necessitates the resolution of technical uncertainties and ethical considerations for cognitively impaired populations.

Doi: 10.64860/scalpel260205

Improving Induction for Resident Doctors and ACPs in General Surgery: A Quality Improvement Project

Authors: Kiriana Lagden[1*]

1: The Rotherham NHS Foundation Trust, Rotherham, United Kingdom
*Corresponding Author: kiriana.lagden1@nhs.net

Background: Resident doctors, including foundation, core, and higher surgical trainees, rotate at varying times throughout the year. Although no evidence suggests that resident changeover adversely affects surgical patient safety, the quality of induction can significantly influence clinician preparedness and satisfaction. The Royal College of Surgeons of England has recommended inclusion of educational induction as a means of enhancing surgical training. In response, a quality improvement project was undertaken to optimise the induction process for resident doctors and ACPs within the General Surgery department at The Rotherham NHS Foundation Trust.

Methods: Two PDSA cycles were conducted between October and December 2024. An initial survey assessed perceived preparedness, confidence in performing key clinical tasks, and gathered recommendations for improvement. A comprehensive General Surgery Induction Guide was then developed, reviewed by senior colleagues, and distributed in November 2024. A follow-up survey guided subsequent revisions, with an updated version released in December 2024.

Results: Only 10% of respondents felt adequately prepared by the previous induction, while all agreed that an induction guide would be beneficial. Confidence in general clinical tasks exceeded that in surgery-specific tasks, e.g. 70% of respondents were confident to request bloods vs 10% were confident to book into emergency theatres. Following implementation of the guide, confidence improved across all 20 assessed tasks, particularly in specialty-specific areas. Feedback described the guide as "excellent and comprehensive" and "a crucial aid for induction".

Conclusions: Implementation of a structured induction guide substantially enhanced clinician confidence and ongoing review will ensure its continued relevance and alignment with evolving clinical practices.

Doi: 10.64860/scalpel260206

Rehabilitation Strategies and Functional Outcomes After Surgery for Sports-Related Traumatic Injuries: An Evidence-Based Review

Authors: Zainab Y Marafie[1*]

1: University of Manchester, Manchester, United Kingdom
*Corresponding Author: zymarafie@gmail.com

Background: Sports-related traumatic injuries, such as anterior cruciate ligament (ACL) rupture, rotator cuff tears, and Achilles tendon ruptures, often require surgical intervention followed by structured rehabilitation. Optimizing post-surgical rehabilitation is crucial for restoring strength, mobility, and safe return to pre-injury activity levels. This review combines current evidence on rehabilitation strategies and functional outcomes after surgery for major sports-related injuries.

Methods: A comprehensive PubMed search was conducted using keywords including "sports injury," "rehabilitation," "surgery," "functional outcomes," and "return to sport." Systematic reviews, meta-analyses, and clinical guidelines published between 2015 and 2025 were included in this analysis. Studies were appraised for methodological quality and relevance to post-surgical rehabilitation principles and outcome measures.

Results: Evidence supports early, criterion-based rehabilitation emphasising progressive loading, proprioception, and neuromuscular control. The Aspetar Clinical Practice Guidelines for ACL reconstruction recommend individualised, goal-driven protocols and objective criteria for return to sport rather than time-based approaches. Meta-analyses of rotator cuff and Achilles tendon repairs indicate that early mobilization accelerates recovery without compromising repair integrity. Adjunctive therapies, such as blood-flow restriction training,

improve quadriceps strength after ACL reconstruction, though results vary. Psychological readiness and functional symmetry consistently predict safe return to sport. Collectively, these findings illustrate that evidence-based rehabilitation strategies directly enhance post-surgical functional outcomes in athletes.

Conclusions: Modern rehabilitation following sports-related surgery should adopt an evidence-based, individualised, and multidisciplinary approach. The rehabilitation plan should integrate early functional activity, progressive strengthening, and psychological assessment. Collaboration among surgeons, physiatrists, and physiotherapists is essential to optimise outcomes and reduce the risk of re-injury.

Doi: 10.64860/scalpel260207

Will Artificial Intelligence Take Over Surgery? A Contemporary Literature Review

Authors: Fatimah Garashi[1*]

1: University of Manchester, Manchester, United Kingdom
*Corresponding Author: fatmaalgrashi@gmail.com

Background: Artificial intelligence (AI) and robotic technologies are reshaping modern surgery, evolving from mechanical aids into cognitive collaborators. Their impact on outcomes, workflow and surgical autonomy remains debated. This review synthesises the highest-level evidence from the past decade examining AI-assisted surgery in humans.

Methods: A comprehensive PubMed and Embase search (January 2015–October 2025) identified peer-reviewed human studies using combinations of "artificial intelligence", "machine learning", "deep learning", "computer vision" and "robotic surgery". Eligible publications included systematic reviews, meta-analyses and large observational cohorts. Thirty-eight studies were narratively appraised and grouped into seven domains: foundational frameworks, comparative outcomes, predictive analytics, intra-operative computer vision, specialty exemplars, training and ergonomics and ethics and safety.

Results: Across high-quality meta-analyses and multicentre cohorts, AI-assisted or robotic surgery consistently reduced blood loss (20-35%), shortened hospital stay (by 1-2 days), and lowered conversion rates (up to 40%) without compromising oncological margins or increasing complications. Machine-learning models outperformed conventional risk scores for morbidity, mortality and postoperative delirium prediction. Computer-vision and augmented-reality systems enhanced anatomical recognition, navigation and instrument precision. Specialty-specific studies demonstrated reproducible advantages in hepatobiliary, colorectal, urological, thoracic and paediatric surgery. Training platforms incorporating AI shortened learning curves and reduced ergonomic strain, while ethical analyses emphasised the necessity of transparency, data security and sustained human oversight.

Conclusions: Evidence from 38 studies shows that AI augments rather than replaces surgical expertise. When ethically implemented, it enhances precision, safety and efficiency across disciplines. The future of operative care rests on a partnership between human judgement and algorithmic insight.

Doi: 10.64860/scalpel260208

Orthoplastics Exposure in Plastic and Orthopaedic Surgical Training: A Literature Review

Authors: Khansa Irfan[1*], Aysa Masoumi[2]

1: Oxford University Hospitals Trust, Oxford, United Kingdom
2: East Lancashire Hospitals Trust, Blackburn, United Kingdom
*Corresponding Author: khansa.irfan@ouh.nhs.uk

Background: Orthoplastics represents a collaborative interface between plastic and orthopaedic surgery, focused on the reconstruction of complex limb injuries. Despite its increasing clinical importance, there is limited literature assessing orthoplastic exposure within plastic surgery and orthopaedic training programmes. This review aims to evaluate training patterns and trainee exposure to orthoplastic procedures.

Methods: A literature review was conducted using PubMed, limited to the last ten years (2015–2025). MeSH terms included "orthoplastic," "plastic surgery," "orthopaedic surgery," and "trainee exposure." Studies assessing operative exposure, educational experiences, or training outcomes in orthoplastic or orthoplastic-type settings were included.