

Multi-Component Criteria for Joint Scoring in Rodent Arthritis Models

Inflammation

Measures: extent of active immune response directed against joint

Assessed in: soft tissues near joint, occasionally as infiltrates into joints

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|---|--|
| 0 | Normal |
| 1 | Minimal numbers of inflammatory cells (scattered in perisynovial tissue near small capillaries) |
| 2 | Mild inflammation (a few small focal aggregates, with diffuse minimal perisynovial infiltration) |
| 3 | Moderate inflammation (many small focal aggregates, with diffuse and extensive perisynovial infiltration) |
| 4 | Marked inflammation (many large aggregates and intra-articular fibrin, as well as diffuse and extensive perisynovial infiltration) |

Pannus

Measures: extent to which activated synovial tissue invades the joint

Assessed in: margins and spaces of joints

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|---|--|
| 0 | Normal |
| 1 | Minimal (a few relatively uninfamed fronds affecting the peripheral synovium) |
| 2 | Mild (≤ 2 small plaques of granulation tissue with no or miniscule cartilage erosions) |
| 3 | Moderate (plaques of inflamed granulation tissue clustered at the periphery, with a few small cartilage erosions) |
| 4 | Marked (large plaques of fibrovascular tissue in central joint space and/or extensive cartilage erosions at margins) |

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Erosion

Measures: extent of joint destruction (emphasizing bone)

Assessed in: distal tibia and tarsal bones

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|---|--|
| 0 | Normal |
| 1 | Minimal bone erosion (1 to 2 small, shallow foci) |
| 2 | Mild bone erosion (1 to 4 foci of medium size and depth) |
| 3 | Moderate bone erosion (5 or more foci of medium size that extend partially through the cortical bone) |
| 4 | Marked bone erosion (multiple small to medium foci extending partly or completely through the cortical bone) |
| 5 | Extensive bone erosion (cortical penetration exceeds > 25% of the entire bone length at many sites) |

Osteoclast

Measures: population of cells engaged in bone erosion

Assessed in: distal tibia (near physis) and tarsal bones

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| 0 | Normal (essentially no osteoclasts) |
| 1 | Few osteoclasts (lining < 5% of most affected bone surfaces) |
| 2 | Some osteoclasts (lining > 5% to 25% of most affected bone surfaces) |
| 3 | Many osteoclasts (lining > 25% to 50% of most affected bone surfaces) |
| 4 | Myriad osteoclasts (lining > 50% of most affected bone surfaces) |

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Cartilage

Measures: degree of cartilage matrix degeneration

Assessed in: articular cartilage of joints

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|---|---|
| 0 | Normal |
| 1 | Minimal (loss of toluidine blue staining in superficial layer, especially near joint margins) |
| 2 | Mild (loss of toluidine blue extending up to 25% of cartilage depth, chiefly in joint periphery) |
| 3 | Moderate (loss of toluidine blue extending up to 75% of cartilage depth, usually extending across the entire joint surface) |
| 4 | Marked (loss of toluidine blue extending to the tide mark extending across the entire joint surface) |

Bone

Measures: extent of attempted bone repair

Assessed in: periosteal surface of distal tibia and tarsal bones

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|---|---|
| 0 | Normal |
| 1 | Minimal repair (a few small periosteal osteophytes) |
| 2 | Mild repair (many small periosteal osteophytes) |
| 3 | Moderate repair (many small to medium periosteal osteophytes) |
| 4 | Marked repair (many medium to large large periosteal osteophytes) |
| 5 | Extensive repair (osteophytes along essentially entire lengths of periosteal surface) |