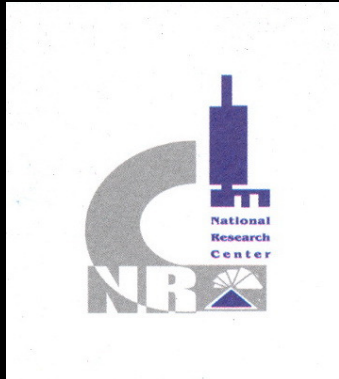


بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

# Novel therapeutic modality of Apitherapy for controlling of Multiple Sclerosis



**Ahmad G. Hegazi, Khaled Al-  
Menabbawy, Eman H. Abd El-  
Rahman and Suzette I. Helal**  
National Research Center, Dokki, Giza, Egypt  
ahmed@ahmedhegazi.com  
and ahmedhegazi128@gmail.com  
www.ahmedhegazi.com



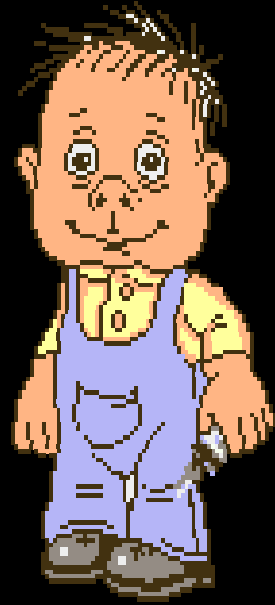
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on Clinical & Cellular Immunology  
September 29 - October 01, 2014 Baltimore,  
USA**



**Novel therapeutic modality of  
Apitherapy for controlling of  
Multiple Sclerosis**

سُورَةُ النَّحْلِ

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ وَأَوْحَىٰ رَبُّكَ إِلَى النَّحْلِ  
أَنِ اتَّخِذِي مِنَ الْجِبَالِ بُيُوتًا وَمِنَ الشَّجَرِ وَمِمَّا يَعْرِشُونَ ﴿٦٨﴾ ثُمَّ كُلِي  
مِن كُلِّ الشَّجَرِ فَأَسْلكِي سُبُلَ رَبِّكِ ذُلُلًا يَخْرُجُ مِنْ بُطُونِهَا  
شَرَابٌ مُخْتَلِفٌ أَلْوَانُهُ فِيهِ شِفَاءٌ لِلنَّاسِ إِنَّ فِي ذَلِكَ لَآيَةً لِّقَوْمٍ  
يَتَفَكَّرُونَ ﴿٦٩﴾



# Definition:

- **Multiple Sclerosis ( MS ):** Is a chronic disease characterized by multiple areas of central nervous system ( CNS )
- white matter inflammation , demyelination ,
- and sclerosis , it usually begins in young adults.



- **Multiple Sclerosis ( MS ):**
- Also known as *disseminated sclerosis* or *encephalomyelitis disseminata*).
- It is a disease in which the fatty **myelin** sheaths around the **axons** of the brain and spinal cord are damaged, leading to **demyelination** and scarring as well as a broad spectrum of signs and symptoms



# Classification :


- Several subtypes, or patterns of progression, have been described.
- Subtypes use the past course of the disease in an attempt to **predict** the future course.

- Disease onset usually occurs in young adults,
- and it is more common in females.
- It has a prevalence that ranges between 2 and 150 per 100,000.
- MS was first described in 1868 by Jean-Martin Charcot.



They are important not only for prognosis but also for therapeutic decisions.

In 1996 the United States National Multiple Sclerosis Society standardized four subtype definitions:

- 
- relapsing remitting,
  - secondary progressive,
  - primary progressive,
  - progressive relapsing.

# Main symptoms of Multiple sclerosis

## Central:

- Fatigue
- Cognitive impairment
- Depression
- Unstable mood

## Visual:

- Nystagmus
- Optic neuritis
- Diplopia

## Speech:

- Dysarthria

## Throat:

- Dysphagia

## Musculoskeletal:

- Weakness
- Spasms
- Ataxia

## Sensation:

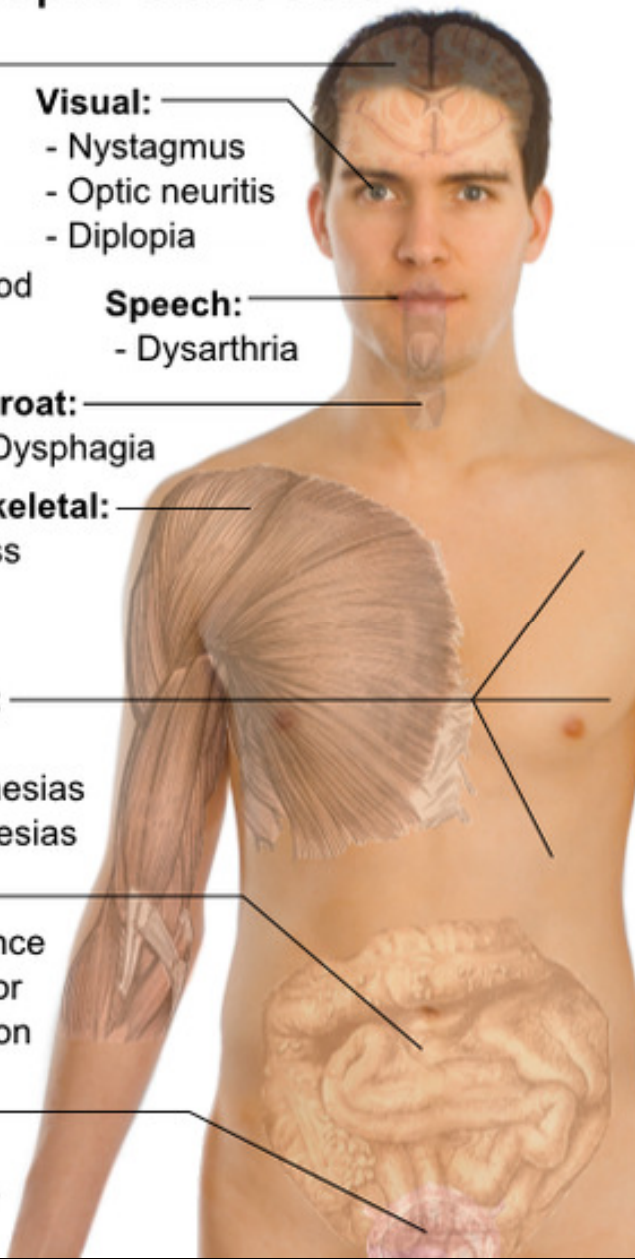
- Pain
- Hypoesthesias
- Paraesthesias

## Bowel:

- Incontinence
- Diarrhea or constipation

## Urinary:

- Incontinence
- Frequency or retention



# Symptoms And Signs

# Signs & Symptoms :

- The person with MS can suffer almost any neurological symptom or sign, including:
- changes in sensation,
- muscle weakness,
- spasm,
- or difficulty in moving;
- difficulties with coordination and balance;

# Signs & Symptoms :

- problems in speech or swallowing,
- visual problems,
- fatigue,
- pain
- bladder and bowel difficulties.
- Cognitive impairment of varying degrees
- emotional symptoms of depression
- or unstable mood are also common.

# Signs & Symptoms :

- Symptoms of MS usually appear in episodic acute periods of worsening (called relapses, exacerbations, bouts, attacks, or "flare-ups"), in a gradually progressive deterioration of neurologic function, or in a combination of both.

## Signs & Symptoms :

- Multiple sclerosis relapses are often unpredictable,
- occurring without warning and without obvious inciting factors with a rate rarely above 1 and a half per year.

# Signs & Symptoms :

- Some attacks, however, are preceded by common triggers.
- Relapses occur more frequently during spring and summer.
- Viral infections such as the common cold, influenza, or gastroenteritis increase the risk of relapse.
- Stress may also trigger an attack.



## Signs & Symptoms :


- Pregnancy affects the susceptibility to relapse, with a lower relapse rate at each trimester of gestation.
- During the first few months after delivery, however, the risk of relapse is increased.

## Signs & Symptoms :

- Overall, pregnancy does not seem to influence long-term disability.
- Many potential triggers have been examined and found not to influence MS relapse rates.
- There is no evidence that vaccination and breast feeding, physical trauma, are relapse triggers.

# Causes Of MS :

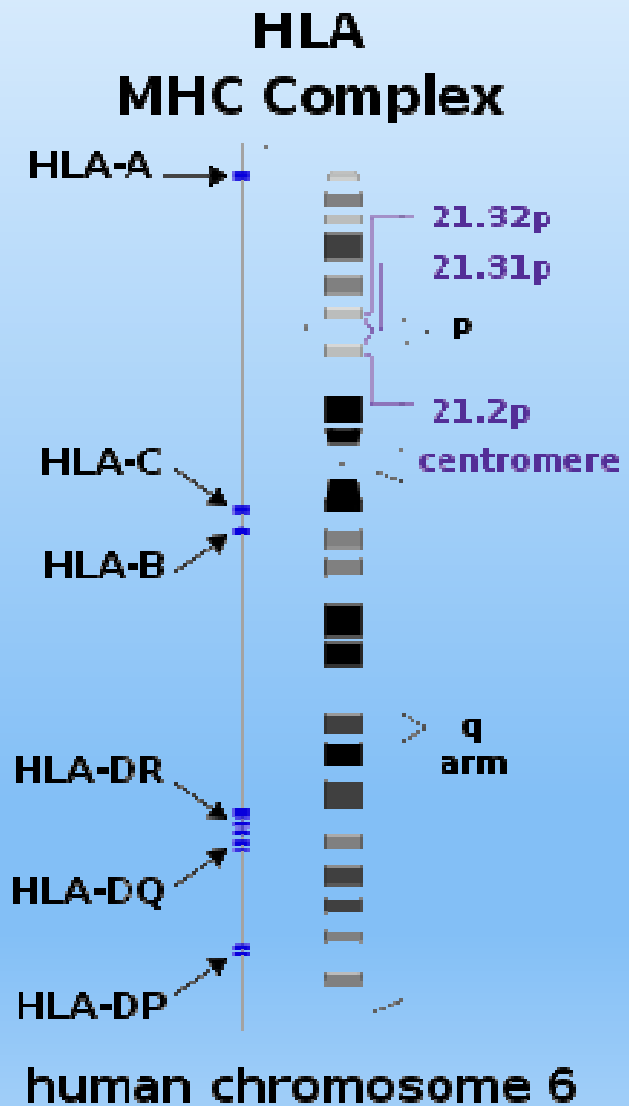
- Most likely MS occurs as a result of some combination of genetic, environmental and infectious factors.
- Epidemiological studies of MS have provided hints on possible causes for the disease.



**Theories try to combine the known data into plausible explanations, but none has proved definitive.**

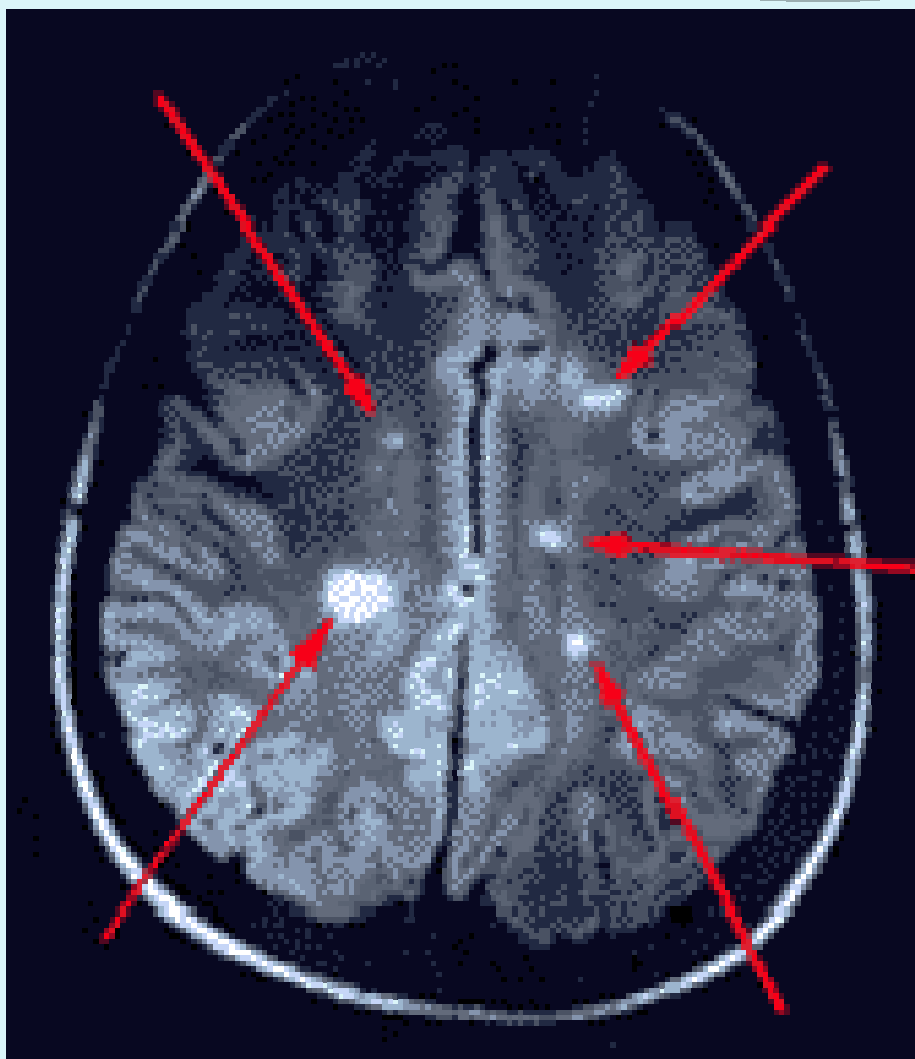
- **Genetics:**
- **Environmental factors:**
- **Infections:**

