

The Forgotten Joint and Forgotten Spine: Recalibrating Success around the Patient's Experience

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Learning Point of the Article:

The ultimate marker of surgical success is not merely a low pain or disability score but the patient's ability to forget the operated joint or spine in daily life; awareness-based measures such as the Forgotten Joint Score and its emerging spinal analogues capture this experiential restoration and address the ceiling effects that limit legacy patient-reported outcome measures.

Abstract

Introduction: Patient-reported outcome measures have moved to the center of orthopedic and spine research, yet many legacy instruments—the VAS, ODI, KOOS, and generic health-utility tools—suffer from ceiling effects that blunt their ability to discriminate excellent outcomes from merely good ones. The concept of the “forgotten joint” reframes success around the patient's ability to forget that a joint was ever replaced, and the Forgotten Joint Score (FJS) operationalises this idea with demonstrated responsiveness, low ceiling effects, and strong measurement properties across arthroplasty and joint-preserving procedures. This paradigm is now being carried into the axial skeleton through the Forgotten Spine Score (FSS) and a cervical adaptation (FS3-C), which quantify spine awareness rather than residual disability. This editorial examines the evidence underpinning the FJS, the early validation of its spinal analogues, their clinical and health-system relevance in an era of value-based care, and the caveats—cultural adaptation, digital exclusion, and an embryonic spinal evidence base—that must temper their adoption. The most successful operation, ultimately, is the one the patient is free to forget.

Keywords: Forgotten Joint Score, Forgotten Spine Score, patient-reported outcome measures, ceiling effect, value-based healthcare, arthroplasty, spine surgery.

Introduction

Patient-reported outcome measures (PROMs) have, over three decades, migrated from the periphery of orthopaedic and spine research to its conceptual centre [1]. Where surgical success was once adjudicated almost exclusively by the surgeon – through radiographic union, implant survivorship, range of motion, or the absence of complication – the contemporary literature increasingly accepts that the person best placed to judge the value

of an intervention is the patient who lives with its result [2]. This reorientation has produced a rich ecosystem of instruments: The Visual Analog Scale (VAS) for pain [3], the Oswestry disability index (ODI) [4] and Neck Disability Index [5] for spinal disability, the Knee injury and Osteoarthritis Outcome Score [6] and its hip counterpart [7], and generic health-utility tools such as the SF-36 [8] and EQ-5D [9].

Valuable as these legacy measures are, their psychometric

Author's Photo Gallery



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ceilings have become a recognised constraint [10]. As surgical technique, implant design, and rehabilitation have improved, an ever-larger proportion of patients now cluster at the top of these scales, reporting near-complete relief of pain and restoration of function [11,12]. The resulting ceiling effect blunts the ability of an instrument to discriminate between a good outcome and an excellent one, and to detect meaningful change over time – precisely the comparison that matters when evaluating incremental innovation. Many legacy tools also remain anchored in the language of symptoms and impairment, asking patients to rate the pain or difficulty they still experience rather than the degree to which the operated structure has receded from conscious awareness.

It is from this gap that the concept of the “forgotten joint” emerged: the proposition that the ultimate marker of a successful arthroplasty is not a low pain score but the patient’s ability to forget that the joint was ever replaced [13]. The Forgotten Joint Score (FJS) operationalized this idea, and its logic has now been carried into the axial skeleton through the nascent Forgotten Spine Score (FSS). Rather than quantifying residual disability, these instruments measure joint- or spine-awareness in daily life – a subtle but profound shift from cataloguing what remains wrong to capturing how completely a procedure restores unselfconscious living. This editorial examines the evidence underpinning the FJS, the early validation of its spinal analogues, their clinical and health-system relevance, and the caveats that must temper their adoption.

The FJS: From Concept to Validated Instrument

Introduced by Behrend and colleagues in 2012, the FJS was conceived around a single, clarifying question: To what extent is the patient aware of the operated joint during the ordinary activities of daily life? [13] The widely used 12-item version (FJS-12) asks respondents about joint awareness in bed, while sitting, walking, climbing stairs, and during recreation, generating a 0–100 score in which higher values denote greater “forgetting.” The instrument’s deliberate framing – awareness rather than pain or disability – is the source of its principal psychometric advantage.

That advantage has been borne out repeatedly. In a prospective comparison following total hip arthroplasty, Hamilton and colleagues demonstrated that the FJS-12 was more responsive to change between 6 and 12 months than the Oxford Hip Score, with a ceiling effect roughly half that of the legacy measure – a difference with direct consequences for the sample size required to power a clinical trial [14]. Construct validity and test–retest reliability were established early [15], and an English-language validation across hip and knee arthroplasty

confirmed strong measurement properties in a British population [16].

