

## THE EFFECTS OF EXERCISE THERAPY IN THE TREATMENT OF PRIMARY FIBROMYALGIA PATIENTS\*

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*Primary fibromyalgia sendrome (FMS) is a very common rheumatological diagnosis and there are various treatment modalities. The aim of this study is to investigate the effects of therapy (home and group therapy) in the treatment of FMS.*

*A total of 62 primary fibromyalgia patients according to American College of Rheumatology (ACR) criteria were included the study. Their ages ranged between 32-60. Patients were randomly assigned in to three groups. None of them had a practice of daily simple exercise program or group aerobic therapy at least three years. Group 1 (n=21) were given home exercise program. Group 2 (n=21) joined the aerobic sessions with group therapy three times per week. Group 3 (n=20) were accepted as control group. Patients were evaluated by the number of tender points, Visual Analog Scale (VAS) for pain and Fibromyalgia Impact Questionnaire (FIQ).*

*After treatment, in group 2 there was statistically significant difference in the number of tender points, VAS and FIQ (p<0,001)*

*Also in group 1 there was an improvement in VAS and FIQ but not in the number of tender points compared to the control group (p<0,01).*

*Patients with FMS mostly complain about the pain and the difficulty in daily living activities. This study shows that exercise therapy either at home or in group sessions is effective in treating fibromyalgia patients. It is also a good motivating factor for patients who mostly spend their time at home, in a sedantery life style.*

**Key Words:** Fibromyalgia, exercise therapy

### ÖZET

#### PRİMER FİBROMİYALJİSİ OLAN HASTALARDA EGZERSİZ TEDAVİSİNİN ETKİLERİ

*Primer fibromiyalji sendromu (PFS) çok sık karşılaştığımız romatizmal bir hastalıktır ve birçok farklı tedavi seçeneği vardır. Bu çalışmanın amacı, PFS olan hastalarda ev ve grup egzersiz tedavisinin etkinliğini araştırmaktır.*

*Çalışmaya Amerikan Romatizma Koleji (ACR) kriterlerine göre tanı konmuş toplam 62 primer fibromiyalji hastası alındı. Hastaların yaşları 32-60 arasında değişmekteydi. Hastalar rastgele üç gruba ayrıldılar. Hiçbir hasta son üç yıldır günlük basit ev egzersizleri veya aerobik grup terapisi almamıştı. Birinci gruba (n=21) ev egzersiz programı gösterildi. İkinci grup (n=21) haftada üçgün aerobik egzersiz programına katıldı. Üçüncü grup (n=20) kontrol grubu olarak kabul edildi. Hastalar hassas nokta sayısı, ağrı için Görsel Analog Ölçek (VAS) ve Fibromiyalji etki sorgulaması (FIQ) ile değerlendirildiler.*

*Tedavi sonrasında grup 2'de hassas nokta sayısında, VAS'da ve FIQ'da istatistiksel anlamlı farklılık olduğu tespit edildi (p<0.001). Grup 1'de de kontrol grubuyla karşılaştırıldığında VAS ve FIQ'da anlamlı düzelme olduğu ancak hassas nokta sayısında değişiklik olmadığı gözlemlendi (p<0.01).*

*PFS olan hastalar çoğunlukla ağrı ve günlük yaşam etkinliklerindeki zorluktan yakınmaktadırlar. Bu çalışma ev yada dışarıda gruba beraber yapılan egzersizin fibromiyalji hastalarının tedavisinde etkili olduğunu göstermektedir. Ayrıca egzersiz programının sedanter yaşam süren ve çoğunlukla evde zaman geçiren hastaların motivasyonunda rol oynadığını düşünmekteyiz.*

**Anahtar kelimeler:** Fibromiyalji, egzersiz tedavisi

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## INTRODUCTION

Primary fibromyalgia syndrome (FMS) is a very common nonarticular rheumatological diagnosis, characterized by fatigue, widespread musculoskeletal pain, tiredness and sleep disturbances, without any other objective findings on physical examination. Patients may be depressed and show characteristic tender areas or trigger points (1). Most of the patients have reduced ability to sustain intensive exercise and low levels of aerobic fitness. There are various treatment modalities including nonsteroidal antiinflammatory drugs (NSAID), corticosteroids injections, physical therapy and exercise program with a strong aerobic component (2,3). Exercise therapy has received a moderate support and has been subjected to more randomized studies. The aerobic and the cardiovascular exercise program is popular in the recent years (4). The purpose of this study is to investigate the effects of exercise therapy (home and group therapy) in the treatment of FMS.

