Decrease in knee joint pain and increase in function in patients with medial compartment arthrosis: a prospective analysis of valgus bracing


Abstract: We studied a brace designed to decrease loads on the medial tibiofemoral compartment in knees with chronic pain and arthrosis to determine if pain symptoms decreased, function improved, and dynamic gait characteristics altered during walking. Eighteen patients with symptomatic medial compartment arthrosis were fitted with a commercially available brace. All were evaluated after an average of 9 weeks of brace wear, and 13 patients were evaluated after 1 year of brace wear. The Cincinnati Knee Rating System and additional pain scales were used to analyze symptoms and functional limitations. Nine subjects underwent a dynamic gait analysis and were compared with a control group of 11 normal subjects matched for age and walking speed. The brace was worn an average of 7 hours a day, 5 days a week. Following 9 weeks of brace wear, statistically significant improvements were found for all pain parameters, and these improvements continued at the 1 year evaluation. Before brace wear, 78% had pain with activities of daily living, but after the first evaluation, only 39% continued to have such pain, and at the second evaluation, only 31% were so affected. Before brace wear, patients had a walking tolerance of 51 minutes prior to the onset of pain symptoms. At the first evaluation, patients could walk 138 minutes without pain, and after 1 year, they could walk 107 minutes without pain. Before brace wear, 78% rated their overall knee condition as fair or poor whereas at the first evaluation, only 33% continued to provide this rating. No differences were found in the dynamic gait parameters measured with and without the brace. While this brace did not provide the dramatic improvements in symptoms, function, and patient satisfaction obtainable after high tibial osteotomy, it did help the majority of patients. If the goal of brace use is to buy a short amount of time for patients who cannot undergo or wish to avoid osteotomy or knee arthroplasty, then bracing appears to offer a reasonable alternative for short-term pain relief and improved function.