






## Supplementary Table S2

Modified FCI scoring of the coxofemoral joint of German Shepherds illustrating the morphometric criteria and the reference values of the radiographic measurements in each investigated grade.

Grade		Morphometric criteria	Reference values of radiographic measurements
A		<ul style="list-style-type: none"> <li>- Perfectly congruent joint</li> <li>- Joint space appears narrow with sharply margined and perfectly parallel articular margins</li> </ul>	<ul style="list-style-type: none"> <li>- Centre edge angle <math>\geq 25^\circ</math></li> <li>- Norberg angle <math>\geq 107^\circ</math></li> <li>- Dorsal acetabular femoral head coverage width index <math>\geq 53\%</math></li> <li>- Dorsal acetabular femoral head coverage area index <math>\geq 54\%</math></li> </ul>
B		<ul style="list-style-type: none"> <li>- Minimal joint incongruence</li> <li>- Joint space appears slightly widened with nonparallel coxofemoral articular margins</li> <li>- Morgan line may be noted</li> </ul>	<ul style="list-style-type: none"> <li>- Centre edge angle (20.8° - 22.3°)</li> <li>- Norberg angle (103° - 103.7°)</li> <li>- Dorsal acetabular femoral head coverage width index (49% - 53%)</li> <li>- Dorsal acetabular femoral head coverage area index (51% - 55%)</li> </ul>
C		<ul style="list-style-type: none"> <li>- Incongruity of the joint (wedged-shape joint space)</li> <li>- Flattening of the craniolateral acetabular rim may be present</li> <li>- Minimal signs of osteoarthritis may be noted</li> <li>- Morgan line may be noted</li> </ul>	<ul style="list-style-type: none"> <li>- Centre edge angle (18.4° - 20.3°)</li> <li>- Norberg angle (100.4° - 100.6°)</li> <li>- Dorsal acetabular femoral head coverage width index (47% - 51%)</li> <li>- Dorsal acetabular femoral head coverage area index (47% - 53%)</li> </ul>
D		<ul style="list-style-type: none"> <li>- Obvious incongruity of the joint</li> <li>- Subluxation may be present</li> <li>- Signs of osteoarthrosis</li> <li>- Morgan line may be noted</li> <li>- Flattening of the craniolateral acetabular rim.</li> <li>- Deformity of the femoral head may be present</li> </ul>	<ul style="list-style-type: none"> <li>- Centre edge angle (15.1° - 16.7°)</li> <li>- Norberg angle (96.1° - 97.2°)</li> <li>- Dorsal acetabular femoral head coverage width index (43% - 47%)</li> <li>- Dorsal acetabular femoral head coverage area index (44% - 48%)</li> </ul>

<b>E</b>		<ul style="list-style-type: none"> <li>- Luxation or distinct subluxations are present.</li> <li>- Severe deformity of the femoral head (mushroom-shaped and flattened)</li> <li>- Signs of osteoarthritis</li> <li>- Morgan line may be noted</li> </ul>	<ul style="list-style-type: none"> <li>- Dorsal acetabular femoral head coverage area index <math>\leq 28\%</math></li> <li>- Centre edge angle <math>\leq 2</math></li> <li>- Norberg angle <math>\leq 82.7^\circ</math></li> <li>- Dorsal acetabular femoral head coverage width index <math>\leq 24\%</math></li> </ul>

- *The gap of values between every two consecutive groups may represent subjects with borderline degrees of hip dysplasia and thus reevaluation after 6 months is recommended by the authors.*
- *Morgan line is a radiodense line extending from the base of the femoral neck to the trochanteric fossa and is the result of new bone formation along the insertion of the joint capsule.*