

The Rule of Thirds: Quantifying Deficient and Excessive Acetabular Coverage Using the Acetabular Wall Index

Angela Maria Moosmann

To establish the right surgical indication, the evaluation of the acetabular coverage is essential. Moreover, it is crucial for obtaining good outcomes after hip preserving surgery. For quantifying the anterior and posterior coverage, special software, computed tomography or MRI are necessary. This process can therefore be challenging. To obtain the mentioned coverages, the anterior/posterior wall indices were developed. The indices can be assessed on standard anteroposterior pelvis radiographs.

The “Rule-of-Thirds” promises a simpler alternative to detect an excessive or deficient anterior and posterior coverage. Our goal was to assess the validity of the rule mentioned to detect an either deficient or excessive anterior/posterior acetabular coverage.

For this, 161 patients were analysed retrospectively. Each patient was assigned to one of six subgroups and the anterior and posterior acetabular coverage were determined with Hip²Norm, a validated computer software for evaluating acetabular morphology. The corresponding wall indices were measured on standardized anteroposterior pelvis radiographic images and the “Rule-of-Thirds” was applied.

The results showed excellent AUC for detecting excessive and deficient anterior and posterior walls. In conclusion, the “Rule-of-thirds” is a practical, simple and reliable way to classify anterior and posterior femoral head coverage as normal, deficient or excessive using the corresponding acetabular wall index.

Jury:

Prof. Dr. med Moritz Tannast (thesis supervisor)

PD Dr. med Lorenz Büchler (external co-examiner)

Prof. Dr. med Joseph Schwab (internal co-examiner)

Prof. Dr. med Michael Walch (president of the jury)