# Genetics Of MS



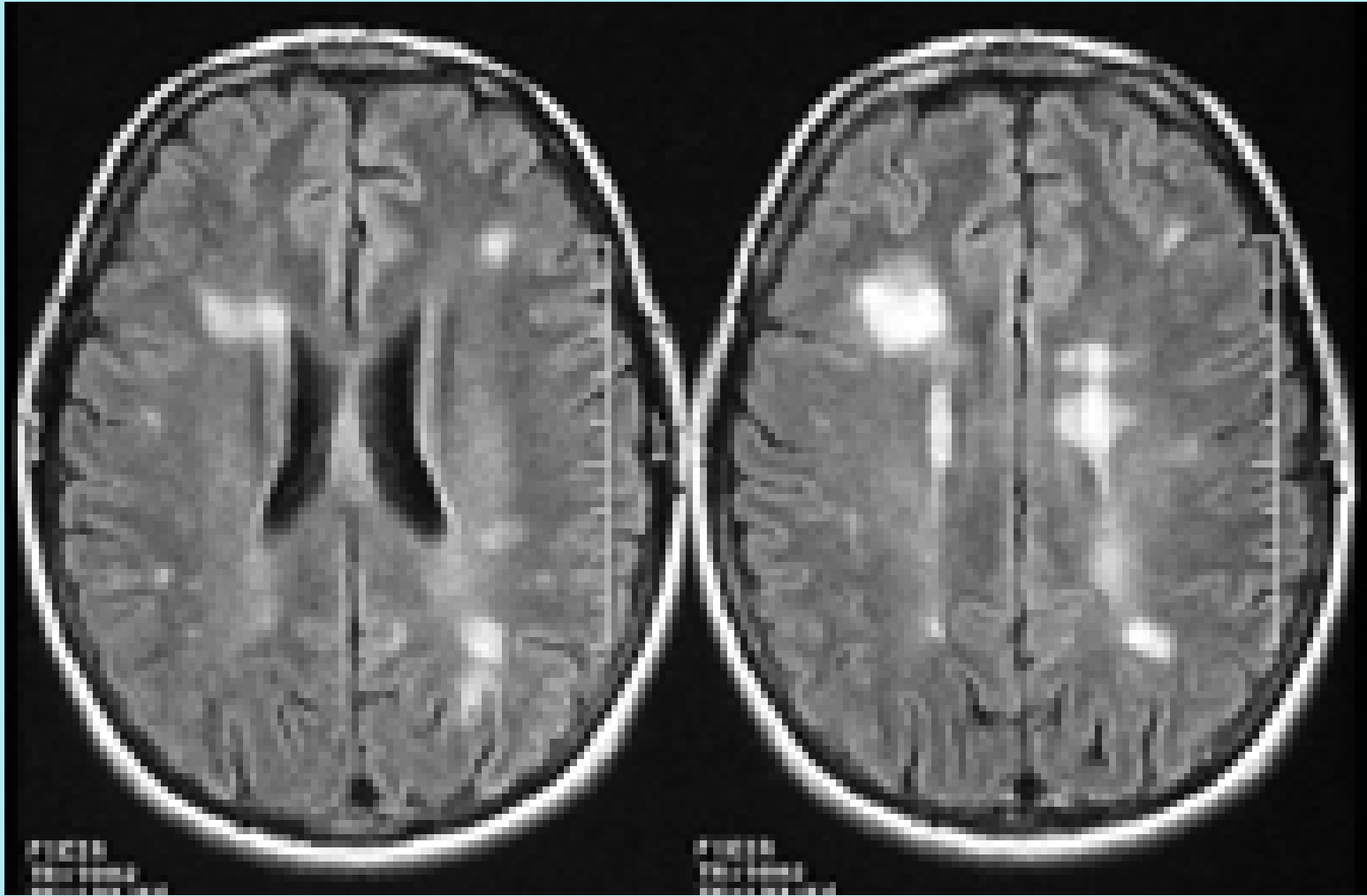



# Radiological Findings











**Materials  
&  
Methods**

- Fifty patients known to be with MS,
- twelve males
- and thirty eight females,
  
- their ages ranged between 26-71 years, with a mean of  $38.7 \pm 4.8$  . 2 .

- All cases were subjected to
- complete clinical
- and neurological history
- and examination to confirm the diagnosis.

- There were 32 cases with quadriparesis,  
(8 males and 24 female)
- and 18 cases with paraparesis  
(4 males and 14 females).

- All cases were under their regular treatment either by corticosteroids, or interferon.
- These cases were divided into two main groups, each group consists of 25 cases (6 males and 19 females),

- Group I received
- honey, pollen, royal jelly and propolis and were treated with bee acupuncture 3 times weekly, for 12 months, started gradually by one sting then gradually increase up to 25 stings per session,
- in addition to their medical treatment

- while group II remains on their ordinary medical treatment only.




- Bee acupuncture done by bee stings for regulating the immune system in the following points Du 13, 14, Li 11, S6, S9, points for MS Pat Wagner Buttocks Jiagi points for cervical area and lumbar area and vision points GB2 and Li3.

- All patients were instructed to receive
- 2000-3000 mg Vitamin C,
- 15 mg Vit. B1,
- 3 mg Vit. B2,
- 2mg Vit. B6,
- 5 mg Vit. B12,

- 25 mg Folic acid,
- 3 mg Calcium pantothenate,
- 15mg Nicotinamide,
- 20 mg L- Arginine,
- 20 mg L- Lysine
- and 3 mcg Biotin / day.

- Serum samples were obtained from patients with clinically definite MS for estimation of serum levels of immunoglobulin E (Hirano et al., 1989)
- using commercially available ELISA kits according to the manufacturers' directions.

- Interleukin 1 $\beta$
- tumor necrosis factor alpha
- IL-6
- were assessed using enzyme linked-immunosorbent assays (Abrams, 1995) using commercially available ELISA kits according to the manufacturers' directions (kits produced by Bender Med System, Vienna, Austria).

- 
- All these investigations were done at the beginning of the study and by the end of one year of supplementation and bee sting sessions



**RESULTS**

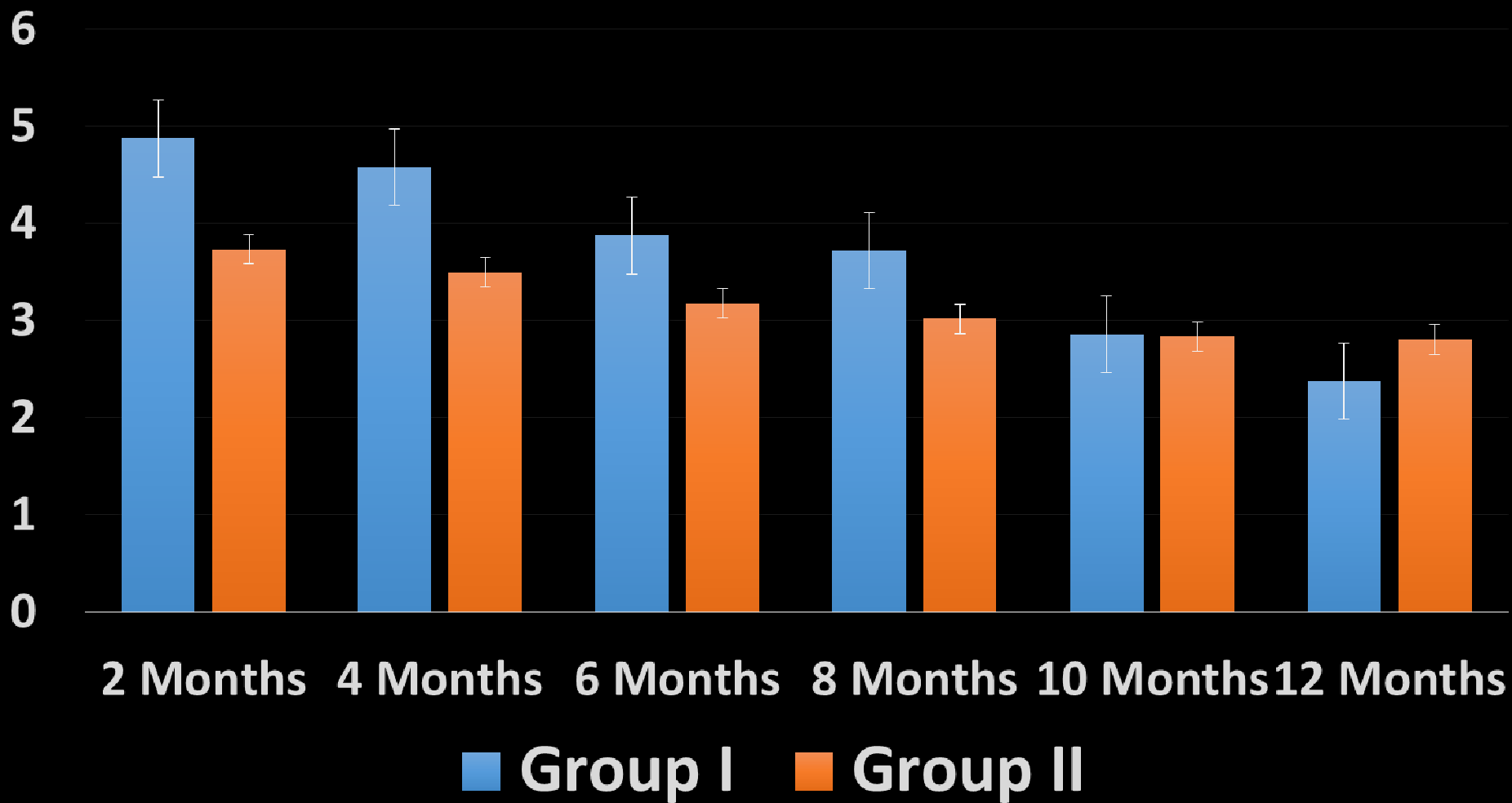
- We found that 4 patients out of 9 (44.4% of paraparesis cases),
  - showed some improvement regarding
  - their defects in gait,
  - bowel control,
  - constipation
  - and urination,



- while 12 cases out of 16 cases (75% of quadriparesis cases),
- showed some mild improvement in their
  - movement in bed,
  - and better improvement in bed sores,
  - sensation,
  - and better motor power,
  - only two cases of them ( 12.5% ) were able to stand for few minutes with support.

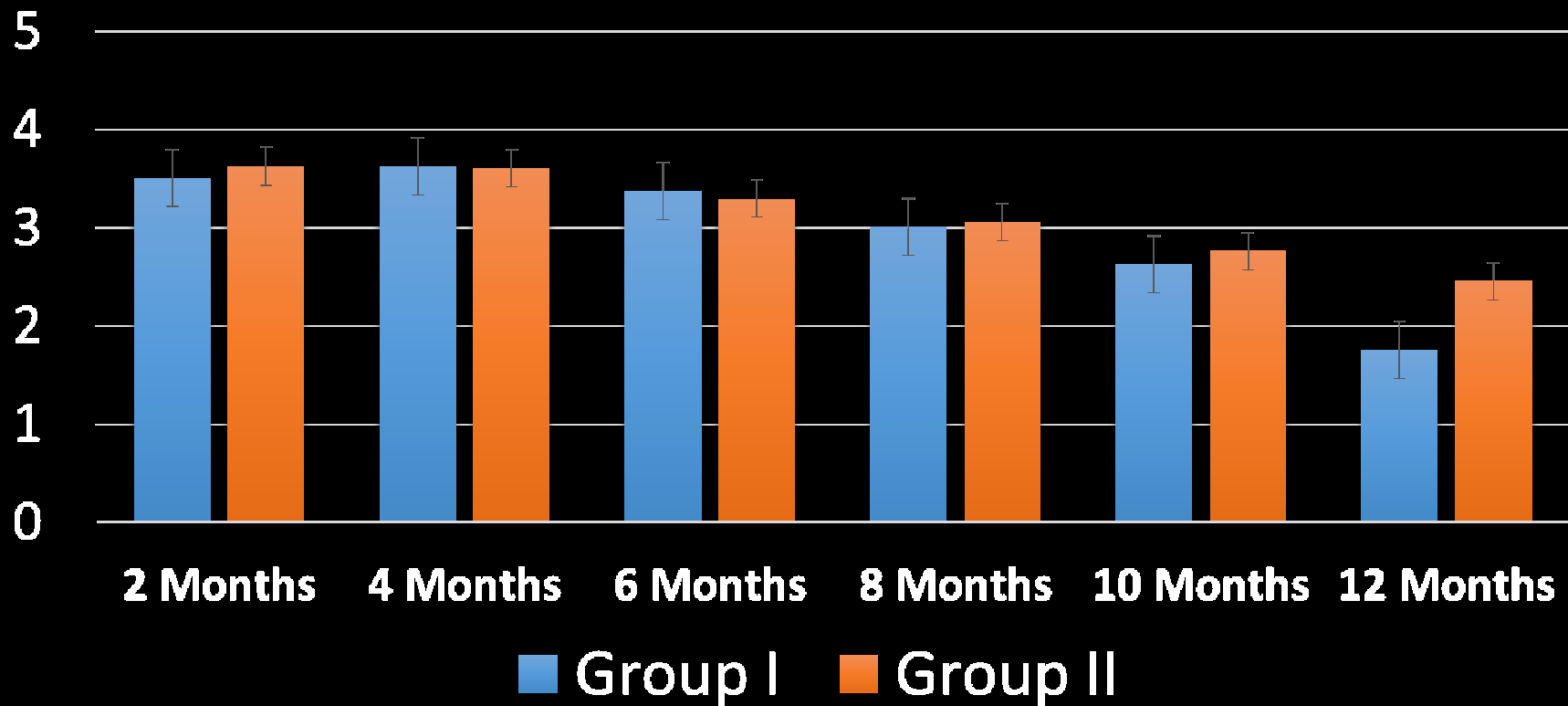
# Symptoms Score Improvement Recorded Every Two Months (1-12):

