

Increasing the Knee Arc of Motion in Patients with Arthrogyrosis: Minimum Two-Year Follow-Up

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What was the question?

What are the clinical results of proximal femoral shortening, peroneal nerve decompression and posterior knee release in patients with arthrogyrosis at a minimum 2 year follow-up?

How did you answer the question?

A retrospective chart review was performed on all patients with arthrogyrosis presenting to our institution from January 2015 through June 2023. Patients treated with femoral shortening, peroneal nerve decompression and posterior knee release were included. Patients were excluded if they had less than 2 years of follow-up from the index procedure. Ambulatory status, patient demographics, surgical history, orthotic use and range of motion values were obtained from the office visits and physical therapy notes. Fisher's Exact test compared categorical variables. Motion measurements were analyzed using a Friedman test and pairwise comparisons performed using paired Wilcoxon signed-rank tests with Bonferroni correction. Effect size was calculated using Kendall's W with Cohen's interpretation. Multiple Spearman Rho correlation coefficients were calculated to determine if any correlation existed between the data points. A p-value of 0.05 was considered significant.

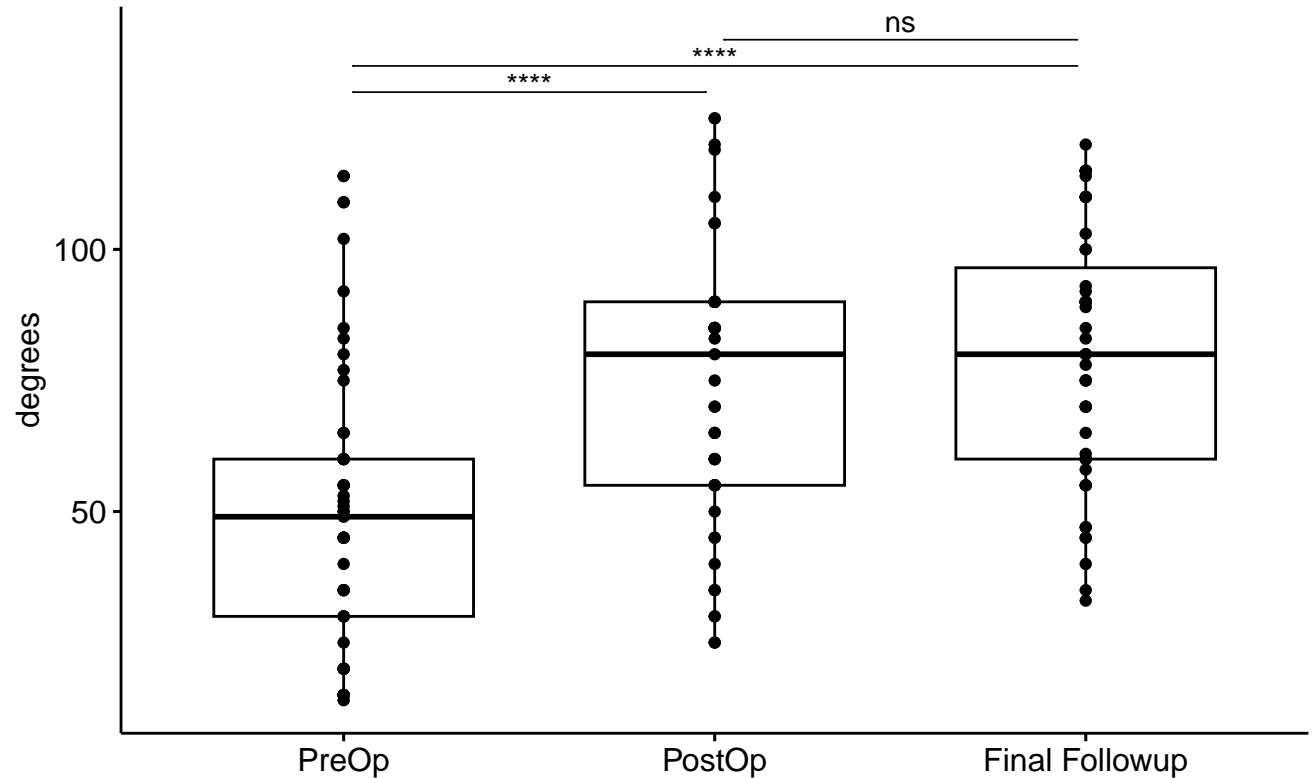
What are the results?

29 patients with 51 knees and a mean age of 5.7 years were included. The mean follow-up was 36.9 months. The median preoperative flexion deformity was 46° and this improved to 10° at the latest follow-up ($p < 0.0001$). The median preoperative knee range of motion was 49° and this improved to 80° at the latest follow-up ($p < 0.0001$) (See Figure 1). Preoperatively, 11 patients were ambulators (37.9%) and 18 were non-ambulators (62.1%). At follow-up, 27 were ambulators and (93.1%) and 2 non-ambulators (6.9%). Of the 27 ambulating patients, 15 patients were community ambulators and 12 were home ambulators. Nine patients used AFOS, 16 patients used KAFOS and two did not require an orthosis. Complications included one intraoperative femur fracture during acute extension. This was fixed with percutaneous wires that were removed at 3 weeks postoperatively. One patient/two limbs required revision posterior capsulotomy.

What are your conclusions?

Clinical outcomes of femoral shortening, posterior knee release and peroneal nerve decompression appear promising at a minimum 2-year follow-up with a continued improvement in ambulatory ability and range of motion. Continued surveillance of this cohort is necessary to determine if these improvements are maintained in the mid- and long-term.

Knee Range of Motion



pwc: **Wilcoxon test**; p.adjust: **Bonferroni**