

**Title:** Leg power, pelvic movement and physical activity after periacetabular osteotomy. A prospective cohort study.

**Authors:**

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**Abstract**

**Purpose** In this cohort study, we investigated changes in leg power, pelvic movement, physical activity and patient-reported outcome in patients with hip dysplasia one year after periacetabular osteotomy.

**Methods** Forty-one patients (7 males) with a mean age of 28.8 years scheduled for periacetabular osteotomy were included consecutively. Patients were tested before surgery, and 4 and 12 months after. Leg power was tested in a leg extension power rig and pelvic range of motion was measured with an inertia-based measurement unit. Patient-reported outcome was assessed with the Hip and Groin Outcome Score (HAGOS). Physical activity was monitored at 4 and 12 months with tri-axial accelerometers.

**Results** One year after surgery, power in the operated leg had improved ( $p=0.004$ ) and there was no significant difference between power in the operated leg and contralateral leg ( $p=0.22$ ). In the frontal

plane, pelvic range of motion decreased significant during stair-climbing and stepping down. The same pattern was seen in the sagittal plane but the changes were non-significant. All subscales on the HAGOS improved significantly over time ( $p < 0.001$ ). Accelerometer data showed no significant change in time spent sitting ( $p = 0.89$ ), standing ( $p = 0.57$ ), walking ( $p = 0.09$ ), running ( $p = 0.95$ ), or in the number of sit-to-stand transfers ( $p = 0.55$ ). But at 12 months after surgery, patients cycled significantly less than at 4 months ( $p = 0.04$ ).

**Conclusion** Leg power and pelvic range of motion in patients with symptomatic hip dysplasia improved 12 months after periacetabular but physical activity from 4 to 12 months did not increase.