## General Condition



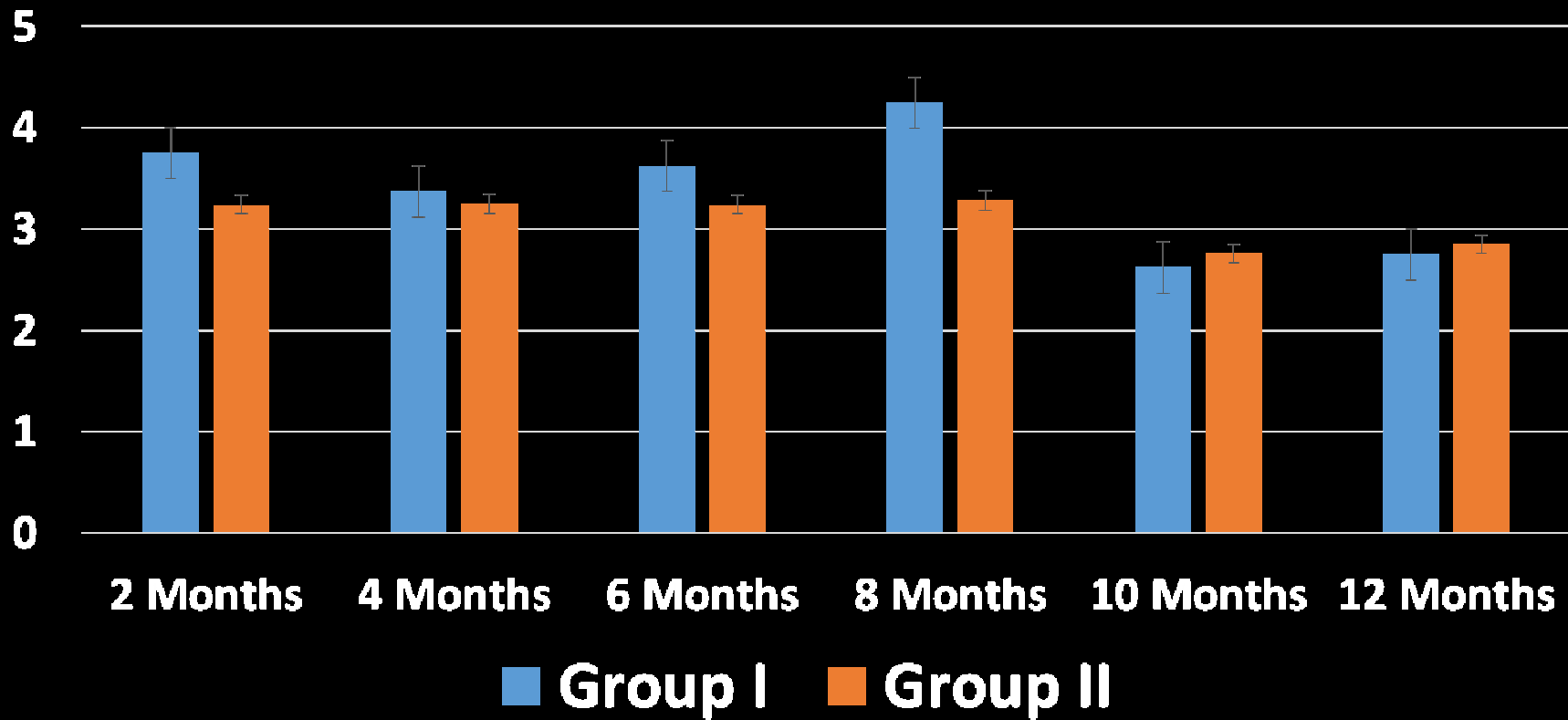
# Symptoms Score Improvement Recorded Every Two Months (1-12):

## Depression



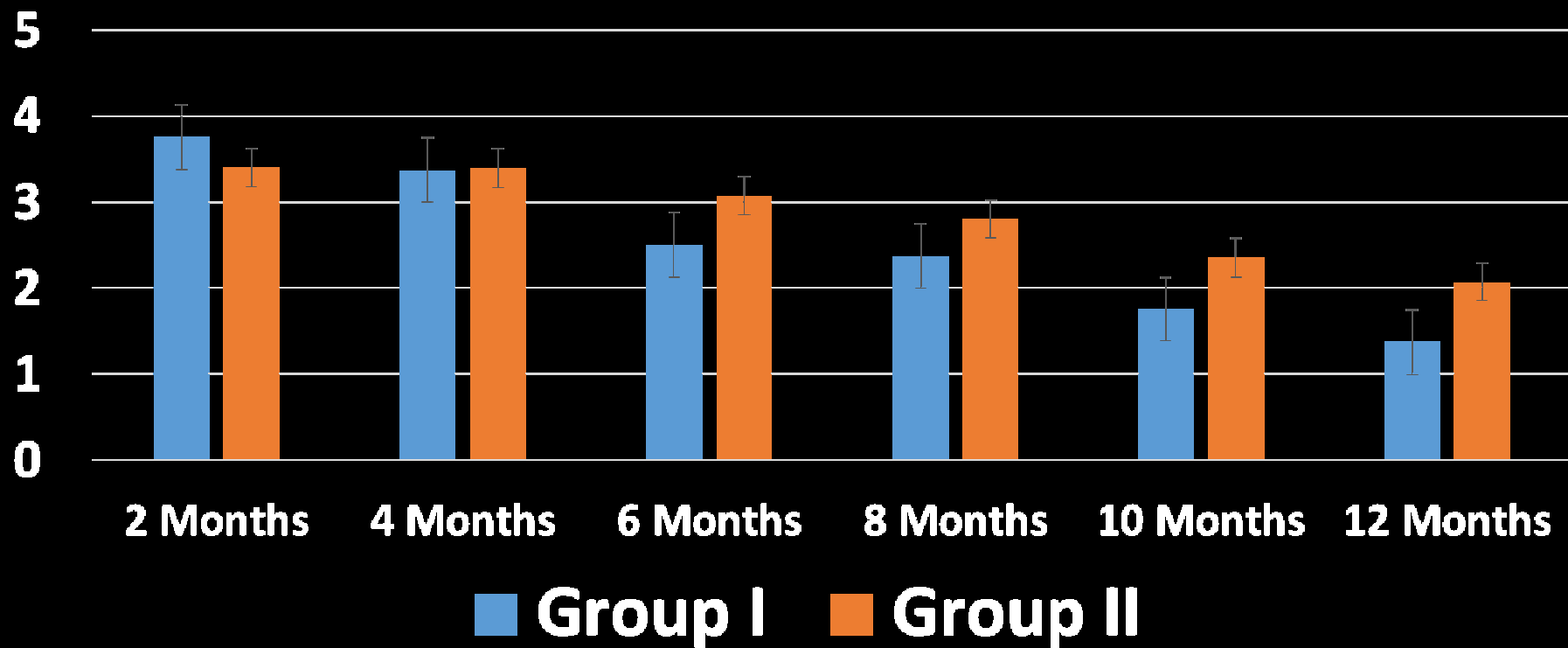
# Symptoms Score Improvement Recorded Every Two Months (1-12):

## No Energy Fatigue



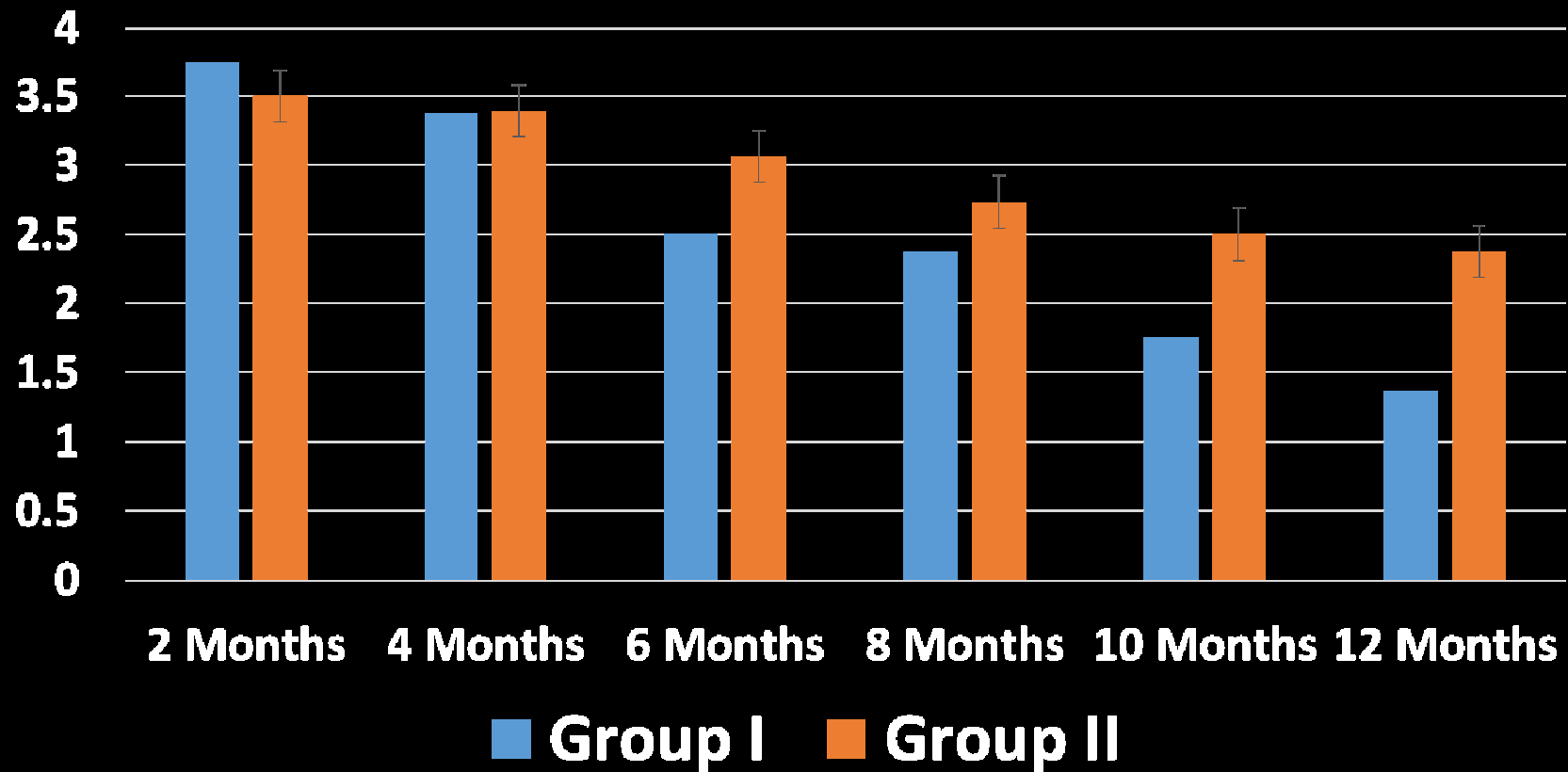
# Symptoms Score Improvement Recorded Every Two Months (1-12):

## Sleeping



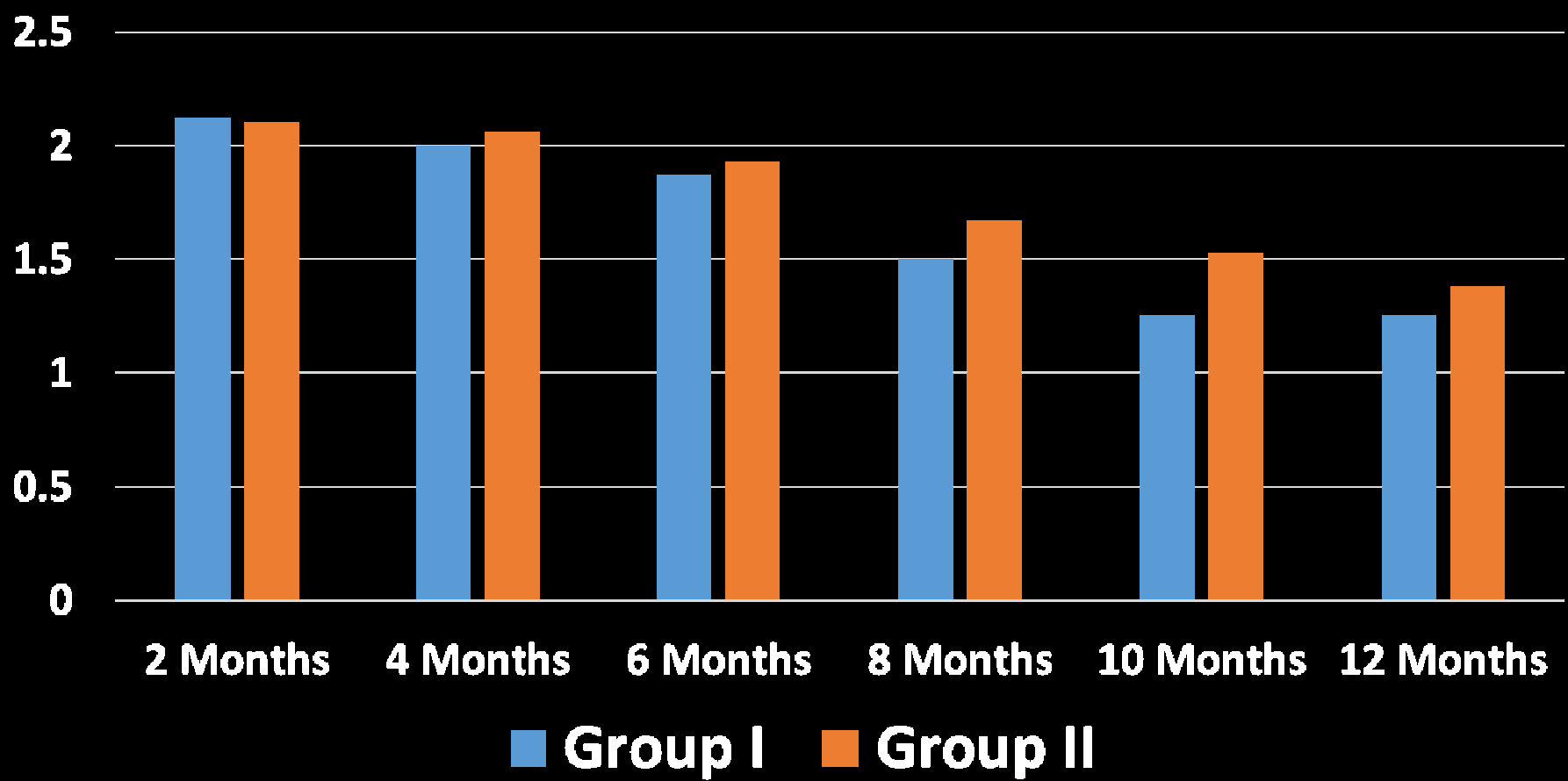
# Symptoms Score Improvement Recorded Every Two Months (1-12):

