parameters and pain were carried out in two sessions, standard shoe only and standard shoe with flat cushioning. In both sessions, all participants performed the 10-metre walking test in two walking conditions: normal walking (PW), walking at maximum speed (MAXW). The order of sessions and walking conditions were randomised. Plantar pressure parameters were assessed using pressure sensitive insoles and spatio-temporal parameters were assessed using video analysis method involving slow motion camera (120fps). Pain severity was assessed using Visual Analogue Scale at the beginning of both sessions and immediately following the end of the walking conditions in individuals with CINP. Paired sample t-test was used to determine the effects of flat cushioning insole on gait parameters for both groups and on neck pain for the only neck pain group.

Results: Our findings indicated that the flat cushioning insole results in a decrease in the maximum force, peak pressure, force-time integral, pressure-time integral and an increase in the contact area in both groups ($p < 0.05$). In individuals with CINP, flat cushioning insole increased walking speed and step length in both walking conditions ($p < 0.05$), however, it had no impact on cadence ($p > 0.05$). Flat cushioning insole reduced the severity of neck pain during MAXW ($p < 0.05$), but there was no difference in neck pain at beginning of both sessions and during PW conditions ($p > 0.05$). In healthy individuals, no difference was found in spatiotemporal gait parameters between two sessions ($p > 0.05$).

Conclusions: The study suggested that the flat cushioning insole reduces neck pain severity during walking and has positive effects on gait parameters in individuals with CINP. Flat cushioning insole may be used to decrease neck pain during walking and improve spatiotemporal gait parameters in individuals with CINP.

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AB1436-HPR COMPARISON OF PHYSIOTHERAPY GAINS OF THE PATIENTS WITH AND WITHOUT OSTEOPENIA IN DISTAL RADIUS FRACTURES

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Background: It is known that osteopenia was correlated with severity of forearm fractures.¹ Since there is an increased risk of long-term impairment due to the involvement of wrist joint after distal radius fractures, physiotherapy is an integral component of the complete concept for the treatment.^{2, 3} However, there are no recommendations supported by studies regarding which patients might possibly benefit more or less from physiotherapy.⁴

Objectives: The aim of this study was to compare physiotherapy gains of the patients with and without osteopenia in distal radius fractures.

Methods: 31 patients (13 with normal bone quality, 18 osteopenic) surgically treated with volar plating after distal radius fracture were included. Bone mineral density (BMD) was assessed by using Dual-energy X-ray absorptiometry (DEXA). A BMD T-Spine value higher than -1 were considered as normal bone quality and the value between -1 and -2.5 were considered as osteopenia. A physiotherapy program, beginning at first day postoperatively, was applied for all patients, twice a week, through 12 weeks. Wrist and forearm range of motions (wrist flexion, wrist extension, ulnar deviation, radial deviation, forearm supination, forearm pronation), severity of pain, oedema and grip strength were assessed at 3rd week and 12th week postoperatively after ending of physiotherapy program. Physiotherapy gains of patients with normal bone quality (group 1, n=13) and patients with osteopenia (group 2, n=18) were compared.

Results: Median (min-max) BMD-T spine value was -0.3 (-0.7-1.0) for group 1 and -1.75 (-1.3 - -2.3) for group 2. At baseline, there were no statistically significant differences between groups in terms of evaluated parameters ($p > 0.05$). In-group analyses showed that all evaluated parameters except forearm pronation were significantly improved in both groups ($p < 0.05$). Changes of the measurements in both groups were

similar and no significant differences were found in between-group analyses ($p > 0.05$).

Conclusions: Physiotherapy gains of osteopenic patients with distal radius fractures were similar to patients with normal bone quality after 12 week treatment program. Wrist and forearm range of motions, severity of pain, oedema and grip strength of osteopenic patients can be improved like that of patients with normal bone quality after distal radius fracture by implementing physiotherapy program.

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AB1437-HPR THE EFFECTS OF SHORT FOOT EXERCISE ON PAIN, KNEE AND FOOT BIOMECHANICS IN PATIENTS WITH PATELLOFEMORAL PAIN

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Background: It was well known that patellofemoral pain (PFP) has multifactorial aetiology. Increased navicular drop measures and especially more pronated foot posture in stance phase have been reported as distal factors.^{1,2} Foot orthosis are recommended as distal interventions but remained passive.³ For this reason, short foot exercise (SFE),⁴ as an active approach, may be of significant benefit in patients with PFP.

Objectives: The aim of this study was to investigate the effects of SFE on pain, knee and foot biomechanics in patients with PFP.

Methods: Twenty-two patients with PFP, mean age was 40.91±10.73, included in this study. They were randomly divided into two groups. The first group (KHE) was followed under the exercise program including knee and hip exercises, and the second group (SFE) was followed under SFE in addition to the same exercise program 2 days per a week for 6 weeks. At the beginning and the end of the study, for pain at walking, sitting, squatting, climbing stairs Visual Analogue Scale (VAS) and Kujala Patellofemoral Symptom Scale (KPSS); for knee and foot biomechanics measurement of Q angle, Navicular Drop Test (NDT), Calcaneo-tibial angle (CTA) and Foot Posture Index (FPI) were performed.

Results: As a result of this study, it was found that all parameters were improved in both groups, whereas the improvements in the pain intensity (VAS) of sitting and stair activities, values of Q angles, NDT, CTA and FPI were statistically significant in SFE group compared to KHE group ($p < 0.05$).

Conclusions: In conclusion, it was shown that SFE has positive effects on pain, knee and foot biomechanics in patients with PFP. At this point, SFE is an exercise approach in order to increase the success of the rehabilitation program in patients with PFP.

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