

Short-Term Effects of Kinesiology Taping on Shoulder Pain and Function in Individuals With Hypermobile Ehlers-Danlos Syndrome

Brittany Work, OTD, OTR/L¹, David Levine, DPT, FAPTA², Michael Healy, PT, DPT³

¹University of Tennessee at Chattanooga, Chattanooga, Tennessee, United States; ²Erlanger Health Care System, Chattanooga, Tennessee, United States; ³Healy Physical Therapy, East Providence, Rhode Island, United States

DOI: 10.5014/ajot.2022.76S1-PO52

Date presented: April 1, 2022

Primary Author and Speaker: Brittany Work, work.brittany@gmail.com

PURPOSE: Hypermobile Ehlers-Danlos Syndrome (hEDS) is a common connective tissue disorder affecting as many as 1/5,000 individuals (Tinkle, 2017). Clinically, symptoms include joint laxity, recurrent joint dislocations, generalized chronic pain or musculoskeletal pain in at least 2 limbs, and mild skin hyperextensibility (Tinkle, 2017). An estimated 85% of patients with hEDS experience shoulder pain (Rombaut, 2010) and function is commonly impaired (Johannessen, 2016). Occupational therapy practitioners are uniquely qualified to work with individuals with hEDS to manage pain, improve function, and improve participation in occupation. Kinesiology taping (KT) is an intervention that may be used by occupational therapy practitioners to decrease pain, increase proprioception, and improve function in individuals with shoulder pain and disability (Ghozy, 2020), however, there is limited research showing the benefits of KT tape in the hEDS population. The purpose of this study was to investigate the short-term effects (0–48 hours) of KT on pain and function in individuals with hEDS.

DESIGN: Experimental, quantitative, single blinded, repeated measures design.

METHOD: Eight female participants with hEDS and bilateral shoulder pain (representing 16 shoulders) were included in this study. Subjects were recruited from a medical database containing patients previously seen with a diagnosis of hEDS. Subjects mean age was 35.6 (SD = 11) and subjects had an average Beighton score (screening technique for hypermobility) of 7.3/9.0. The exclusion criteria included past spinal surgery, past shoulder surgery, cervical injury within one year, previous KT taping of the shoulder, and pregnancy. All subjects received a standardized KT protocol that involved three strips of tape placed around the shoulder and left in place for 48 hours. Outcome measures included the current and average pain over the last 24 hours using a numeric pain rating scale (0–10) before taping and 48 hours later. Function was measured with the Western Ontario Shoulder Instability Index (WOSI) and the Shoulder Pain and Disability Index (SPADI). All outcome measures were conducted by an investigator blinded to the taping intervention.

RESULTS: All data analyses were conducted using SPSS 26.0 (IBM). Paired sample T-tests revealed significant decreases in all pain ratings from pre-taping to 48 hours post taping ($p < .001$). Wilcoxon Signed-Ranks Test indicated significant differences in pre-taping to 48 hours after on both the WOSI ($p = 0.017$) and SPADI ($p = 0.012$). The minimal clinically important differences (MCID) for pain (MCID = 2), SPADI (MCID = 13.2) and WOSI (MCID = 10%) were all surpassed, suggesting changes from the clinical intervention are meaningful for the patient.

CONCLUSIONS: Kinesiology taping may be effective for decreasing shoulder pain and improving function in patients with hEDS up to 48 hours post application, which may lead to enhanced engagement in occupations. Limitations of the study include a small sample size, no control or sham group, and a possible time effect that accounted for the changes in pain and function. Future studies should include a control group for comparison.

IMPACT STATEMENT: OT practitioners are uniquely qualified to work with individuals with hEDS to manage pain, improve function, and improve participation in occupation. The use of KT may provide a viable intervention for decreasing shoulder pain and improving function.

References

- Tinkle, B., Castori, M., Berglund, B., Cohen, H., Grahame, R., Kazkaz, H., & Levy, H. (2017). Hypermobile Ehlers-Danlos syndrome (a.k.a. Ehlers-Danlos syndrome Type III and Ehlers-Danlos syndrome hypermobility type): Clinical description and natural history. *American journal of medical genetics. Part C, Seminars in medical genetics*, 175(1), 48–69. <https://doi.org/10.1002/ajmg.c.31538>
- Rombaut, L., Malfait, F., Cools, A., De Paepe, A., & Calders, P. (2010). Musculoskeletal complaints, physical activity and health-related quality of life among patients with the Ehlers-Danlos syndrome hypermobility type. *Disability and rehabilitation*, 32(16), 1339–1345. <https://doi.org/10.3109/09638280903514739>
- Johannessen, E. C., Reiten, H. S., Løvaas, H., Maeland, S., & Juul-Kristensen, B. (2016). Shoulder function, pain and health related quality of life in adults with joint hypermobility syndrome/Ehlers-Danlos syndrome-hypermobility type. *Disability and rehabilitation*, 38(14), 1382–1390. <https://doi.org/10.3109/09638288.2015.1102336>
- Ghozy, S., Dung, N. M., Morra, M. E., Morsy, S., Elsayed, G. G., Tran, L., Minh, L., Abbas, A. S., Loc, T., Hieu, T. H., Dung, T. C., & Huy, N. T. (2020). Efficacy of kinesio taping in treatment of shoulder pain and disability: a systematic review and meta-analysis of randomised controlled trials. *Physiotherapy*, 107, 176–188. <https://doi.org/10.1016/j.physio.2019.12.001>