## Heat tolerance



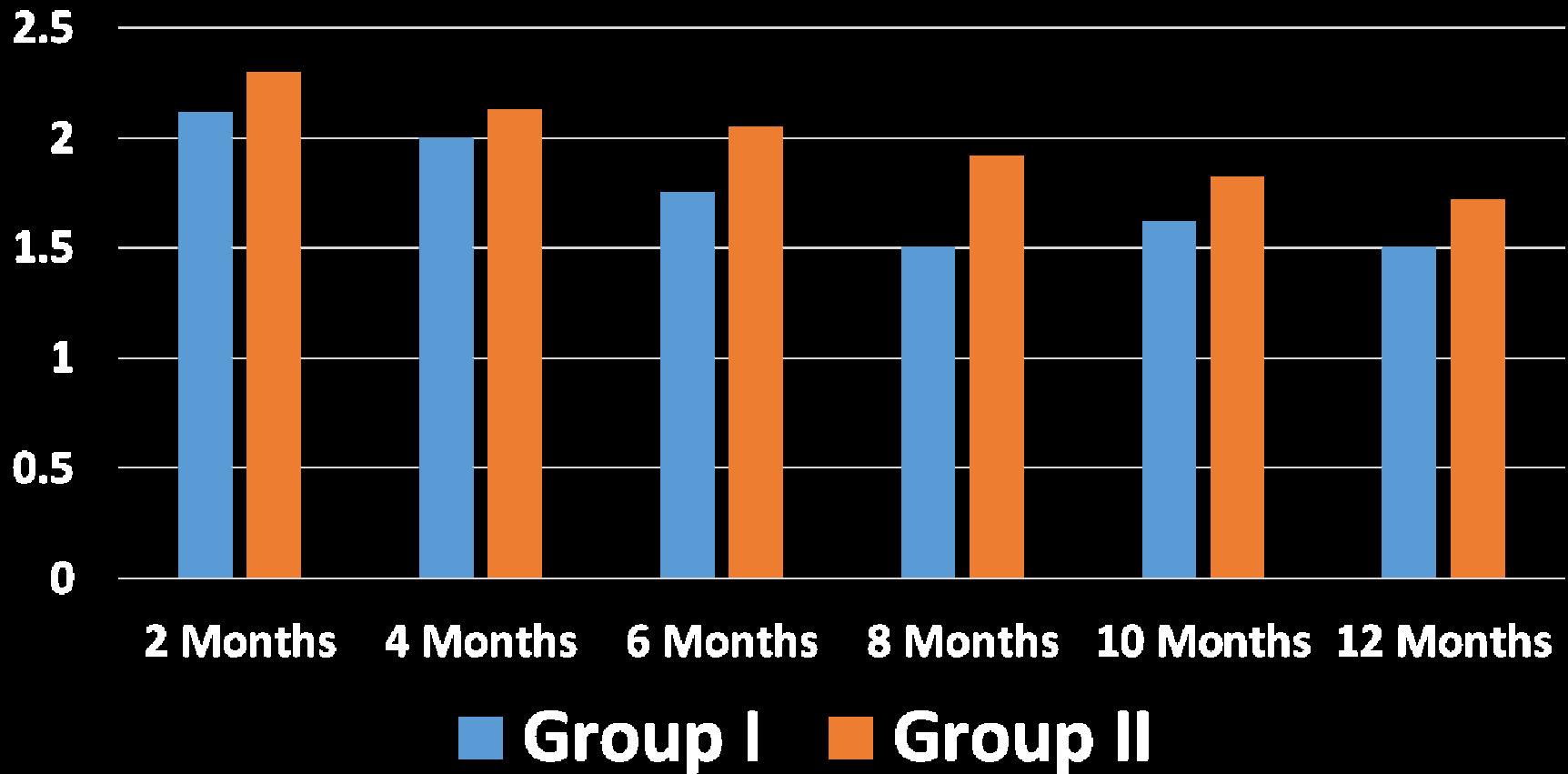
Symptoms Score Improvement Recorded Every Two Months (1-12):

## Attention span



Symptoms Score Improvement Recorded Every Two Months (1-12):

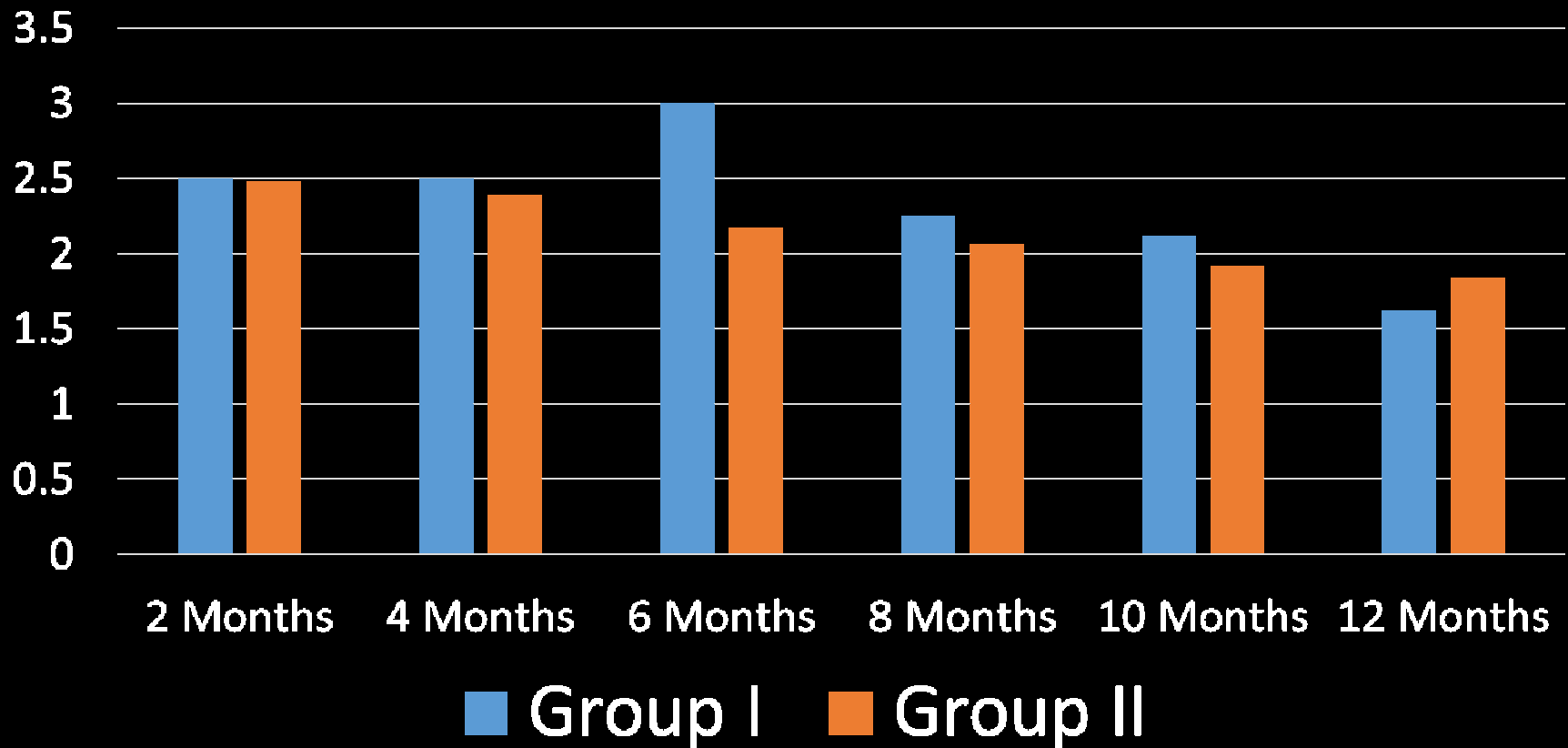
## Memory





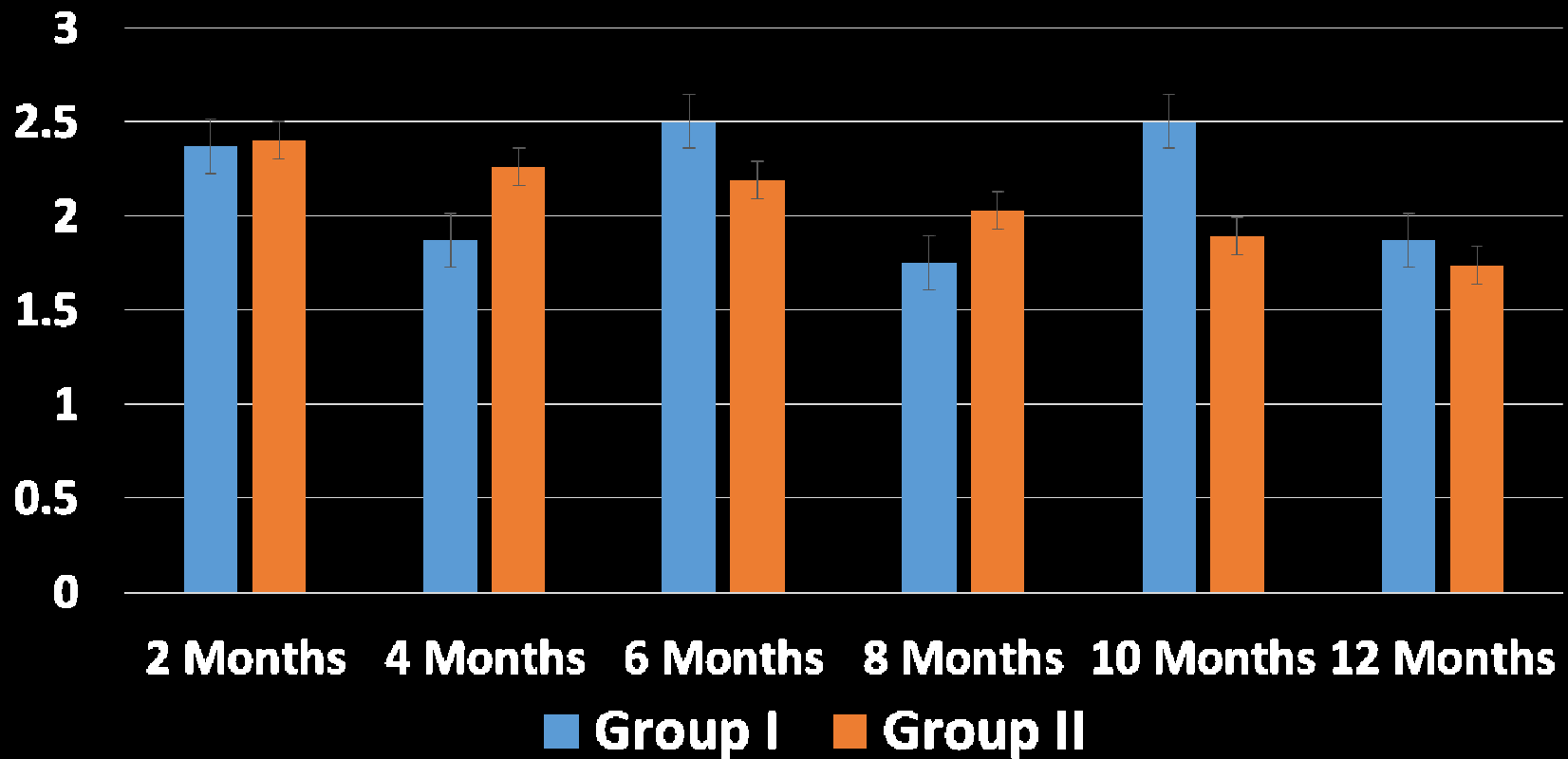
Symptoms Score Improvement Recorded Every Two Months (1-12):

# Rigidity



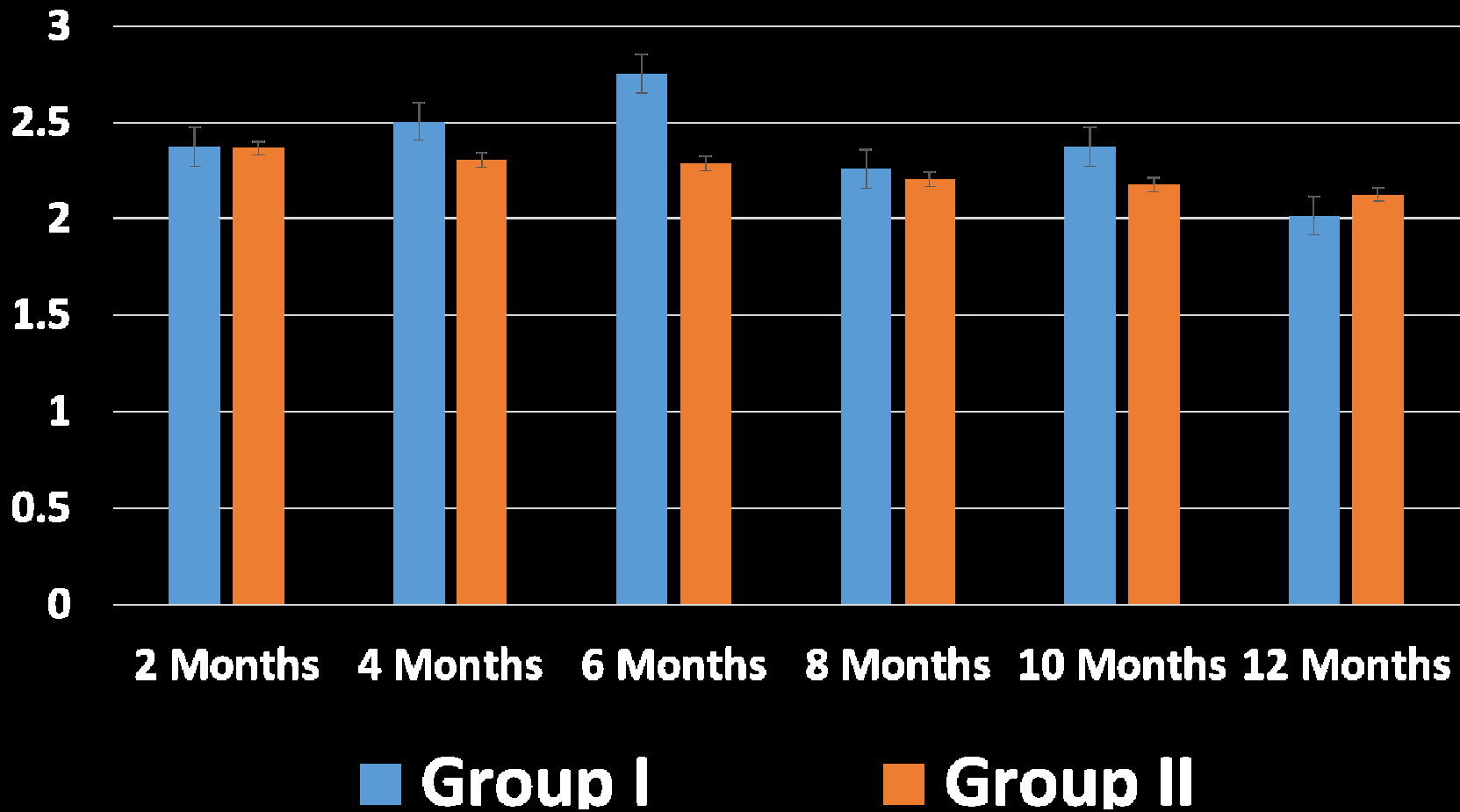
# Symptoms Score Improvement Recorded Every Two Months (1-12):

