої кінцівки, більш ніж на 50 % зменшення кількості, розміри протрузій, майже у 2 рази зменшення розмірів міжхребцевих кил.

**Висновки.** У комплексній реабілітації пацієнтів з дистрофічно-дегенеративними змінами хребта для інтенсивної регенерації хрящової тканини більш ефективним є комплексний підхід (заняття на профілакторі Євмінова в поєднанні з прийманням хондропротектора – хондроїтину сульфату).

**Ключові слова:** дистрофічно-дегенеративні зміни хребта, хондроїтину сульфат, міжхребцева грижа, міжхребцева протрузія, профілактор Євмінова.

### РЕЗУЛЬТАТЫ ОЦЕНКИ ЭФФЕКТИВНОСТИ КОМПЛЕКСНОЙ РЕАБИЛИТАЦИИ ПАЦИЕНТОВ С ДИСТРОФИЧЕСКИ-ДЕГЕНЕРАТИВНЫМИ ИЗМЕНЕНИЯМИ ПОЗВОНОЧНИКА НА ПРОФИЛАКТОРЕ ЕВМИНОВА

*И.А. Афанасьева*

**Цель** работы – изучить эффективность комплексного применения занятий на профилакторе Евминова в сочетании с приёмом хондропротекторов у пациентов с дистрофически-дегенеративными изменениями позвоночника.

**Материал и методы.** Под наблюдением в вертебрально-оздоровительном центре Евминова находилось 190 пациентов в возрасте от 20 до 55 лет. Выделены следующие группы: 1 группа – 105 пациентов, занимающихся кинезитерапией на профилакторе Евминова, 2 группа – 85 пациентов, выполняющих лечебные упражнения на профилакторе Евминова в комплексе с приёмом хондроитина сульфатом.

**Результаты исследования.** При анализе полученных данных у пациентов 2 группы более чем 2 раза отмечается снижение чувствительности в конечностях, боли в грудном отделе позвоночника, ограничение двигательной функции нижней конечности, более чем на 50 % уменьшение количества, размеры протрузий, почти в 2 раза уменьшение размеров межпозвоночных грыж.

**Выводы.** В комплексной реабилитации пациентов с дистрофически-дегенеративными изменениями позвоночника для интенсивной регенерации хрящевой ткани более эффективен комплексный подход (занятия на профилакторе Евминова в сочетании с приёмом хондропротектора – хондроитина сульфата).

**Ключевые слова:** дистрофически-дегенеративные изменения позвоночника, хондроитина сульфат, межпозвоночная грыжа, межпозвоночная протрузия, профилактор Евминова.