The maturation of the evidence base is best captured by a 2020 systematic review applying the COSMIN framework, which synthesised thirteen studies and reported consistently high internal consistency (Cronbach’s alpha exceeding 0.9), low floor and ceiling effects (generally below 15%), and strong evidence of construct validity and test–retest reliability [17]. The authors highlighted the score’s discriminatory power, specifically among high-functioning patients – the very group in whom legacy instruments saturate – and recommended the FJS for long-term assessment after joint replacement. Population normative values, derived from large general-population samples, now allow an individual’s score to be benchmarked against age- and sex-matched references [18].

Crucially, the FJS has not remained confined to primary arthroplasty. Its reach now extends into joint-preserving and regenerative-adjacent interventions, where preserving native anatomy makes the “forgotten” ideal especially apposite. A 2023 systematic review confirmed favorably low ceiling effects relative to legacy measures across joint-preservation procedures [19]. The instrument has been validated as a responsive tool after hip arthroscopy for femoroacetabular impingement [20] and has shown good validity and high internal consistency following medial opening-wedge high tibial osteotomy [21] – a biologically preserving alternative to replacement. Work defining the patient-acceptable symptom state for the FJS after total hip arthroplasty has further translated the raw score into a clinically interpretable threshold [22], strengthening its utility for individual patient counseling rather than group-level research alone. Threshold work has since extended across procedures, with minimal clinically important difference and patient-acceptable symptom state values now defined for hip and knee replacement [23,24], while studies of joint awareness before and after replacement [25] and cross-cultural adaptations such as the simplified-Chinese version attest to the instrument’s breadth of application [26]. That a metric conceived for the prosthetic joint should prove so portable across procedures and cultures naturally raises the question of whether the same logic can serve the spine.

The Forgotten Spine Score: Adapting the Paradigm to the Axial Skeleton

If the spine has lagged the joint in this conceptual transition, it is not for want of need. Lumbar fusion, deformity correction, and motion-preserving arthroplasty are performed in steadily rising numbers, yet the field continues to rely on instruments – chiefly the ODI, VAS, and disease-specific tools such as the Scoliosis Research Society-22 [27] – that interrogate residual symptoms

and disability rather than the patient's perception of restored, unselfconscious living. Critics have noted that these measures, while excellent at characterising impairment, do not reliably capture whether a patient has stopped noticing their operated spinal segment, and that they may saturate in well-selected surgical cohorts much as their orthopaedic counterparts do.

The FSS answers this gap directly. A multi-institutional protocol published in 2025 set out the development and validation of an 18-item FSS, administered alongside the ODI and refined initially in Italian and Japanese cohorts of patients undergoing lumbar spine fusion for degenerative disease [28]. The instrument is explicitly modelled on the FJS and designed to quantify the extent to which patients forget the operated segment in daily life, with analyses targeting internal consistency, reliability, validity, and – importantly – enhanced sensitivity relative to the ODI. An accompanying pilot study in a Japanese fusion population has begun to populate this framework with empirical data [28].

The paradigm is being adapted regionally as well as anatomically. A distinct cervical adaptation, the Forgotten Spine Surgery Score for Cervical Spine Surgery (FS3-C), has been developed for cervical disc replacement: A 12-item instrument generated from an initial cohort and validated in 97 patients, demonstrating convergent validity against the Neck Disability Index [29]. That motion-preserving disc arthroplasty should be among the first spinal indications to acquire a “forgotten” measure is fitting – the procedure's entire rationale is to restore segmental behaviour so natural that the implant is, ideally, never noticed.

Where direct comparisons exist, the early signal mirrors the arthroplasty experience. By probing awareness rather than disability, the FSS and FS3-C aim to stay sensitive among the high-functioning patients in whom the ODI and the generic EQ-5D cluster near their best values. The ODI quantifies what disability persists, and the EQ-5D summarises generic health utility for economic comparison; the forgotten-spine measures ask the complementary, previously unasked question of how completely surgery returns the spine to the background of a patient's life. These are not competing instruments so much as different lenses, and the case for the newer measures rests on their capacity to see what the others, by design, cannot.

Clinical and Health-System Relevance

The conceptual elegance of the forgotten-structure measures lies in their implicit integration of the entire surgical journey. A patient who genuinely forgets an operated joint or spinal segment is, by definition, one for whom the pre-operative burden has lifted, the intra-operative intervention has been tolerated and healed, and the post-operative course has resolved

without lingering reminders – mechanical, neuropathic, or psychological. Awareness, in this sense, is an emergent summary measure: it captures not a single domain but the aggregate ease with which a patient has navigated and emerged from the whole process of care.