## Spasms



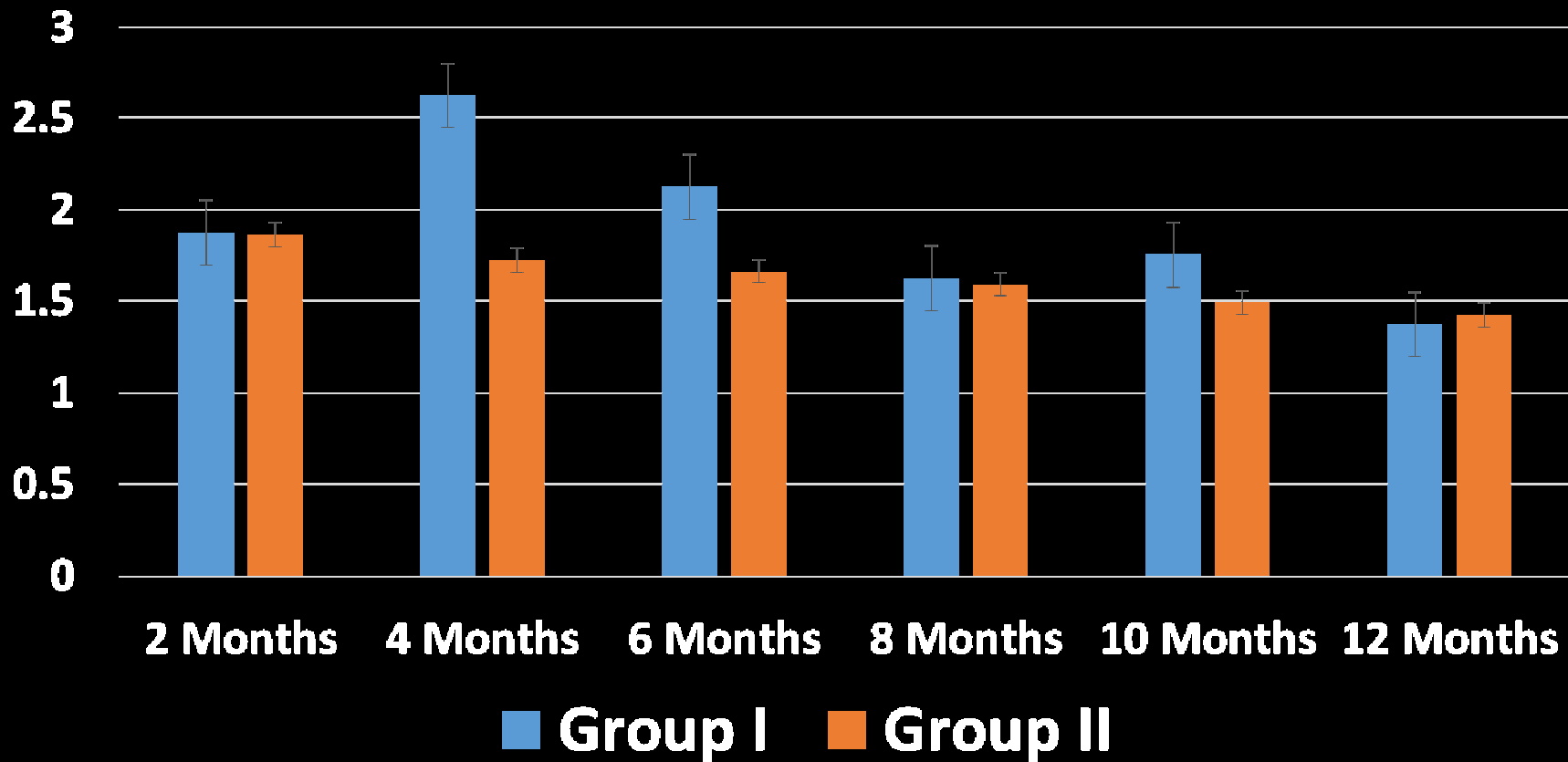
# Symptoms Score Improvement Recorded Every Two Months (1-12):

## Tremors

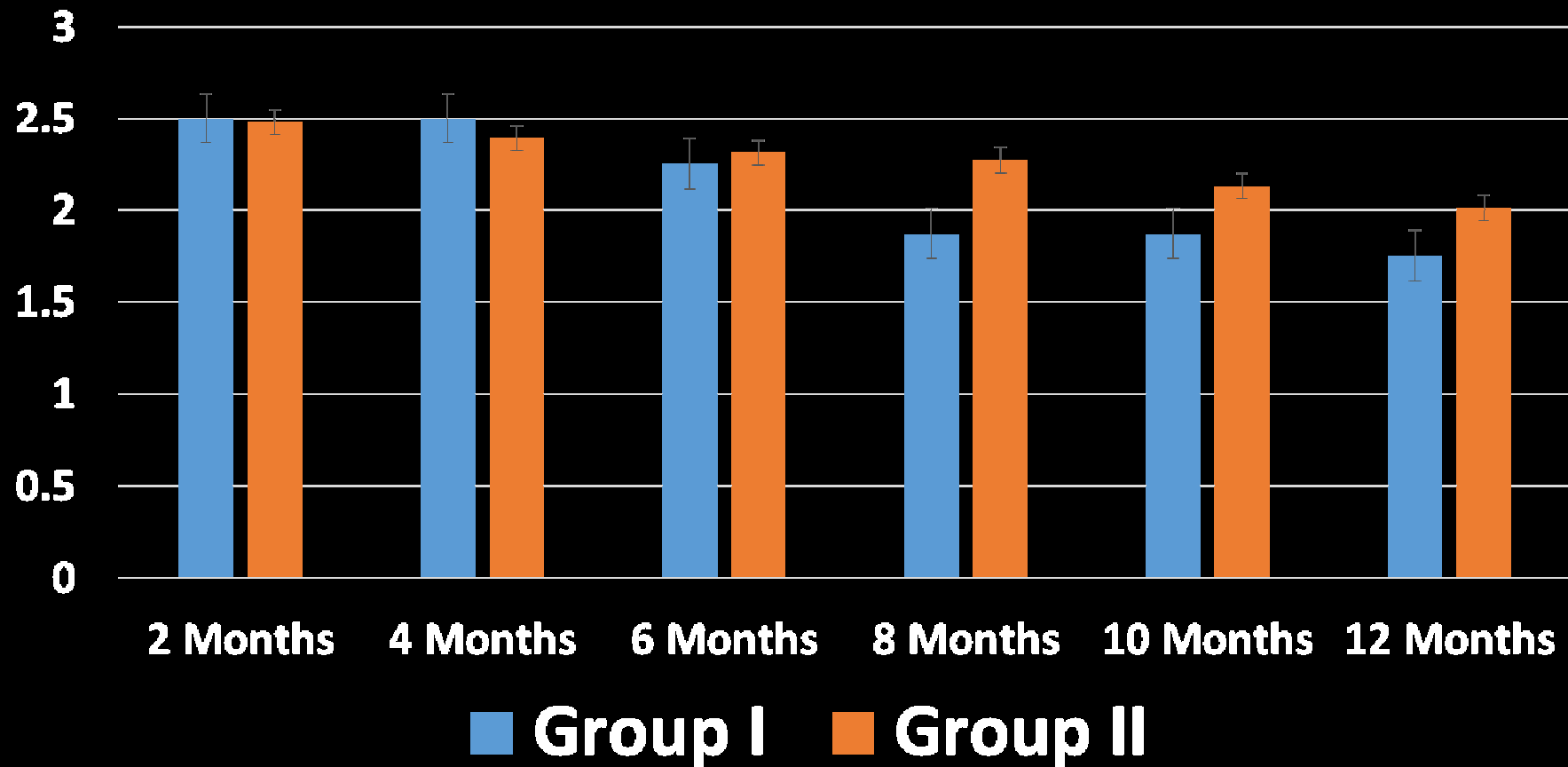


# Symptoms Score Improvement Recorded Every Two Months (1-12):

## Headaches

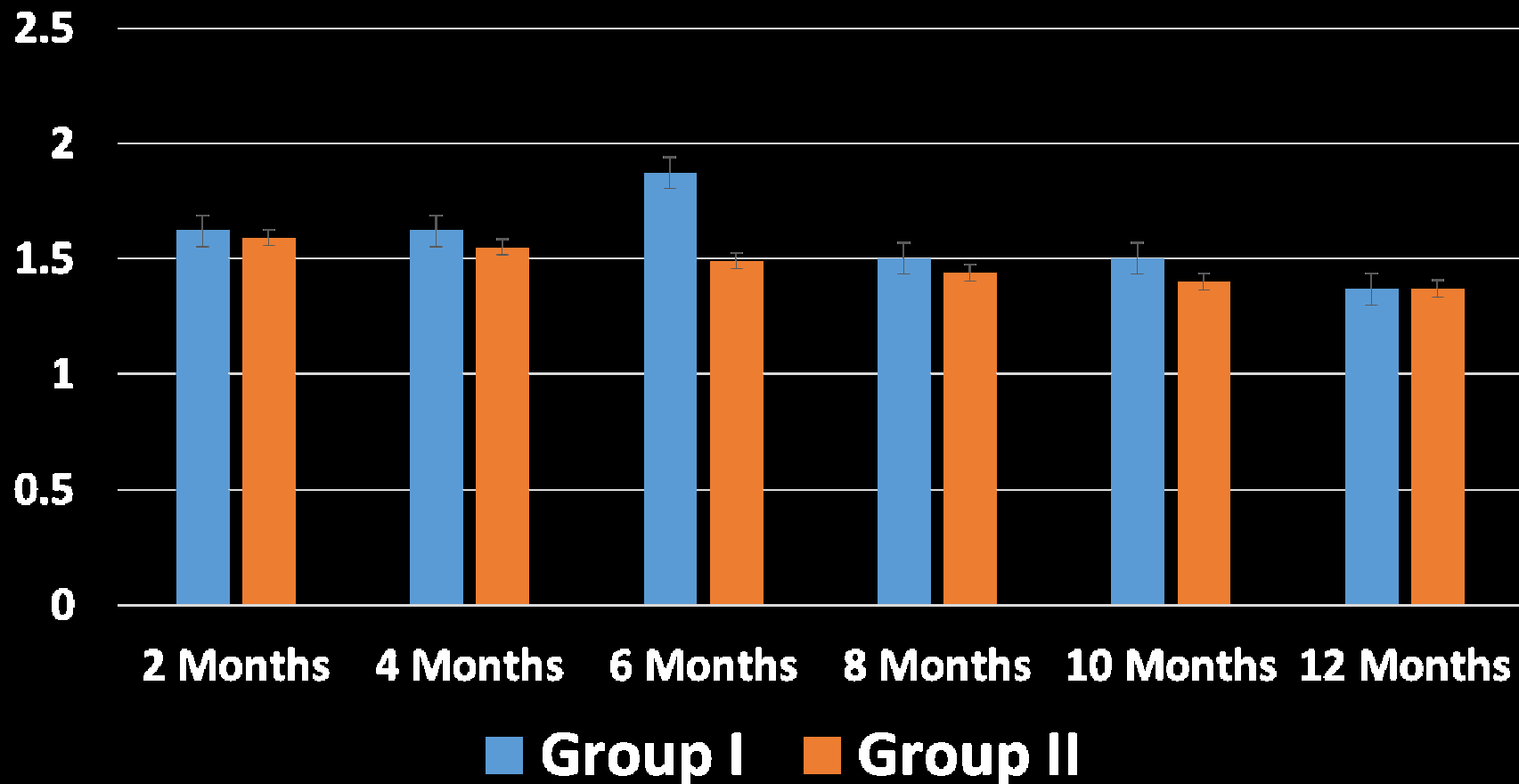


# Symptoms Score Improvement Recorded Every Two Months (1-12): Eye sight



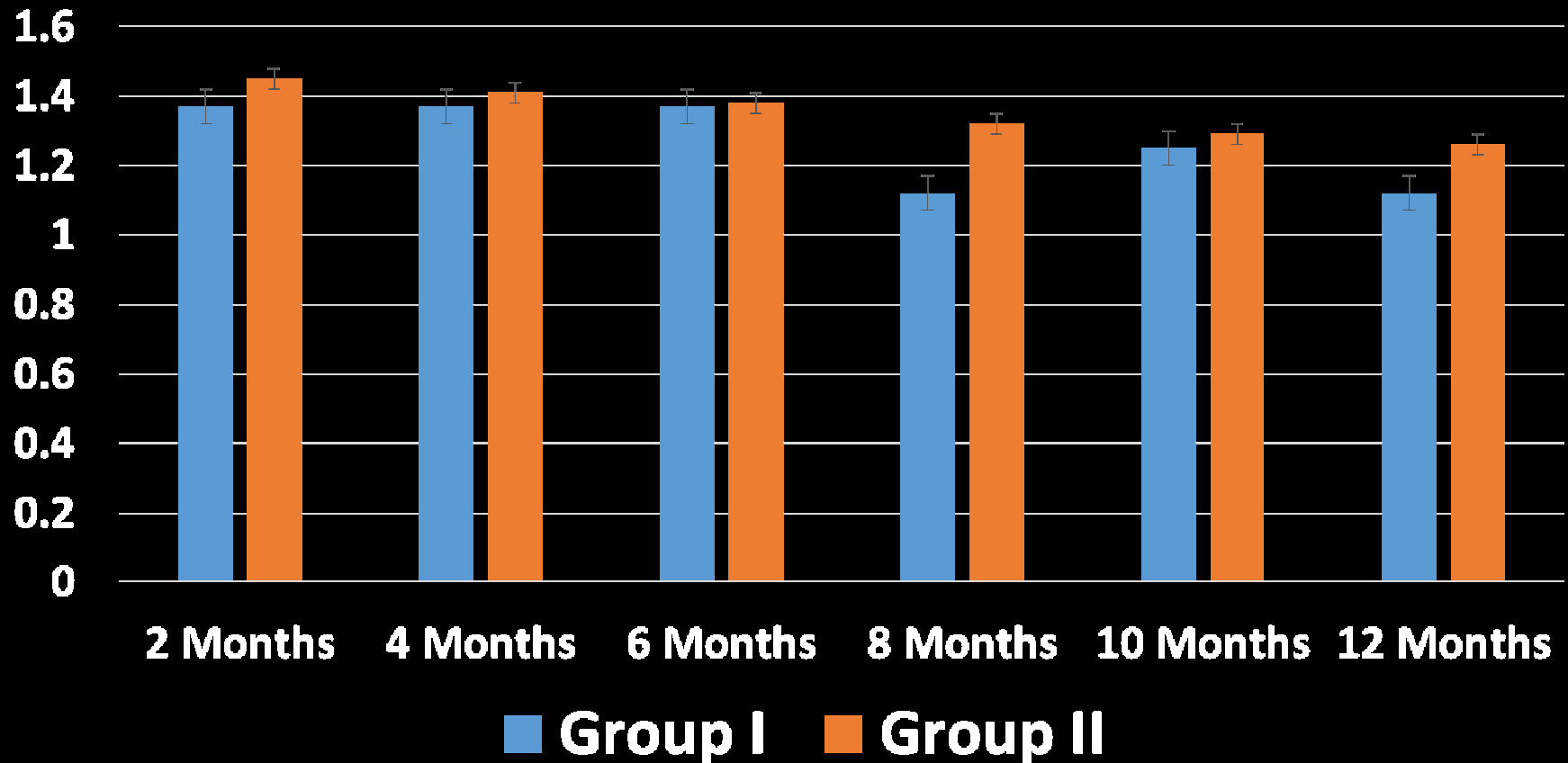
# Symptoms Score Improvement Recorded Every Two Months (1-12):

