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Relationship Between Lower Extremity Alignment and Hallux Valgus in Women.

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Abstract

Background: Most previous studies on hallux valgus focused on the possible relationship between this deformity and muscles and/or ligaments in the foot and lower leg. Very little is known about the relationship between hallux valgus and alignment of the proximal joints. The aims of the present study were to determine the extent to which lower extremity alignment characteristics of the hip, knee, ankle, and foot were related to the manifestation of hallux valgus and to identify variables predicting its development in women.

Methods: A group of 25 women with hallux valgus and 24 control women, age 51 to 80 years, were interviewed and screened for the current study. Measurements recorded were hallux valgus angle; intermetatarsal angle; a set of body physique measures (eg, height); range of motion at the hip, knee, ankle, and foot joints; general hypermobility; lower extremity alignment (eg, tibiofemoral angle); and 9 anatomical anomalies (eg, knee valgus/varum).

Results: Women with hallux valgus manifested notably higher range of motion at their joints, different lower extremity alignment, higher prevalence of general joint hypermobility, and higher prevalence of anatomical anomalies compared with controls.

Estimated marginal means for most joint range of motion and lower extremity alignment measurements were notably higher for the hallux valgus group.

Conclusion: Lower extremity alignment and joint range of motion were correlated with hallux valgus. Future studies could possibly identify anatomic risk factors for the development of hallux valgus, nonsurgical methods of prevention and adjunctive surgical methods of treatment.

Level of evidence: Level III, comparative case series.

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Extracorporeal Shock Wave Therapy (ESWT) as a treatment for recurrent Neurogenic Heterotopic Ossification (NHO).

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Abstract

Primary objective: To describe the effects of extracorporeal shock wave therapy (ESWT) on neurogenic heterotopic ossification (NHO).

Research design: A single case study was considered the most appropriate methodology in this situation.

Methods and procedures: The subject was a 43 year old female 10 years post-traumatic brain injury with recurring NHO around the hip joint. Baseline assessments of pain using a 10-point VAS, range of motion of the hip using a goniometer and walking ability (number of steps over a standard distance) were conducted. Four applications of ESWT using a Minispec™ Extracorporeal Shock Wave Lithotripsy machine (Medispec Int. USA) administered over 6 weeks to the anterolateral aspect of the right hip. Follow-up assessments were conducted weekly over the period of intervention and then monthly for 5 months.

Main outcomes and results: Immediately following treatment, pain was reduced to 0 on the

VAS scale; hip range of motion increased and the number of steps over a standard distance reduced, indicating increased step length. At 5-month follow-up, without further ESWT intervention, these results were maintained.

Conclusion: This case study suggests that ESWT may be a non-invasive, low risk intervention for the management of NHO.

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The effect of non-weight bearing group-exercising on females with non-specific chronic low back pain: A randomized single blind controlled pilot study.

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Abstract

Objective: The aim of this study was to investigate the effect of active non-weight-bearing (NWB) group exercising on women with non specific chronic low back pain (NSCLBP).

Methods: Forty females with NSCLBP were assigned in a randomized control longitudinal single blinded pilot study. 20 of them were assigned to a NWB bi-weekly group exercise class and 20 females were included in the control group. The exercises involved the entire lumbo-pelvic spine aimed at improving lumbar mobility/flexibility and stability. Pain intensity (VAS), back specific disability (Rolland Morris questionnaire-RMQ), and lumbar flexion and extension ranges of motion measurements were taken prior to intervention ($t_{\{0\}}$), immediately following 4 weeks of intervention ($t_{\{1\}}$) and 8 weeks later ($t_{\{fu\}}$). Reliability trials were conducted on 10 females. Non-parametric tests were used for statistical significance ($p < 0.05$).

Results: The following significant changes in outcome measures were indicated at $t_{\{1\}}$ compared with $t_{\{0\}}$ and control group ($p < 0.001$): an increase in lumbar flexion and extension (mean difference= 9.26° (+54%) for flexion and 5.95° for extension (+98%)); reduction in VAS score (mean difference=2.32 (+58%)) and RMQ score (mean difference=4.9 (-34%)). All changes

remained significant at $t_{\{fu\}}$. At $t_{\{0\}}$, lumbar flexion was correlated with extension ($r=0.547$) and VAS ($r=-0.581$), whereas the RMQ score correlated with VAS score ($r=0.599$) and negatively with lumbar extension ($r=-0.665$). At $t_{\{1\}}$, lumbar flexion correlated with extension ($r=0.664$) and negatively with RMQ score ($r=-0.54$). At $t_{\{fu\}}$, changes in VAS score were negatively correlated with changes in lumbar flexion ($r=-0.522$), while changes in lumbar flexion correlated with extension ($r=0.58$).

Conclusions: A functional program of NWB group exercising improves functional, painful status, lumbar flexion and extension ranges of motion in women suffering from NSCLBP.

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The interrater reliability of physical examination tests that may predict the outcome or suggest the need for lumbar stabilization exercises.

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Abstract

Study design: Interrater reliability.

Objectives: (1) To examine the interrater reliability of an existing clinical prediction rule (CPR) to predict the success of lumbar stabilization exercises (LSE), and (2) to examine the interrater reliability of 4 clinical tests that may be useful in determining the need for LSE.

Background: Physical therapists commonly use LSE to manage patients with low back pain. The clinical efficacy of LSE is unclear. A CPR has been previously suggested to identify patients most likely to benefit from LSE. The passive lumbar extension test, lumbar extension load test, active straight leg raise test, and active hip abduction test are 4 clinical tests that may also suggest the need for LSE. The reliability of these tests has not been established sufficiently.

Methods: Thirty patients with low back pain, who participated in a larger randomized clinical trial, underwent all tests by 2 independent examiners. Kappa coefficients with 95% confidence intervals (CIs) were calculated to establish the interrater reliability of the CPR and individual tests.

Results: The interrater reliability of the CPR was excellent ($\kappa = 0.86$; 95% CI: 0.65, 1.00). The

interrater reliability of the individual items making up the CPR, as well as that of the passive lumbar extension test, was substantial ($\kappa = 0.64$ - 0.73 and $\kappa = 0.76$, respectively; 95% CI: 0.46, 1.00). The interrater reliability of the active straight leg raise test ($\kappa = 0.53$; 95% CI: 0.20, 0.84) and lumbar extension load test ($\kappa = 0.47$; 95% CI: 0.14, 0.78) was moderate. The interrater reliability of the active hip abduction test was poor ($\kappa = -0.09$; 95% CI: -0.35, 0.27).

Conclusion: With the exception of the active hip abduction test, all other clinical tests can be considered sufficiently reliable for clinical use. The relatively small sample size likely contributed to the fairly wide confidence intervals around some of the reliability indices.