Osteoarthritis BASE of THUMB– Allied Health Professionals Clinical Guideline

TARGET AUDIENCE	Allied Health Professionals working within acute and secondary care.
PATIENT GROUP	Adult population with suspicion of Osteoarthritis base of thumb and/ or radial wrist /hand and thumb pain

Clinical Guidelines Summary

- Osteoarthritis (OA) at the base of the thumb affects the 1st carpometacarpal joint (CMCJ). Prevalence increases with age.
- Symptoms are often aggravated by pincer gripping and pinching.
- Clinical diagnosis in the absence of imaging can be made where patients report activity related joint pain and morning stiffness lasting less than 30 minutes.
- Evidence supports use of palpation and grind test in determining diagnosis.
- Pincer/Pinch strength and 9-hole peg tests are helpful as measurable repeatable objective tests.
- Consider differential diagnoses and special tests to rule out other conditions/presentations.
- Consider Red Flags, escalation and/or appropriateness of onward referral.
- 1st line management should include activity modification, advice with regards diagnosis, signposting to evidence based patient literature, commencement of stability exercises, Activities of Daily Living (ADL) review, provision of information on useful equipment and the considered provision of prefabricated thumb orthosis.
- 2nd Line management should include escalation to an Advanced Practitioner (AP) or Hand Therapist for clinical discussion and where indicated second opinion with options to explore custom made orthoses and possible corticosteroid injections (CSI's).
- Where symptoms are not responding/ improving consider peer review – senior therapist review- AP Hand Therapist review and possible escalation.
- Secondary Care: Orthopaedic Referral pathway through Virtual Combined Clinic (VCC) and/or Hand Therapist second opinion review.
- Surgical choice of management is CMCJ Arthroplasty or Trapeziectomy. Surgical technique and post-operative guidance can vary depending on patient age, profession and severity of OA. Consider post-operative guidance and requests made by the operating surgeon.

OA BASE of THUMB– AHP Clinical Guidelines

Guideline Body

Table of Contents

DESCRIPTION:

OA BASE of THUMB– AHP Clinical Guidelines

Osteoarthritis (OA) at the base of the thumb affects the 1st carpometacarpal joint (CMCJ).

In some cases, degenerative change will involve the scaphoid, trapezium and trapezoid bones and joints (STT).

OA at the base of the thumb can affect up to 15% of the population and is more commonly found in post-menopausal woman with up to 25% of woman over 55 years being affected. The prevalence of OA at this site increases with age (7,18).

Often patients will report radial sided wrist and thumb pain with possible reports of grinding/clicking or crepitus.

Subluxation of the joint and/or Z deformities can develop in severe cases (flexion of the CMCJ, hyperextension of the Metacarpophalangeal joint (MCPJ) and flexion of the Interphalangeal joint (IPJ). Subluxation at the MCPJ occurs as a consequence of a patients attempt to increase the functional capacity for grip where the first web space has reduced (first dorsal interosseous weakness). This causes the MCPJ to hyperextend leading to increased pull of extensor pollicis brevis (EPB) (1,5).

Loss of thenar eminence bulk may also be noted.

Symptoms are often made worse with pincer gripping and pinching (7).

DIAGNOSIS:

Adults aged 45 years and over can be diagnosed with OA clinically without imaging if they report activity related joint pain and morning stiffness lasting less than 30 minutes (14).

Radiological evidence of disease does not necessarily correlate to degree of symptoms experienced by the individual (2, 13).

PHYSICAL EXAMINATION:

Palpate:

CMC joint line and for STT pain

Pain provocative Tests:

Grind Test: Axial compression and rotation applied to thumb CMCJ. Test is positive if patient reports pain and/or crepitus (2,10).

Thumb Grind Test Assessment - YouTube

The Physio Channel

Thumb Extension Test: Firm extension force applied to end range. Test is positive if pain is reported at the CMCJ (2,6).

Objective Tests:

OA BASE of THUMB– AHP Clinical Guidelines

Nine – hole Peg Test (Neuromuscular): A timed test of a patient ability to input narrow pegs from a shallow bowl to holes within a board and back (2,9).

9-Hole Pegboard Assessment (youtube.com)

Performance health

Pinch Strength: With use of a Pinch Gauge Dynamometer, Key, Lateral and Tripod pinch grip can be tested and compared to contralateral side as well as age norm values (11).