## Speech



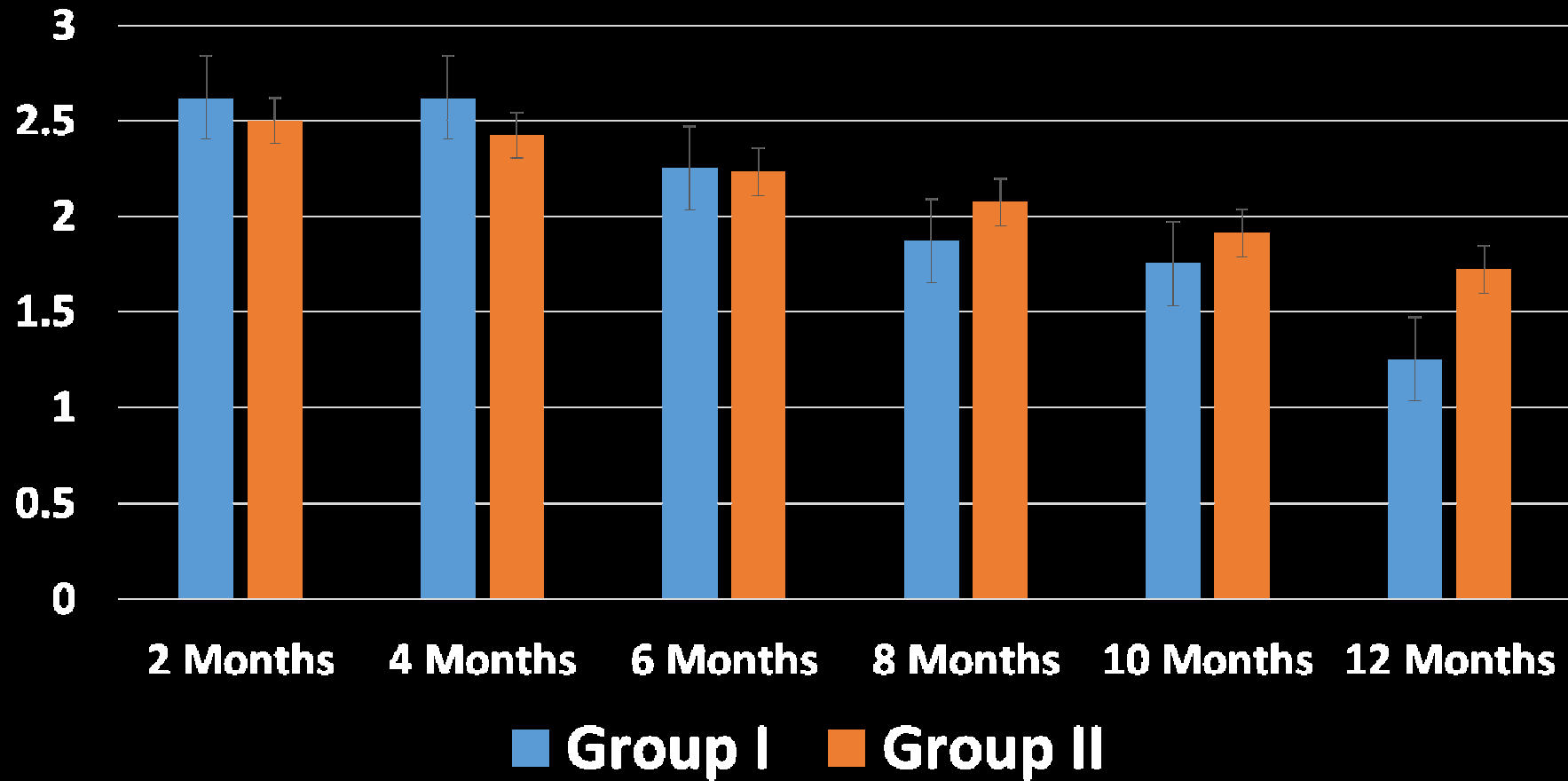
# Symptoms Score Improvement Recorded Every Two Months (1-12):

## Swallowing



# Symptoms Score Improvement Recorded Every Two Months (1-12):

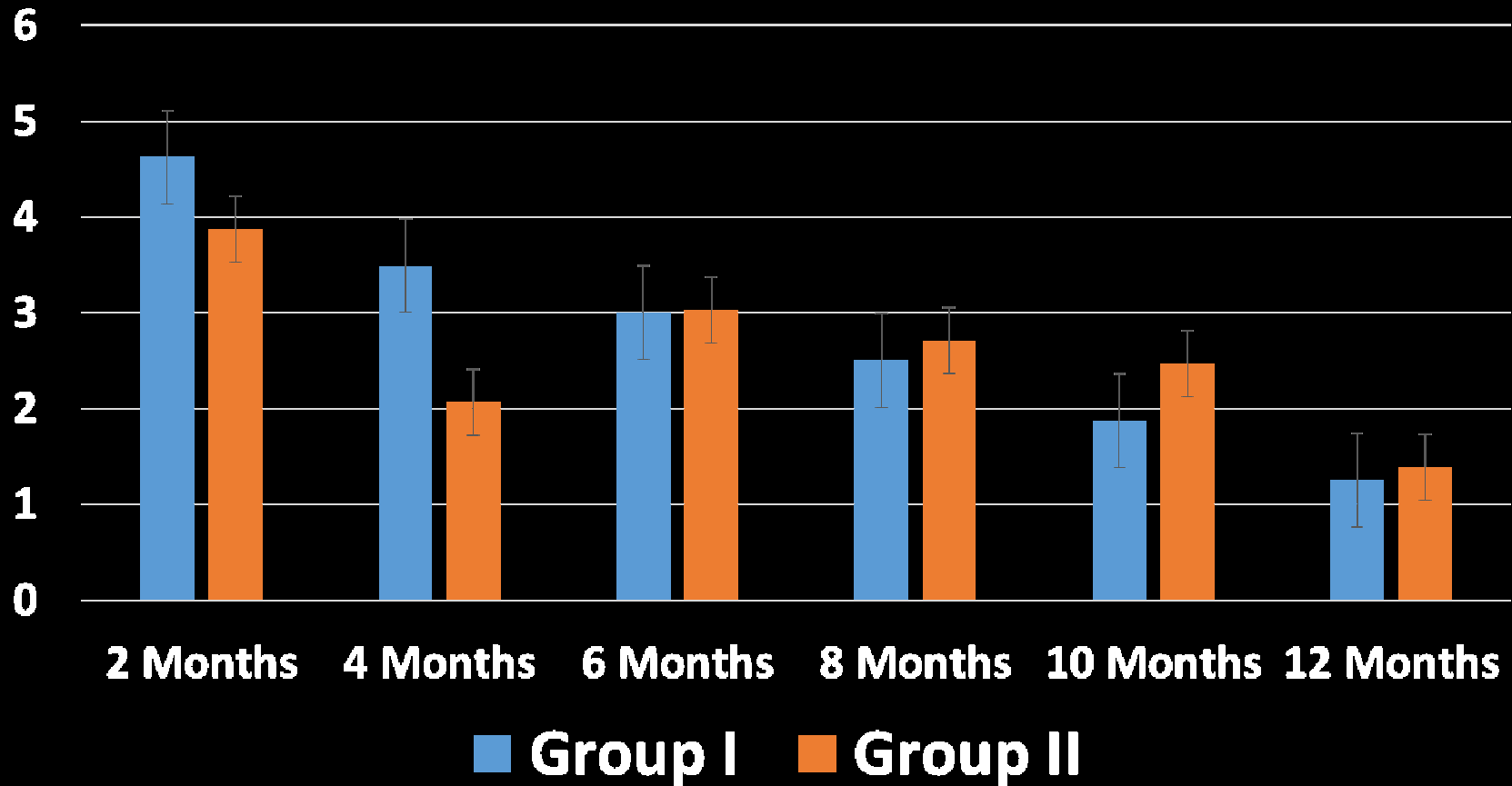
## Numbness





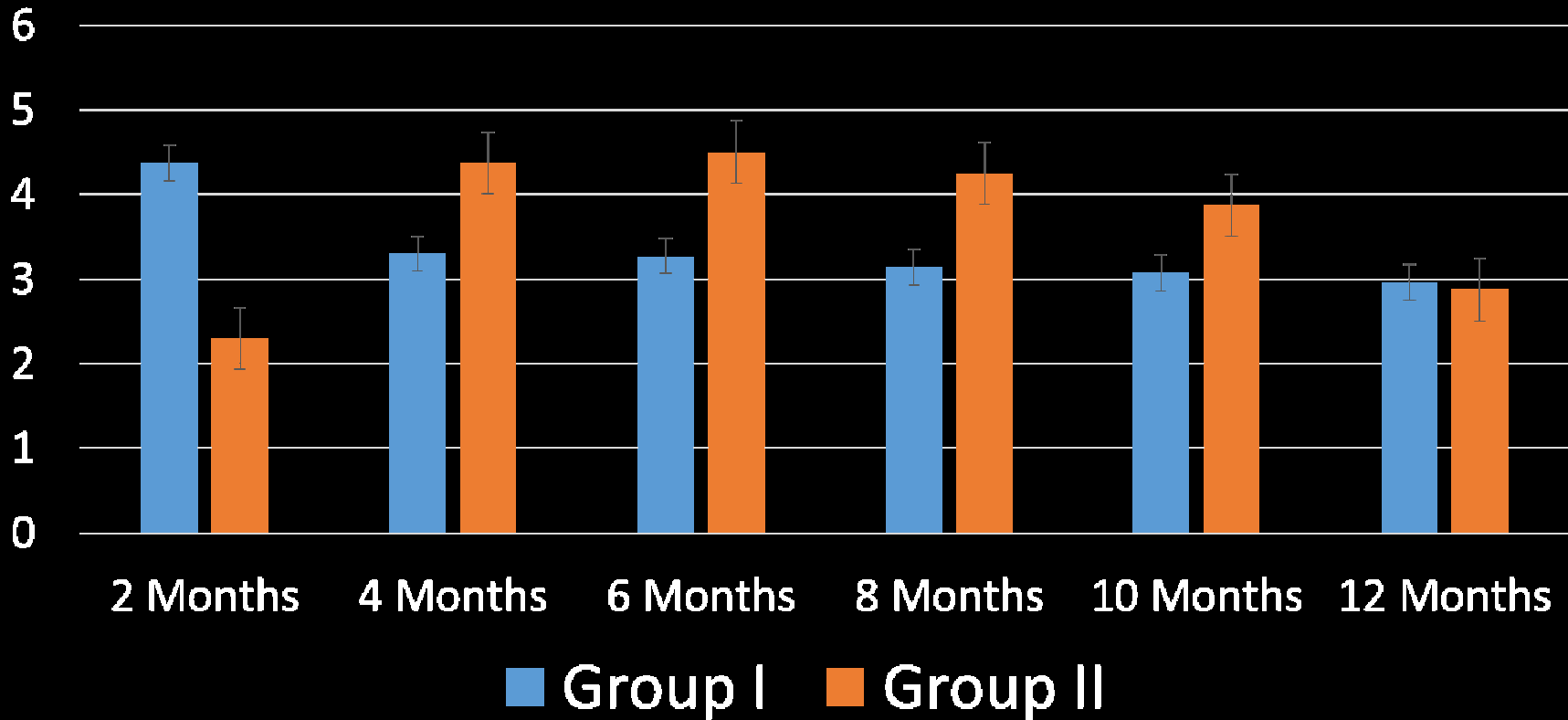
# Symptoms Score Improvement Recorded Every Two Months (1-12):