## MATERIALS AND METHODS

A total of 62 female primary fibromyalgia patients who applied to Dr. M.Ü First Aid and Traumatology Hospital department of Physical Medicine and Rehabilitation, according to American College of Rheumatology (ACR) criteria were included in the study. Their ages ranged between 32-60 (40,27+9,25). Patients were randomly assigned in to three groups. Patients having neck and shoulder surgery before, having a diagnosis of servical radiculopathy or myelopathy, having severe disc lesions, cognitive deficits, inflammatory and tumoral disorders were excluded from the study. After physical examination, full blood count, erythrocyte sedimentation rate (ESR), C-reactive protein, rheumatoid factor, biochemical markers and electrocardiography were also

evaluated for all patients. None of them had a practice of daily simple exercise program or group aerobic therapy at least three years. Group 1 (n=21) were given home exercise program. Home exercise program included simple flexibility exercises like flexion, extension exercises, relaxation, stretching and range of motion exercises for upper extremity. Each of them was applied at least ten times, twice a day. Group 2 (n=21) joined the aerobic sessions with group therapy one hour, three times per week. Aerobic sessions started with jogging and stretching exercises. They were followed by an aerobic fitness program which included conditioning exercises. Group 3 (n=20) were accepted as control group. They were only given NSAID daily. All of the groups were also treated with the same NSAID. The exercise program continued for 3 months. The assessment parameters were measured before and after the therapy.

Patients were evaluated by the number of tender points, pain and disability in daily living activities. Tender points were determined by digital pressure (5). Pain was assessed by Visual Analog Scale (VAS). Disability in daily living activities was evaluated by Fibromyalgia Impact Questionnaire (FIQ). FIQ, which includes 10 items is a self administered instrument that measures physical functioning, work status, anxiety, pain, fatigue, sleep, depression, stiffness and well being (6). All patients completed the exercise program.

For statistical investigation, one-way analysis of variance (ANOVA) test was used.

## RESULTS

Demographic properties of the patients were shown in Table I. There was not a statistically sig-

nificant difference for demographic properties between three groups ( $p>0,05$ ).

In group 2, after the therapy there was a statistically significant difference in the number of tender points, VAS and FIQ compared to other groups ( $p<0,001$ ). Also in group 1 there was a statistically significant improvement in VAS and FIQ values, but there was no difference in the number of tender points compared to the control group ( $p<0,01$ ). The results of VAS, FIQ and the number of tender points were shown in Table II.

## DISCUSSION

Fibromyalgia is a syndrome, characterized by chronic diffuse musculoskeletal pain and the associated symptoms. The cause of pain is unknown and its treatment remains as a problem. NSAID and steroids are ineffective and the only drugs reported to be effective are antidepressants (7). Especially in patients with localized disorders, intralesional injections of corticosteroids are particularly effective and safe (1,8). The difficulty in treatment of FMS leads to alternative treatment modalities and strategies. Current studies propose that, exercise therapy maximises the patients aerobic fitness and is helpful in fibromyalgia treatment (9,10).

In FMS there is a clear difference between the prevalence of the symptoms in male and female patients. Mostly female patients suffer from generalized musculoskeletal pain. This study is planned to investigate the effects of exercise therapy for pain and disability in daily living activities of FMS female patients.

There are various studies about exercise therapy on FMS in the recent years. Buckelew et al. compared the effectiveness of biofeedback training, exercise training and the combination of both in the

fibromyalgia. They reported that the exercise and the combination groups had significant improvement on physical activity (11).