Pinch Strength Testing - Everything You Need To Know (youtube.com)

The Upper Hand

IMAGING:

X-ray imaging is not necessary to establish a diagnosis as this can be made clinically following examination however its value should be considered to establish disease progression or as a means of investigation when the patient is not responding to conservative treatment as expected. In moderate to severe cases, it may aid decisions around surgical options (13).

Consider when requesting imaging to report radial wrist and thumb pain to ensure views of the carpal bones and wrist distal to the CMCJ.

DIFFERENTIAL DIAGNOSIS:

- STT OA
- Scaphoid Fracture
- Scapholunate instability
- De'Quervain's Tendinopathy
- 2nd compartment insertion syndrome or distal insertion syndrome (DIS) Tenosynovitis
- Carpal Tunnel Syndrome (CTS)
- Instability CMCJ or MCPJ
- Radial nerve or Cervical root compression
- Trigger Thumb

1st LINE MANAGEMENT:

Advice and education on OA diagnosis and management.

Advice on activity modification and joint protection.

OA BASE of THUMB– AHP Clinical Guidelines

Mobility, Strengthening and Stability exercises with focus on technique and best alignment (see NHS Inform, versus arthritis, knowledge network links and NHS Lanarkshire OA thumb leaflet within References and Evidence).
The aim of a stabilisation programme would be to address ligamentous laxity and overload pertaining to joint instability, imbalance, pain and functional deformity (5,12).

There is a general acceptance that developing muscular strength can take upwards of 12 weeks therefore it is recommended that 12-15 weeks should be given for optimal effect (8).

Splinting trial - good fitting elastic thumb spica for 6 weeks (pre-fabricated).
Functional splinting such as Push/Jura Splints (Jura being the least expensive option) and Rhizo Forte splints (provides both CMCJ and MCPJ support but positions the thumb into extension rather than functional opposition) could also be considered (1,16,17).
Kinesiotaping can be explored with patients unable to tolerate splinting or as a step down from splinting (19).

Small aids are no longer provided within primary or secondary care however, these sites below can help direct patients to impartial advice regarding small aids, which aim to make their lives easier
South Lanarkshire: Equipu - AskSARA
and **Ask SARA**
North Lanarkshire: www.makinglifeeasier.org.uk

REVIEW:
6 weeks (dependent on local procedure patient care may be placed on hold), however where patients are working to improve thumb stability it would be beneficial for follow up between 6 and 12 weeks.

Treatment with limited evidence

Acupuncture; recent NICE guidance (2022) reports it has insufficient evidence of cost-effectiveness for any recommendation to be made on its provision by the NHS. There is also lack of evidence for use of Glucosamine products, chondroitin and topical rubefacients (13).

Diagnosis CMCJ OA not established:

Consider Red Flags /Serious Pathology and PMH

Serious Pathology	Refer	Investigation and Escalation	Symptoms	Risk Factors

OA BASE of THUMB– AHP Clinical Guidelines

Inflammatory signs	GP	Advise bloods /imaging and referral to Rheumatology Positive C-Reactive protein (CRP), erythrocyte sedimentation rate (ESR), Plasma viscosity (PV), +ve HLA B27 test, +ve anti- cyclic citrullinated peptides (Anti-CCP)	• AM pain and joint stiffness > 30 minutes • Nocturnal sleep disturbance latter half of the night • Evidence of synovitis predominately affecting MCPJ's • Redness and warmth at the joint • Symptoms worse with rest and better with movement	• History of inflammatory arthritis. Consider conditions such as gout • History of autoimmune conditions such as psoriasis, IBD and issues with eyes such as uveitis • Raised inflammatory blood markers ESR/CRP and/or altered blood results such as +ve HLAB27, +ve Anti CCP • Consider asking about spinal arthropathy including sacroiliac pain
Infection signs	Orthopaedics/ Accident and Emergency (A&E)		• Red, hot, swollen, painful • Wound leakage • Foul smell at wound • Systematically unwell, malaise • Fever • Gross restriction of movement • Severe pain with no history of trauma • Night pain	• History of Human Immunodeficiency Virus (HIV), Intravenous Drug User (IVDA), Tuberculosis (TB), immunosuppressed, poorly controlled diabetic • Onset post trauma, wound other infection • History of inflammatory arthritis • Consider any minor trauma however small such as animal scratches , insect or human bites, post joint injection
Injury/ Dislocation	Orthopaedics/ A&E	Advise imaging and Orthopaedic opinion if already within the service (referred by	• loss of movement + abnormal shape / deformity • Un-resolving	• Intoxication • Poor recall of event of injury/ difficult establishing mechanism • Vulnerable adult

