

## P 462. RISK FACTORS FOR WEAR OF A MODULAR CUP

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**Purpose:** First Generation modular cups have shown cases of increased wear rate. Despite excellent fixation, wear and osteolysis may effect the long-term results of cementless fixation of hip joints. An understanding of the risk factors associated with Polyethylene wear will help in reducing the risk of aseptic loosening.

**Material and methods:** A series of acetabular cups of one design (ABG I) was reviewed radiographically, from explants from autopsies or revisions with times in situ for two to eight years. Investigations included clinical and radiographical review with correlation with wear rate, analysis of retrieved polyethylene liners, appearance, articulating wear and third-body particles as well as backside changes of the explants.

**Result:** In ca. 25 % of the cups reviewed an increased wear rate and osteolysis could be measured. The risk factors confined from the clinic were young and active female patients, high abduction angle and most of all Polyethylene liners less than 6.5 mm thin. Some retrievals showed delamination wear and were covered by various particles. Backside wear could not be detected although creep of the polyethylene was seen at the fixation holes of the shell backing. Some osteolysis was observed adjacent to the fixation screw holes indicating possible ingress of particles.

**Conclusion:** Despite excellent clinical results several risk factors could be detected by closely monitoring the appearance of this implant. For wear and related problems these seem to be active female patients with a thin polyethylene liner and a steeply placed cup.

This work has been extremely important in minimising these risks in current designs of modular cups.