Congenital Hip Disease in Adults

Reliability and Reproducibility of the Crowe and Hartofilakidis Classification Systems
For classification of CHD in adults the Crowe et al. and Hartofilakidis et al. systems are used most frequently.
Crowe Classification System

Evaluates the amount of femoral head subluxation in relation to the acetabular height
Crowe Classification System
<table>
<thead>
<tr>
<th>Type</th>
<th>Proximal displacement</th>
<th>Femoral head subluxation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crowe I</td>
<td>&lt;10%</td>
<td>&lt;50%</td>
</tr>
<tr>
<td>Crowe II</td>
<td>10-15%</td>
<td>50-75%</td>
</tr>
<tr>
<td>Crowe III</td>
<td>15-20%</td>
<td>75-100%</td>
</tr>
<tr>
<td>Crowe IV</td>
<td>&gt;20%</td>
<td>&gt;100%</td>
</tr>
</tbody>
</table>
Hartofilakidis Classification System

Type A – Dysplasia

Type B – Low Dislocation

Type C – High Dislocation
Hartofilakidis Classification System

**Type A – Dysplasia**

The femoral head is contained within the original acetabulum.
Hartofilakidis Classification System

Type B – Low Dislocation

The femoral head articulates with a false acetabulum that partially covers the true acetabulum.
Hartofilakidis Classification System

Type C – High Dislocation

The femoral head is migrated superiorly and posteriorly to the hypoplastic true acetabulum
Despite a widespread acceptance of the two classification systems, a measure of their reliability has been reported only recently.


Universities of Ulm, Mainz & Dresden
Reported Study of Reliability

- Three observers classified 62 hips with CHD according to the criteria of Crowe and Hartofilakidis
- A high inter- and intraobserver agreement of both systems was demonstrated
- In conclusion, both classification systems can be recommended to compare adult patients with CHD
We have initiated a comparative study before the recently reported one.

In our study they are participating observers from different countries:

- J.B. Hodgkinson, Wrightington Hospital, UK
- A. Chougle, Manchester, UK
- A. Eskelinnen, University of Helsinki, Finland
- G. Babis, University of Athens
- C. Yiannakopoulos, University of Athens
The purpose of our study is to determine the inter- and intraobserver agreement of the two classification systems by examining the radiographs of 210 hips from our personal digital database including different types of CHD.
Limitations of the Crowe classification system

• Radiograph of the whole pelvis needed
• Location of the femoral-neck junction is not easily recognized
• No reference to the anatomy of the acetabulum
Limitations of our classification system

- Difficulty in clarifying borderline cases
Borderline cases should be evaluated with 3D CT
Conclusions:

- Both classification systems are reliable and in common use

- The Crowe classification is based on the degree of femoral head subluxation and is not informative on the pathoanatomy of the acetabulum

- Our classification system focuses on the pathoanatomy of hip joint in different CHD types in adults and facilitates treatment planning

- Thus, use of this classification is more appropriate in clinical practice