In Bennett's study, patients with FMS were given a group therapy program for 6 months. The program consisted of formal lectures, group sessions that were emphasizing behavior modification, stress reduction techniques, strategies to improve fitness and flexibility. All patients also practiced aerobic exercise program. Patients were evaluated according to FIQ and total tender point scores. After 6 months therapy there was a significant improvement in FIQ, myalgic score and the number of tender points when compared to control group (12). Another study determined the effectiveness of self-management education and physical training in decreasing symptoms and increasing physical and psychological well being. There were education group, education plus physical training group and the control group. They received the program for 6 weeks, which was at least 3 times/week for 20 minutes. Longterm follow up of the patients, the physical training group showed significant increase on the FIQ values (13).

Gürsel et al. evaluated the effect of different types of aerobic exercise on pain, sleep quality and disability of patients with FMS. Patients were participated into aerobic dance and aerobic walking program. After 6 week therapy, both groups showed significant improvement in all parameters but in both groups there was no change in ADL scores (14).

Martin et al studied 60 patients with FMS. Patients were randomly assigned as either an exercise or a relaxation group. They showed a significant decrease in the number of tender points and myalgic scores of the exercise group but no difference in the comparison for FIQ (10). That was because,

**Table I. Demographic properties of the patients**

	Group 1	Group 2	Group 3
Age (year)	40,56+8,66	40,11+7,60	41,67+9,00
Disease duration (month)	16,39+4,89	16,13+5,14	15,83+5,07

Data are expressed as mean  $\pm$  standart deviation

the exercise group was more fatigued which affected the FIQ scores. In our study patients complained of fatigue in the beginning of exercise program but there was no complain for the end of the study.

King et al assessed the reliability and the validity of the 6 minute walk in persons with FMS. They reported that 6 minute walking could be used as an indicator of aerobic fitness but not as proper as FIQ in the measurement of functional capacity (15).

There are various studies on cardiovascular fitness program in FMS. Authors suggest that the cardiovascular fitness provides a significant improvement in pain threshold scores of fibrositic tender points compared to simple flexibility exercise program (16,17,18).

Similarly in our study we determined that in simple exercise program group there was no difference in the number of tender points. On the contrary there

was an improvement in VAS and FIQ scores. We can not be sure whether home group patients followed their exercise program properly because there was no control over them. Probably that may affected the results of home exercise group. There was statistically improvement in all parameters in aerobic exercise group. They joined an aerobic exercise program including upper and lower extremity. Initially they were given a stretching exercise program and then continued with conditioning exercises. The difference between the groups may depend on the effects of aerobic exercise program. McCain et al. also reported that aerobic exercise program was effective in the treatment of FM patients and there was an improvement in VAS and total myalgic scores (18).

We think that psychological factors may play an important role in our results. Group therapy is better for relaxation and pain decrease. It is known

**Table II. The results of the VAS, FIQ and the number of tender points before and after the therapy**

	VAS		FIQ		Number of tender points	
	Before Treatment	After Treatment	Before Treatment	After Treatment	Before Treatment	After treatment
<b>Group 1</b>	6,56+1,46	3,22+0,94	48,44+8,98	29,56+4,84	14,78+2,10	10,67+2,00
<b>p</b>	< 0,01		< 0,01		> 0,05	
<b>Group 2</b>	7,06+1,66	1,44+1,38	48,40+8,90	11,89+5,67	14,38+1,97	3,89+1,37
<b>p</b>	< 0,001		< 0,001		< 0,001	
<b>Group 3</b>	7,18+1,59	6,16+1,67	48,63+9,54	42,12+8,22	16,47+1,33	11,94+2,54
<b>p</b>	> 0,05		> 0,05		> 0,05	

that emotional factors are very important in fibromyalgia patients so group therapy seems to be a social therapy at the same time. As most of our patients are housewives, joining to an aerobic exercise

group, is a good motivating factor for their sedentary lives. We suggest more researches in FMS will be better to understand the effects of the exercise therapy.

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