This has practical consequences at the bedside. In shared decision-making, framing the goal of surgery as “forgetting” the joint or spine offers patients an intuitive, experiential benchmark that resonates more readily than a numerical disability index. It reframes the conversation from “how much pain will remain” to “how fully can I return to a life in which I no longer think about this part of my body” – a question many patients are, in truth, asking already. Anchored thresholds, such as the patient-acceptable symptom state, allow clinicians to set realistic, evidence-based expectations and to identify, at follow-up, the patient whose persistent awareness signals an incomplete result deserving further attention [18,23].

The measures also offer a tool for tailoring rehabilitation. A high residual awareness score in an otherwise radiographically perfect result can flag the patient who has recovered structurally but not experientially – prompting targeted physiotherapy, pain-science education, or psychological support that a normal radiograph and a respectable ODI might otherwise obscure. In this way, the forgotten-structure PROMs function less as a verdict than as a prompt: A signal that directs finite clinical attention toward the patients who stand to gain most from it.

At the level of the health system, the forgotten-structure measures arrive at an opportune moment. For decades, the institutional definition of surgical success has rested on outcomes legible to surgeons and payers – implant survivorship curves, fusion rates, complication and revision frequencies, and radiographic alignment. These remain indispensable, but they are increasingly recognised as necessary rather than sufficient. A perfectly aligned, durably fused, complication-free construct that nevertheless leaves the patient perpetually conscious of their spine is, from the patient's standpoint, only a partial success. PROMs that quantify experiential restoration close precisely this gap between technical and lived outcome.

This is the currency of value-based healthcare [30]. As reimbursement models shift from rewarding volume to rewarding outcomes that matter to patients, instruments capable of discriminating excellent results from merely adequate ones acquire direct economic weight. The reduced ceiling effect that makes the FJS statistically efficient in trials is the same property that makes it useful as a quality metric: it can distinguish high-performing services and devices from the rest of the field at the upper end of the performance distribution, where legacy measures see only undifferentiated success. Registries that incorporate these scores stand to generate more

granular benchmarking [31], and policy frameworks that tie funding to patient-Centered outcomes gain a more sensitive yardstick.

The implications for care delivery extend beyond accounting. Routine collection of awareness-based PROMs, ideally through digital platforms integrated with the electronic record, would allow longitudinal tracking of the experiential trajectory of recovery at scale – surfacing under-performing pathways, devices, or providers, and feeding genuinely patient-defined endpoints back into device evaluation, commissioning, and clinical-trial design. Used this way, the FJS and FSS are not merely additional questionnaires but instruments for realigning the entire apparatus of surgical evaluation around the outcome the patient actually sought.

A Measured Appraisal: Limitations and Future Directions

Enthusiasm must be disciplined by candour. The forgotten-structure measures are not free of the problems that beset all PROMs, and several caveats deserve emphasis. Cultural and linguistic adaptation is the most immediate: A score built on the metaphor of “forgetting” may not translate cleanly across languages and health cultures, and rigorous cross-cultural validation – not mere translation – is required before scores can be pooled internationally [26]. The FSS evidence base, in particular, remains embryonic; it rests largely on a study protocol and early pilot data in selected populations, with the spinal instruments yet to accumulate the breadth of independent, multi-centre validation that the FJS now enjoys. Reliance on digital administration, while efficient, risks systematically excluding older or less digitally literate patients – often the very populations undergoing these operations – and may bias the resulting metrics if not actively mitigated.

Important gaps in the literature persist. Long-term, longitudinal

data tracking joint- and spine-awareness over many years are scarce, and the application of these measures to genuinely regenerative interventions – cartilage repair, biologic and cell-based therapies, motion preservation – remains largely aspirational rather than evidenced. The relationship between awareness scores and hard structural endpoints over time is incompletely characterised. Future work should therefore prioritise robust cross-cultural validation, integration with digital health platforms designed for inclusivity, and the exploration of AI-driven analysis to interpret PROM trajectories, detect at-risk patients early, and model the determinants of “forgetting.” Only with this evidence will the measures earn the central role their conceptual appeal invites.

Conclusion

The FJS and its emerging spinal analogues represent more than a refinement of measurement; they embody a shift in what we consider surgery to be for. By asking whether a patient can forget the operated structure, these instruments align the assessment of success with the outcome patients most desire – a return to unselfconscious living – and, in doing so, render procedures more genuinely recommendable on terms patients understand. The FJS has earned that role through more than a decade of validation; the FSS and FS3-C are promising but unproven, and their ascent must be evidenced rather than assumed. With rigorous cross-cultural validation, inclusive digital deployment, and thoughtful integration into the analytic infrastructure of modern care, these measures merit broader adoption across clinical trials, registries, and routine practice. The most successful operation, after all, is the one the patient is free to forget.

Declaration of patient consent: The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given the consent for his/ her images and other clinical information to be reported in the journal. The patient understands that his/ her names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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