



## PRACTICE-CHANGING UPDATES

### ARTICLES

- 1 [AAOS Systematic Literature Review: Summary on the Management of Surgical Site Infections.](#) FULL ARTICLE ACCESS

McLaren AC, Lundy DW.

**J Am Acad Orthop Surg. 2019 Aug 15;27(16):e717-e720.**

PMID: 30601372

A systematic review to improve outcomes for orthopaedic surgical site infection care from best evidence. 10 recommendations and 5 consensus statements addressing diagnosis and treatment were made. Strong evidence supports anemia, obesity, HIV/AIDS, depression, dementia, immunosuppressive medications, length of hospital stay, history of alcohol abuse and congestive heart failure as factors increasing infection risk. Synovial fluid and tissue cultures are strong "rule-in" tests for diagnosis but do not reliably exclude infection when negative. C-reactive protein is a strong rule-in and rule-out marker for patients with suspected surgical site infection. Therapeutically, 8-week antimicrobial protocols were associated with outcomes not inferior to that from 3-6-month protocols only for patients with retained implants. For these patients, rifampin as a 2<sup>nd</sup> antimicrobial increases probability of treatment success for staphylococcal infections.

## TECHNOLOGY AND MEDICINE

### ARTICLES

- 1 [Implant Engineering in the Age of Biologics.](#) FULL ARTICLE ACCESS

Bernthal NM, Park HY, Zoller SD, Petrigliano FA.

**J Am Acad Orthop Surg. 2019 Aug 1;27(15):e685-e690.**

PMID: 31107686

Implants and their technological advances have been a key component of musculoskeletal care. Modern implants are designed to enhance bone ingrowth, promote soft-tissue healing and prevent infection. Porous metals and short-stem fixation devices have rendered previously unreconstructable bony deficits reconstructable. Stem cells, growth factors and novel biocompatible compounds have been made to enhance soft tissue attachment to implants. Antimicrobial modifications have been engineered onto implants to deter bacterial attachment while surface modifications and eluting technologies may be in the near future. Yet marketing claims of innovation often exceed scientific accomplishment- necessitating vigilance in distinguishing transformational discovery from unsubstantiated claims.



## TABLE OF CONTENTS

PRACTICE-CHANGING UPDATES		View Summary	View Article
1	<b>AAOS Systematic Literature Review: Summary on the Management of Surgical Site Infections.</b> <a href="#">FULL ARTICLE ACCESS</a>		

TECHNOLOGY AND MEDICINE		View Summary	View Article
1	<b>Implant Engineering in the Age of Biologics.</b> <a href="#">FULL ARTICLE ACCESS</a>		

HAND SURGERY		View Summary	View Article
1	<b>Adult Traumatic Brachial Plexus Injuries.</b>		
2	<b>Management of Recalcitrant Carpal Tunnel Syndrome.</b>		
3	<b>Trigger Finger Corticosteroid Injection With and Without Local Anesthetic: A Randomized, Double-Blind Controlled Trial.</b>		
4	<b>In Vivo Measurement of Thumb Joint Reaction Forces During Smartphone Manipulation: A Biomechanical Analysis.</b>		
5	<b>Etiology, Evaluation, and Management Options for the Stiff Digit.</b>		
6	<b>Indications for Replantation and Revascularization in the Hand.</b>		



## HAND SURGERY

### ARTICLES

1 **[Adult Traumatic Brachial Plexus Injuries.](#)**

*Noland SS, Bishop AT, Spinner RJ, Shin AY.*

**J Am Acad Orthop Surg. 2019 Oct 1;27(19):705-716.**

*PMID: 30707114*

Adult traumatic brachial plexus injuries are devastating and increasing in frequency. Evaluation includes detailed physical examination, radiologic and electrodiagnostic studies. Critical concepts in surgical management include knowledge of injury patterns, surgery timing, prioritising function restoration and managing patient expectations. Treatment options include neurolysis, nerve grafting or transfers and should generally be performed within 6 months of injury. Use of free functioning muscle transfers can improve function in acute and late settings. Modern patient-specific management often permits consistent restoration of elbow flexion and shoulder stability with potential hand prehension. Understanding basic concepts of managing this injury is essential for all orthopaedic surgeons treating trauma patients.

2 **[Management of Recalcitrant Carpal Tunnel Syndrome.](#)**

*Lauder A, Mithani S, Leversedge FJ.*

**J Am Acad Orthop Surg. 2019 Aug 1;27(15):551-562.**

*PMID: 30973521*

Recalcitrant carpal tunnel syndrome (CTS) is a clinical challenge. Potential etiologies of persistent or recurrent symptoms after 1° carpal tunnel release include incomplete nerve decompression, 2° sites of nerve compression and associated conditions, unrecognized anatomic variants, irreversible nerve pathology from chronic compression neuropathy, perineural adhesions, iatrogenic nerve injury or inaccurate preoperative diagnosis. Understanding surgical anatomy and pathophysiology is key to diagnosis and treatment. Thorough clinical history and examination guide comprehensive diagnostic evaluation including serial examinations, neurophysiologic and imaging studies. Conservative treatment may provide symptom relief but surgery (e.g. revision neuroplasty, neurolysis, nerve reconstruction) may be indicated in refractory cases.

