# *Kellgren & Lawrence Score

(cf. Kellgren J. H., Lawrence J. S.; Radiological assessment of osteoarthritis; Ann. Rheum. Dis.; 1957; 16; 494-501)

The KLS is a scoring system to classify Osteoarthritis (OA) on the basis of X-ray images. This classification has been commonly used as a research tool in epidemiological studies of OA. It also assists healthcare providers with a treatment algorithm to guide clinical decision-making. In this method the x-ray image is examined by using four distinct parameters. These four parameters are as follows: Osteophytes, Sclerosis, Deformity and Joint space width.

Each parameter is scored independently. The total score of all parameters defines the OA grade. The following table displays the grading system:

### Kellgren & Lawrence Score Board

| Parameter | Result | Score (Points) |
|---|---|---|
| **Osteophytes** | None or doubtful | 0 |
| | Obvious | 1 |
| | Obvious and big | 2 |
| **JSW** | Not narrowed or doubtful narrowed | 0 |
| | Obvious narrowed | 1 |
| | Progressed narrowed | 2 |
| | Joint space partially collapsed | 3 |
| **Sklerosis** | No sclerosis | 0 |
| | Mild sclerosis | 1 |
| | Mild sclerosis with cyst formation | 2 |
| | Sclerosis with cyst formation | 3 |
| **Deformity** | No deformity | 0 |
| | Weak deformity | 1 |
| | Obvious deformity | 2 |

After each parameter has been graded, the addition of all four single scores leads to the total score and grade of OA. There are five grades of OA which are defined by the total score that ranges from 0 to 10 (see table below).

### Kellgren & Lawrence Grade

| Grade | Total Score | Description |
|---|---|---|
| **0** | 0 | No signs of OA |
| **1** | 1-2 | Doubtful narrowing of joint space and possible osteophytic lipping |
| **2** | 3-4 | Definite osteophytes, definite narrowing of joint space, mild sclerosis |
| **3** | 5-9 | Moderate multiple osteophytes, definite narrowing of joint space, mild sclerosis with cyst formation and weak deformity of the bone |
| **4** | 10 | Big osteophytes, definite narrowing of joint space, severe sclerosis and definite deformity of the bone |

**Lateral/medial proportion of the measured total joint space area in percent. This allows a quantitative assessment of joint space area changes.

*** Proportion of the measured joint space area in comparison to the total (lateral/tibial) JSx box area. The size of the JSx boxes is proportional to the width of the tibia. This allows a direct comparison of knees of different widths (for example a comparison between men and women.