

Appendix 2:

Definitions of hip osteoarthritis used in the literature

1. Kellgren & Lawrence grading system

<i>Grade</i>	<i>Description</i>
0	No osteoarthritis
1	Doubtful Possible narrowing of joint space medially and possible osteophytes around femoral head; or osteophytes alone
2	Mild Definite narrowing of joint space inferiorly, definite osteophytes and slight sclerosis
3	Moderate Marked narrowing of joint space, definite osteophytes, some sclerosis and cyst formation and deformity of femoral head and acetabulum
4	Severe Gross loss of joint space with sclerosis and cysts, marked deformity of femoral head and acetabulum and large osteophytes

Hips classified as grade 2 or higher were defined as having OA

2. Croft's modification of the Kellgren & Lawrence grading system ("Croft grade")

<i>Grade</i>	<i>Description</i>
0	No change
1	Definite osteophytes only
2	Joint space narrowing (JSN) only (defined as an MJS of $\leq 2.5 \clubsuit$ mm)
3	Presence of 2 of the following: JSN, osteophytosis, subchondral sclerosis (of $\geq 5 \clubsuit$ mm), and cyst formation

<i>Grade</i>	<i>Description</i>
4	Presence of 3 of the following: JSN, osteophytosis, subchondral sclerosis (of ≥ 5 ♣mm), and cyst formation
5	Same as grade 4, but with deformity of the femoral head or total hip replacement due to OA (verified by record view)

3. Croft's measurement of the "minimal joint space" (lateral, superior, axial, medial)

Minimal joint space (MJS) is the shortest distance on the radiograph between the femoral head margin and the acetabular edge.

<i>Grade</i>	<i>Description</i>
0	MJS >2.5 ♣mm
1	MJS >1.5 ♣mm and ≤ 2.5 ♣mm
2	MJS ≤ 1.5 ♣mm

4. Resnick and Niwayama measurement of the joint space (superior, axial and medial)

<i>Grade</i>	<i>Description</i>
0	MJS >3.5 ♣mm
1	MJS ≤ 3.5 ♣mm

5. ACR criteria

ACR 1	ACR 2	ACR 3
Clinical criteria (Classification tree format) Hip pain	Combined Clinical and Radiographic Criteria (Traditional format) Hip pain	Combined Clinical and Radiographic Criteria (Classification tree format) Hip pain

ACR 1	ACR 2	ACR 3
+ Hip internal rotation <math><15^\circ</math> and ESR $\leq 45 \clubsuit$ mm/h (if ESR not available, hip flexion $\leq 115^\circ$) OR	+ at least 2 of the following 3 features:	+ Radiographic femoral and/or acetabular osteophytes OR
+ Hip internal rotation $\geq 15^\circ$ and pain on internal rotation and morning stiffness of the hip $\leq 60 \clubsuit$ min and age >50 years	ESR $<20 \clubsuit$ mm/h Radiographic femoral or acetabular osteophytes Radiographic joint space narrowing (superior, axial and/or medial)	+ ESR $\leq 20 \clubsuit$ mm/h and radiographic axial joint space narrowing

ESR, one-hour erythrocyte sedimentation rate.

6. Clinical osteoarthritis of the hip: positive radiological osteoarthritis combined with pain in the hip region

Hip pain with joint space narrowing (JSN):

- Superior JSN $<3.5 \clubsuit$ mm **and/or**
- Axial JSN $<2.5 \clubsuit$ mm

7. Radiographic index grade according to Lane

Table width=A

<i>Grade</i>	<i>Description</i>
0	Normal (no findings of OA)
1	Possible osteophytes (IRF grade 1) and/or narrowing (IRF grade 1), or isolated definite osteophytes or narrowing (IRF grade ≥ 2)

<i>Grade</i>	<i>Description</i>
2	Definite osteophytes or narrowing (IRF grade ≥ 2) plus cysts or sclerosis
3	3 of the following: definite osteophytes or narrowing (IRF grade ≥ 2), cysts or sclerosis
4	Grade 3 (as above) plus femoral head deformity

Number of IRF (Individual Radiographic Features) scores that correspond to

0=normal, 1=mild, 2=moderate, 3=severe.