3 **[Trigger Finger Corticosteroid Injection With and Without Local Anesthetic: A Randomized, Double-Blind Controlled Trial.](#)**

*Patrinely JR Jr, Johnson SP, Drolet BC.*

**Hand (N Y). 2019 Nov 5:1558944719884663.**

*PMID: 31690121*

Corticosteroid injection is 1<sup>st</sup> line treatment for trigger finger. The injectable solution is often prepared with a local anesthetic which the authors hypothesize causes more pain at time of injection. In this prospective double-blinded study, patients with trigger finger were randomized to receiving triamcinolone (1 mL, 40 mg) with 1% lidocaine and epinephrine (1 mL) or triamcinolone (1 mL, 40 mg) with normal saline (1 mL, placebo). 1° outcome was pain measured using visual analogue scale immediately after injection. 73 patients (110 trigger fingers) were enrolled (57 lidocaine with epinephrine, 53 placebo). Immediate post-injection pain scores were significantly higher for injections containing lidocaine with epinephrine vs. placebo (VAS 3.5 vs. 2.0). Results suggest for trigger finger treatment, corticosteroid injections alone are effective and have less injection-associated pain than that with lidocaine and epinephrine, although the trade-off in foregoing short-term anesthesia should be discussed with patients.



4 [In Vivo Measurement of Thumb Joint Reaction Forces During Smartphone Manipulation: A Biomechanical Analysis.](#)

*Kim W, Kim Y, Park HS.*

**J Orthop Res. 2019 Nov;37(11):2437-2444.**

PMID: 31286563

The relationship between thumb arthritis or repetitive stress injuries (RSIs) and greater smartphone use is not fully known. This study explores a possible link by calculating axial joint reaction forces (AJRFs) and thumb torques in 19 healthy subjects as they performed typical smartphone tasks (e.g. tapping, tap games, swiping). Findings were then compared with activities such as computer keyboard typing and handwriting. Results showed AJRFs and torques were significantly higher during tap gaming activities than simple tapping tasks. Compared with that during computer keyboard typing, mean thumb carpometacarpal joint (CMCJ) AJRFs and torques during smartphone tapping was also 3X and 1.4X greater, respectively. With increasing smartphone use, long-term exposure to repetitive AJRFs and torques may accelerate thumb arthritis or aggravate RSI.

5 [Etiology, Evaluation, and Management Options for the Stiff Digit.](#)

*Catalano LW 3rd, Barron OA, Glickel SZ, Minhas SV.*

**J Am Acad Orthop Surg. 2019 Aug 1;27(15):e676-e684.**

PMID: 30475280

Stiff digits may be due to trauma or hand/ finger surgery and can markedly affect function and quality of life. Factors affecting stiffness and contractures include joint, intrinsic, extensor and flexor tendon pathology and individual patient biology. Understanding of anatomy, function and relationship of these structures on finger joint range of motion is crucial for interpreting physical examination findings and preoperative planning. In most cases, nonsurgical management is 1<sup>st</sup> line and consists of hand therapy, static and dynamic splinting and/or serial casting- with surgery considered in those with more extensive contractures or who do not improve with conservative management. Assuming no bony block to motion, surgery consists of open joint release, tenolysis and external fixation devices. Outcomes after treatment depend on the joint involved, contracture severity, patient compliance with formal hand therapy and a home exercise program.

6 [Indications for Replantation and Revascularization in the Hand.](#)

*Pet MA, Ko JH.*

**Hand Clin. 2019 May;35(2):119-130.**

PMID: 30928045

Indications for upper extremity replantation are fluid and change with time. Traditional indications include hand, thumb, or multiple digit amputation in adults and almost any amputation in a child. Advancements in microsurgical capabilities have made revascularisation or replantation increasingly feasible and shifted the focus from "can we replant this amputated part?" to "should we?" Patients often desire replantation of single non-thumb digits for aesthetic/ personal/cultural reasons. Replantation here is acceptable and rewarding but requires reconciliation of multiple patient, injury and circumstantial factors often pointing the surgeon in opposite directions, but remain critical to avoid morbidity and unsatisfactory outcomes. This article provides a brief history on the development of traditional indications for upper extremity replantation/ revascularisation and offers perspectives on this shared-decision between patient and surgeon.



## SELF-LEARNING MODULES

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Check out the Hand Surgery [Self-Learning Modules](#) on the AMS website!

Unlimited attempts, with 5 CME points awarded on successful completion of each module.