## Balance



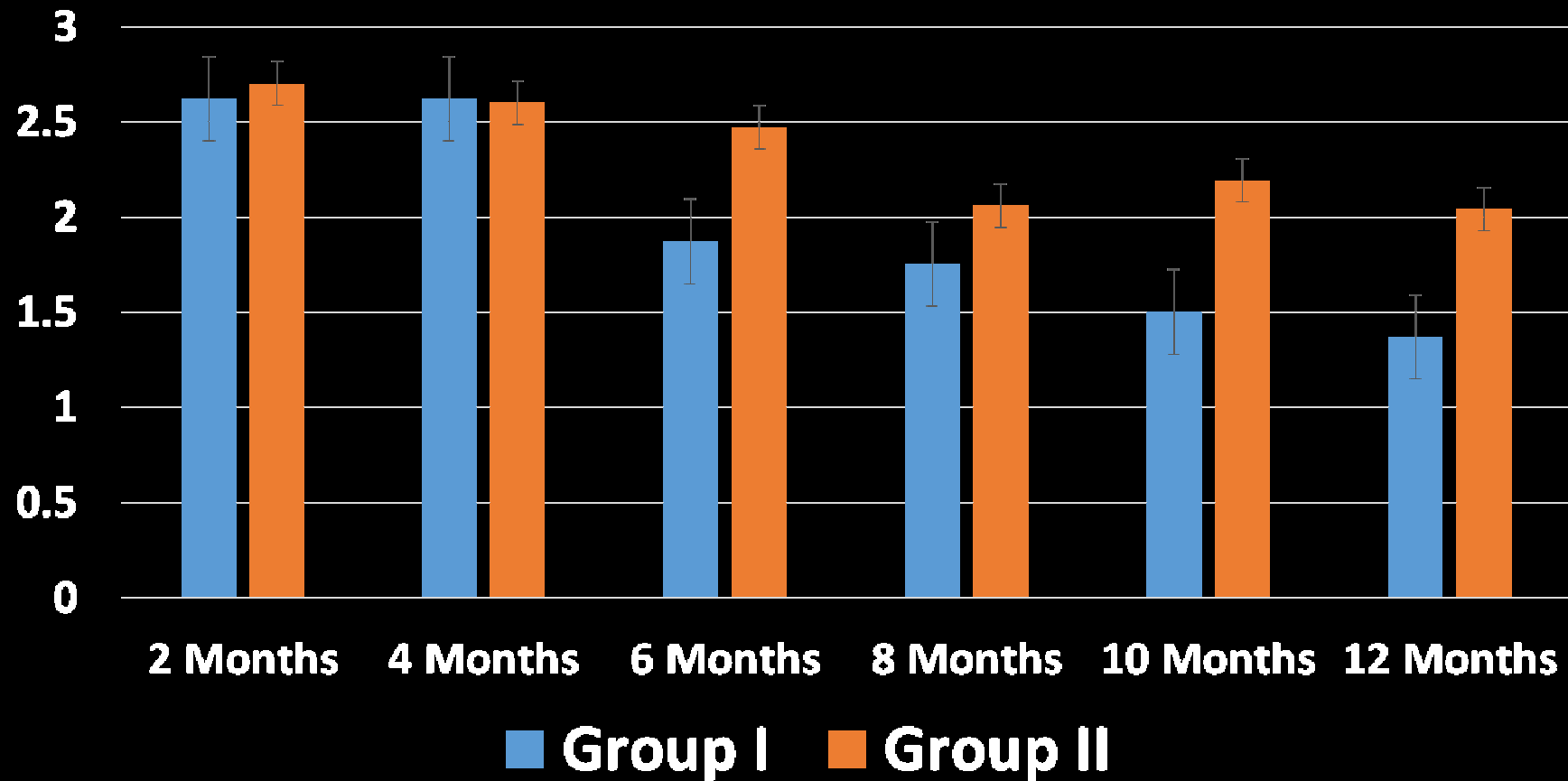
# Symptoms Score Improvement Recorded Every Two Months (1-12):

