

CPPD Disease Classification Criteria

Entry, exclusion and sufficient criteria plus the 8-domain weighted scoring system for classification of symptomatic calcium pyrophosphate deposition disease.

2023 ACR/EULAR Criteria
Classification Criteria for CPPD Disease
Abhishek et al. • Arthritis Rheumatol
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NOTE Classification (not diagnostic) criteria – apply entry, then exclusion, then sufficient criteria in order; score only if not classified by sufficient criteria.

1 Entry, Exclusion & Sufficient Criteria

Entry criterion: ever had ≥1 episode of joint pain, swelling, or tenderness in a peripheral joint (or an axial joint, e.g. C1/C2, for crowned dens syndrome).

Absolute exclusion: all symptoms are more likely explained by an alternative condition (e.g. rheumatoid arthritis, gout, psoriatic arthritis, osteoarthritis).

Sufficient criteria (classify as CPPD without scoring if either present): **crowned dens syndrome** (clinical + CT/DECT calcific features) or synovial fluid analysis demonstrating CPP crystals in a symptomatic joint.

2 Weighted Scoring Domains (if Sufficient Criteria Not Met)

DOMAIN	LEVELS – POINTS
A • Age	At onset of joint symptoms: ≤60y = 0 • >60y = +4
B • Course	Inflammatory arthritis pattern: none/atypical = 0 • persistent = +9 • one typical acute episode = +12 • >1 typical episode = +16
C • Site	Typical episode joint: 1st MTP = -6 • none = 0 • other joint = +5 • wrist = +8 • knee = +9
D • Metabolic	Related metabolic disease (hemochromatosis, hyperparathyroidism, hypomagnesemia, Gitelman, hypophosphatasia, familial CPPD): none = 0 • present = +6
E • Synovial fluid	CPP crystals absent ≥2 occasions = -7 • absent 1 occasion = -1 • not performed = 0
F • Hand/wrist OA	On imaging (K/L ≥2): none = 0 • bilateral radiocarpal OA = +2 • ≥2 of (STT OA w/o 1st CMC OA, 2nd/3rd MCP OA) = +7
G • CPPD imaging	In symptomatic joint: none on US/CT/DECT = -4 • none on CR only (others not done) = 0 • present on CR, US, CT, or DECT = +16
H • Joint count	Peripheral joints with CPPD on any imaging: none = 0 • 1 joint = +16 • 2–3 joints = +23 • ≥4 joints = +25

3 Classification & Test Performance

Threshold: classify as CPPD disease if entry criterion is met, exclusions are absent, and either a sufficient criterion is fulfilled or the summed domain score is **>56 points**. Imaging of ≥1 symptomatic peripheral joint (CR, US, CT, or DECT) is required if sufficient criteria are not met.

Performance of the full framework (entry, exclusion, sufficient + >56 threshold): **derivation cohort** – sensitivity 97.8%, specificity 87.9%. **Validation cohort** (n=413 definite cases/mimickers) – sensitivity 99.2%, specificity 92.5%; scored subgroup AUC 0.98 (95% CI 0.96–0.99).

Scoring notes: items scored if **ever present in the patient's lifetime**; if >1 item fulfilled within a domain, only the **highest-weighted item** in that domain counts. Synovial fluid analysis requires an examiner trained in compensated polarized light microscopy. Imaging evidence of CPPD refers to fibrocartilage/hyaline cartilage calcification only – do not score synovial membrane, capsule, or tendon calcification.