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The Definition and Diagnostic Criteria for Flexion Instability After Total Knee Arthroplasty Is Highly Variable in the Published Literature

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Background: Flexion instability (FI) is increasingly being recognized as a common reason for failure after total knee arthroplasty (TKA). However, the diagnosis remains loosely defined and is often described by a constellation of symptoms and findings with the exclusion of other clinical entities. The purpose of this study was to examine the definition and diagnostic criteria of FI used in the current peer-reviewed literature.

Methods: Clinically oriented primary research articles reporting on patients who have FI after TKA and published in English from 2010 to 2023 were systematically identified. Included publications were independently evaluated by multiple reviewers to determine how FI was defined. Of articles that defined FI, the diagnostic criteria were evaluated for several metrics including clinical symptoms, physical examination findings, aspiration results, laboratory evaluations, and radiographic parameters.

Results: Of 19 eligible articles, only 58% clearly defined FI, with substantial variation among studies. Of these publications, 89% directly described clinical symptoms and physical examination findings that aided in diagnosis. Also, 74% of authors described using radiographic analysis, 53% used aspiration, and 47% used laboratory values to aid in excluding other causes of failure such as periprosthetic joint infection. Only 16% of authors distinguished FI from mid-FI.

Conclusions: Less than two-thirds of clinical studies focusing on patients who have FI after TKA provided a clear, concrete definition of FI. The use of aspiration, laboratory values, and radiographic factors was highly variable. Importantly, many authors defined the diagnosis loosely without objective criteria, which may hinder comparison between clinical studies. A standardized definition of FI could improve research and clinical care on this topic.