## Walking

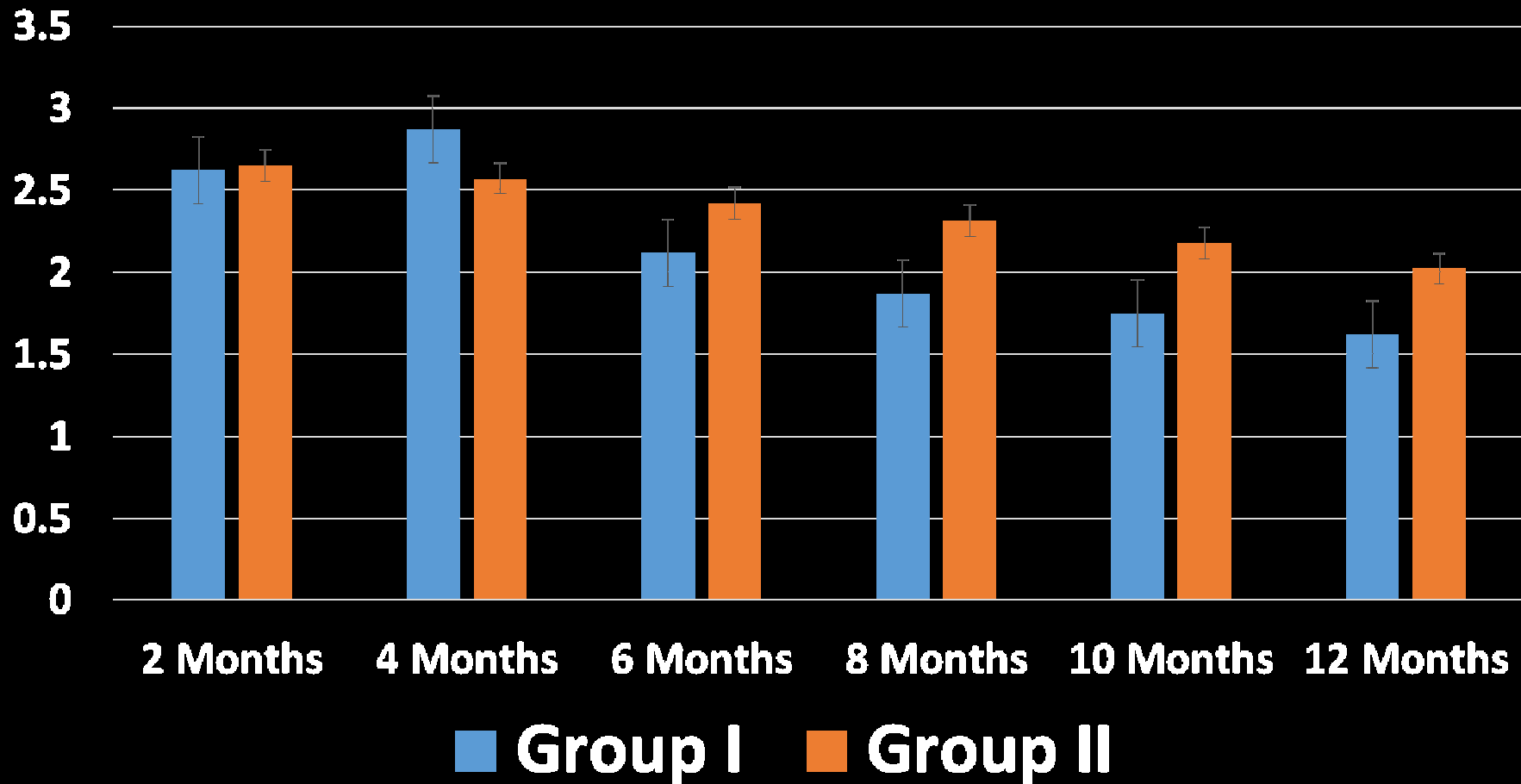


# Symptoms Score Improvement Recorded Every Two Months (1-12):

## Hand coordination

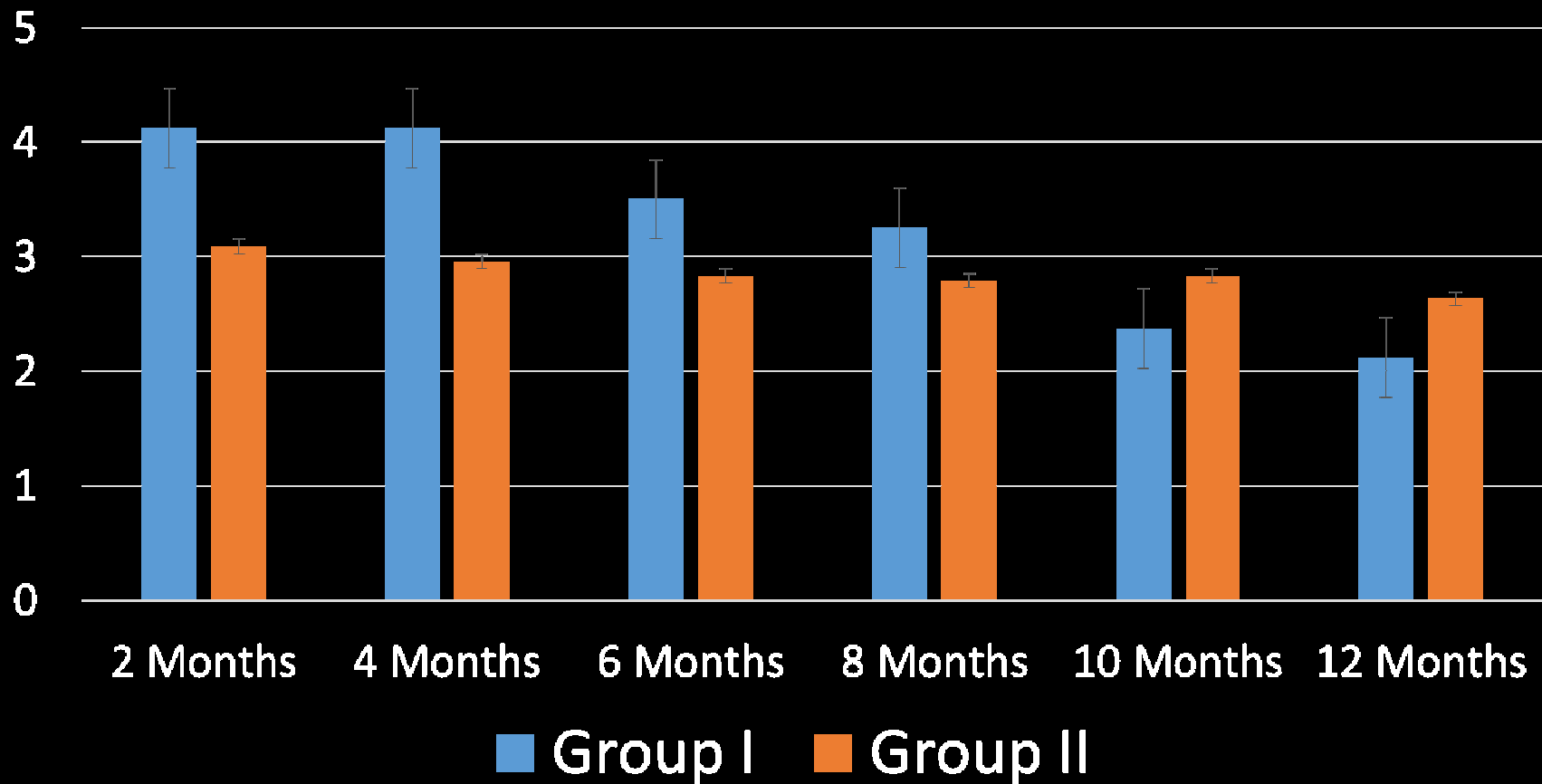


# Symptoms Score Improvement Recorded Every Two Months (1-12): Writing

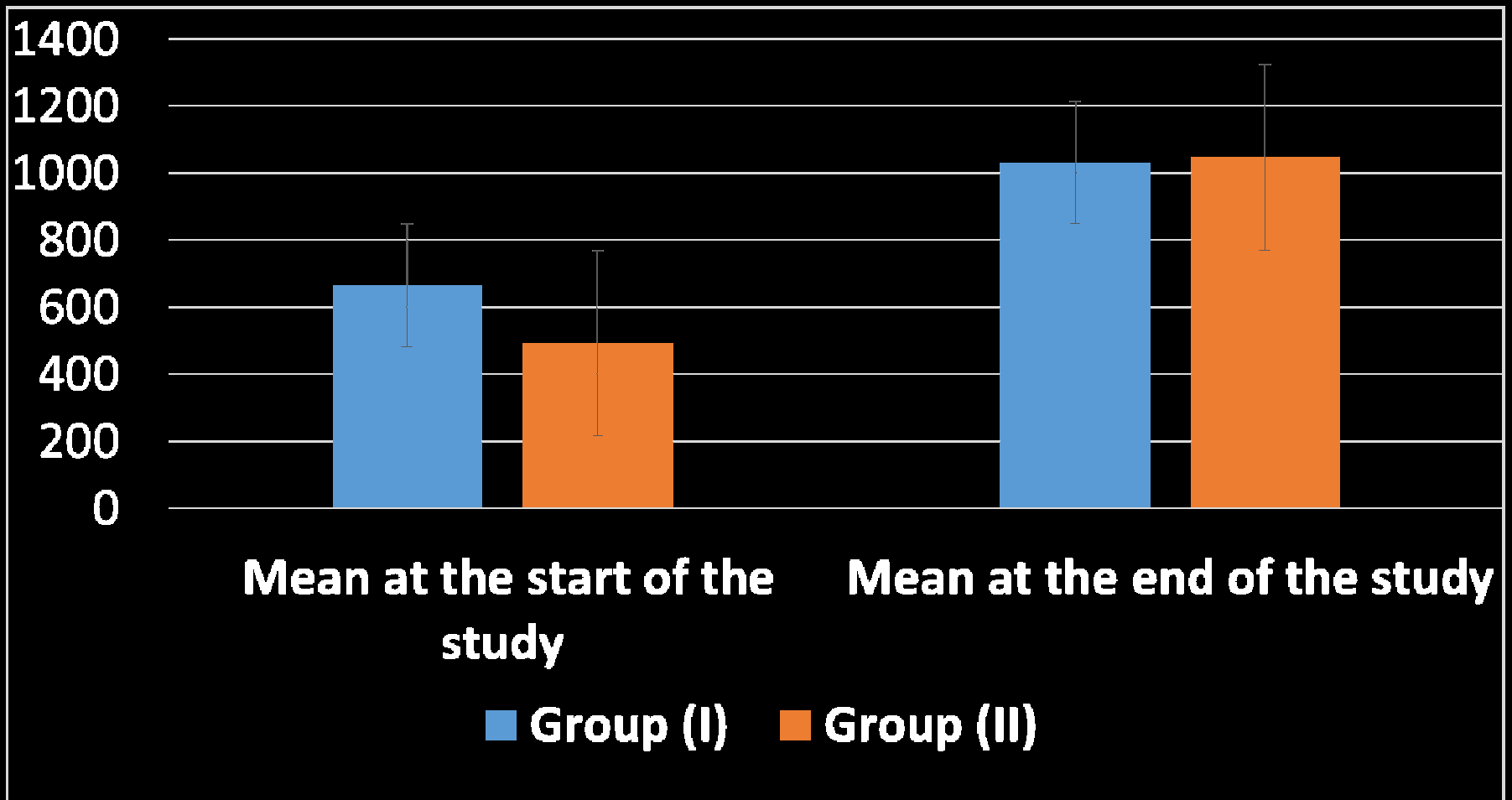


# Symptoms Score Improvement Recorded Every Two Months (1-12):

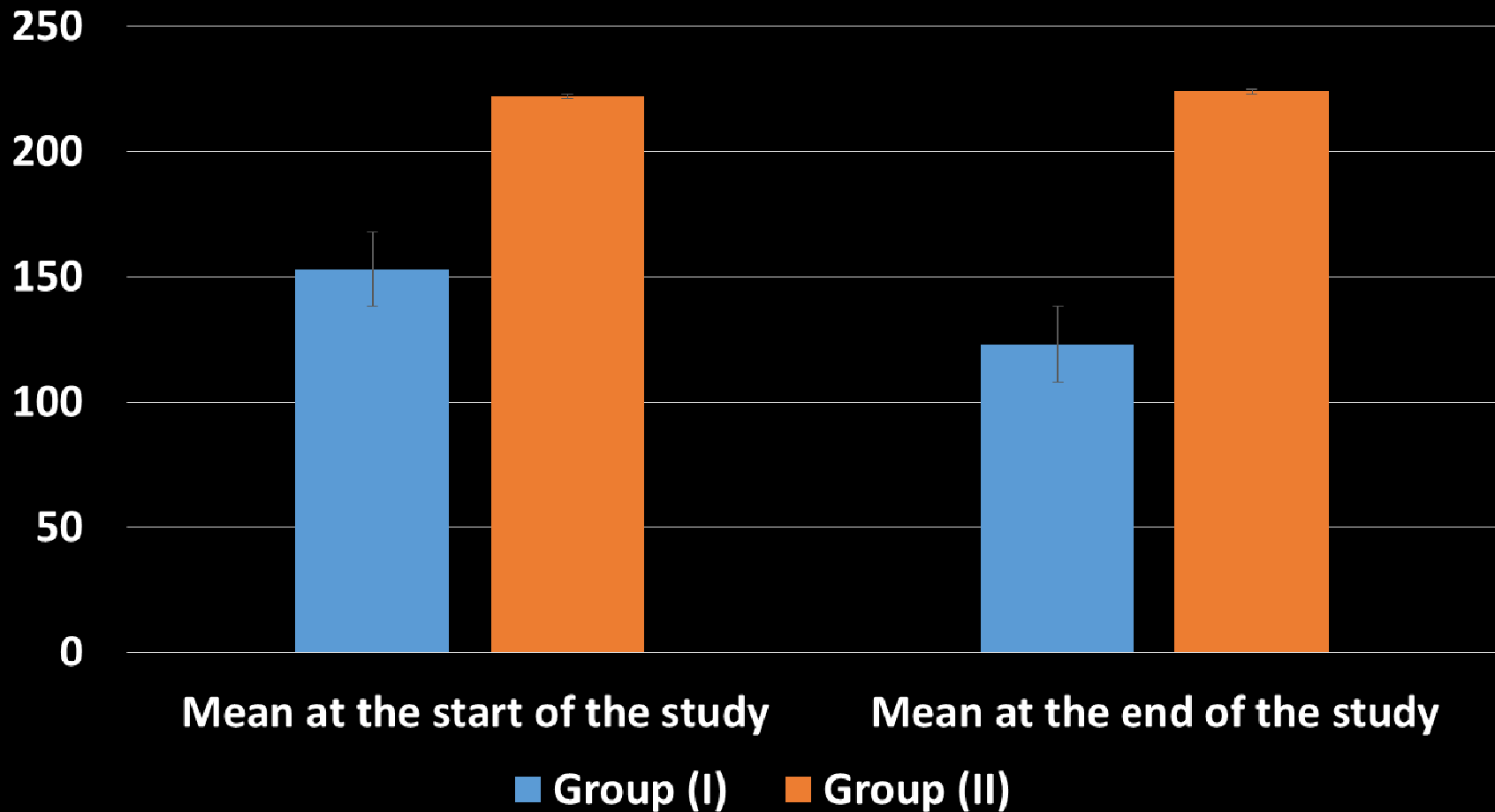
## Bladder & Bowel



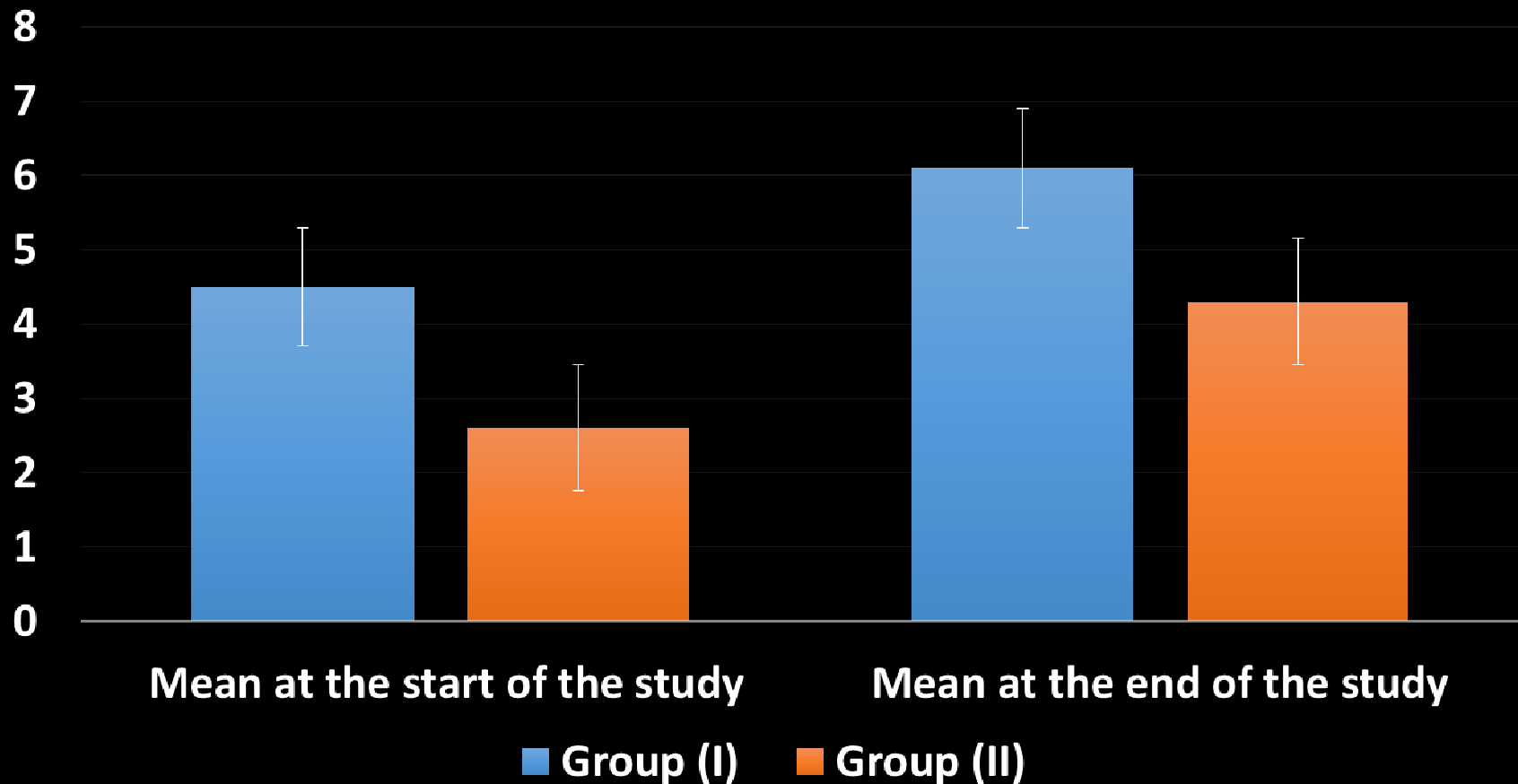
# Mean levels of IgE of both groups at the start and end of the study



# Mean levels of (IL) $1\beta$ of both groups at the start and end of the study

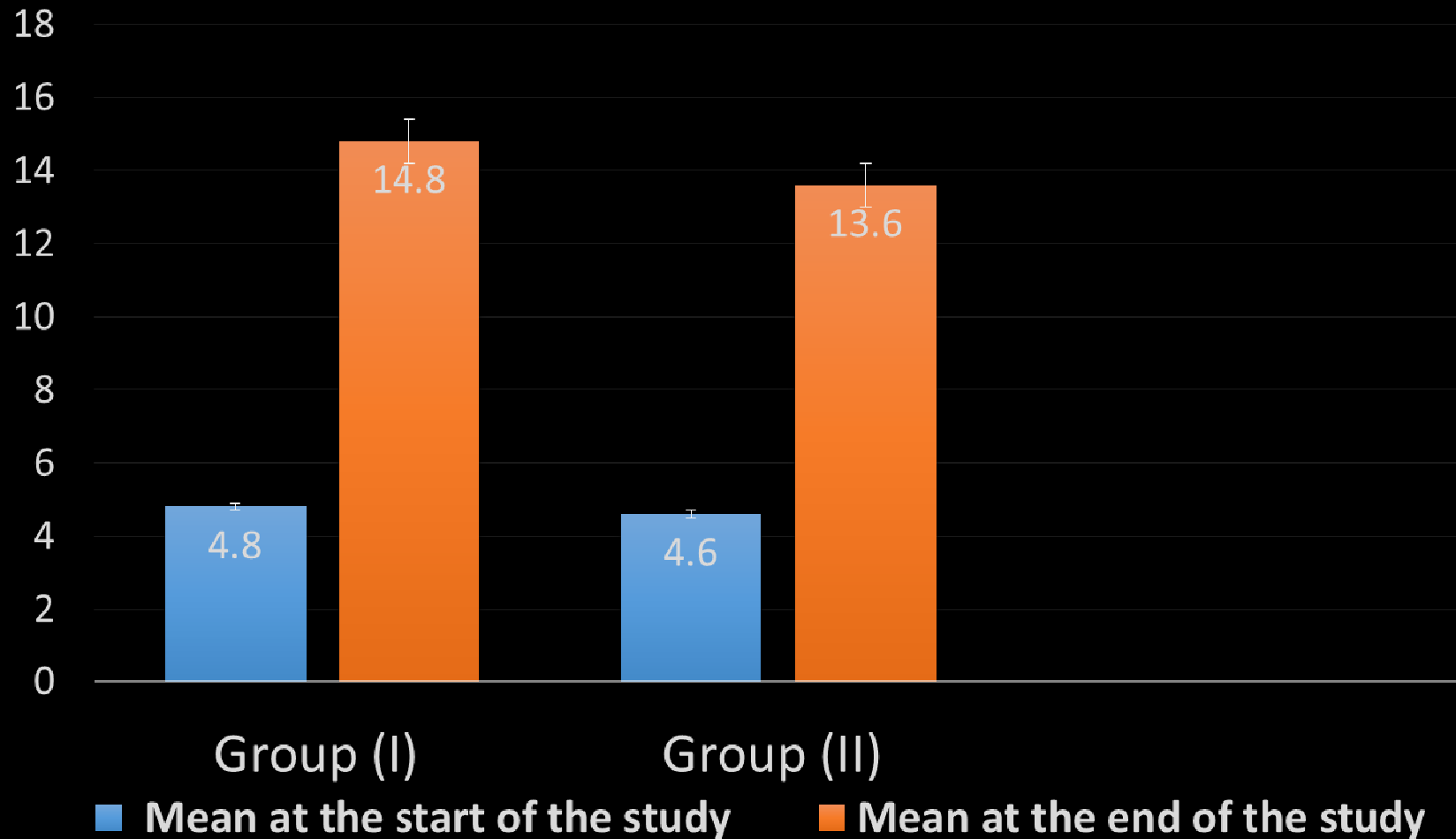


# Mean levels of (TNF) $\alpha$ of both groups at the start and end of the study





# Mean levels of IL-6 of both groups at the start and end of the study





CONCLUSION

- Although Apitherapy is not a curable therapy in MS, but it can be used to minimize some of the clinical symptoms of MS, and can be included among programs of MS therapy.

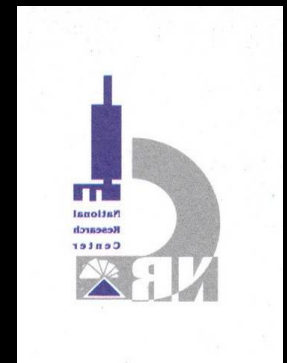
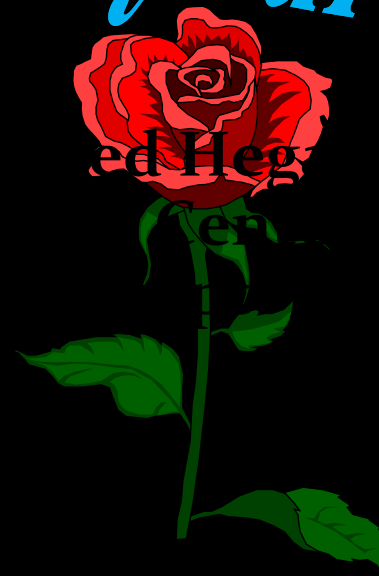
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**Novel therapeutic modality of Apitherapy  
for controlling of Multiple Sclerosis**

*Thank you for your attention*



# **Prof. Dr. Ahmed Hegazi •**

**Professor of Microbiology and Immunology •  
National Research Center, Dokki, Giza, Egypt  
President of Egyptian Environmental Society for  
uses and production of bee products  
Secretary of Egyptian Society of Apitherapy  
Secretary General of African Federation of  
Apiculture Associations  
Member of Apitherapy Commission ,  
APIMONDIA**

**E mail: [ahmed@ahmedhegazi.com](mailto:ahmed@ahmedhegazi.com) and  
[ahmedhegazi128@gmail.com](mailto:ahmedhegazi128@gmail.com)  
[www.ahmedhegazi.com](http://www.ahmedhegazi.com)**

**Tel: + 2023 7749222 and + 20238860682  
Fax: + 202 37749222 and + 202 33370931  
GMS: + 201001440063**