OA BASE of THUMB– AHP Clinical Guidelines

		fracture/orthopaedic clinic) Referral to A&E if you are the first contact practitioner and patient is reporting trauma with symptoms	pain over site • Reduced active and passive movement • Red, swollen, bruised • Minor trauma (history of osteoporosis)	• Osteoporosis/Osteopenia • History of fractures • History of abuse
Cancer/Tumour	GP/Ortho		• Atypical mass / swelling • Malaise • Unremitting or increasing pain • Weight loss • Systemically unwell • Night pain and disturbed sleep • Exquisite localised tenderness	• Past medical history of Cancer • Pain with no history of injury • Unexplained weight loss Final-Published-WoS-Guidelines-for-Malignant-Spinal-Cord-Compression-v2.0.pdf (scot.nhs.uk) –
Myelopathy	GP/Neuro		• Insidious progression • Non dermatomal decreased sensation • Non myotomal weakness • Gait disturbance, ataxia • Clumsy or weak hands	• Insidious progression • Age • Cervical alignment • Congenital factors such as cervical cord-canal mismatch due to congenital stenosis, Klippel-Feil, Ehler-Danlos, and Down syndromes

OA BASE of THUMB– AHP Clinical Guidelines

			• Combination of neuro changes in upper and lower limbs • +ve Hyperreflexia • +ve Clonus • +ve Babinski sign • +ve L'hermitte's sign • +ve Hoffman's sign	

Consider differential diagnosis. If unsure regarding diagnosis or have concerns about patient presentation, please instigate peer discussion and/or reflexion and /or Senior AP review.

2nd LINE MANAGEMENT:

Secondary care: ensure patient compliance with conservative management and instructions given, followed by escalation to Hand Therapy service or AP clinician.

Consider steroid injection (13) and referral to injecting therapist. For referring document, checklist, Patient leaflet and Patient Guided Group Directive see documents within Musculoskeletal (MSK) Physiotherapy R Drive.

R:\Clinical\Physiotherapy\Physiotherapists MSK\Corticosteroid Injection Folder

Or

Referral to **Hand Therapy Service** where both steroid injections can be considered and custom made thumb orthoses fabricated (Immediate fitting (IMF) splinting). IMF splinting has been found to reduce joint mobility compared to prefabricated orthosis such as the soft thumb spica splint (17).

If deemed suitable, CMCJ Push or Jura splints are available but expensive, patients should be advised to purchase replacements after initial provision (patient directed Web search) but the Hand Therapists do stock and can supply when clinically indicated. Replacement splints should be self-purchased after initial use.

Review information on activity management and joint protection. National OA Thumb Patient Information Leaflet (NHS Inform)

OA BASE of THUMB– AHP Clinical Guidelines

SYMPTOMS NOT SETTLING OR WORSENING AND/OR PATIENT UNABLE TO SELF MANAGE.

For reflection, review and possible escalation.

Consider

- Red Flags
- Serious Pathology
- PMH

Self-Reflect/Review – Peer Reflect/Review – Senior Reflect/Review

Senior Reflect Review could include Hand Therapists or MSK AP's.

Diagnosis CMCJ OA: If patient care has already been escalated to include 2nd line treatments/management options and only if the patient is willing to consider further investigations and possible surgical interventions then onward referral to Orthopaedics can be considered.

ORTHOPAEDIC PATHWAY BASE OF THUMB OA:

1. Hand Therapists can refer patient directly to Orthopaedics however, review of patient care would be needed in advance.
2. After discussion with AP clinician, patient case can be presented at VCC and from there referral to Orthopaedics can be considered and care escalated.

Lanarkshire MSK Physiotherapists will be able to access: MSK Hand Book within the R Drive

R:\Clinical\Physiotherapy\Physiotherapists MSK\MSK handbook

The Orthopaedic Team will consider suitability for surgery and surgical options

POST OPERATIVE REHABILITATION:

Trapeziectomy has long been the popular surgical choice for surgical management of OA affecting the base of thumb however, surgical techniques and post-operative advice can vary. Consider post-operative guidance and requests by the operating surgeon. Most post-operative patients will attend the Hand Therapists for post-operative care, but some may attend through MSK Physiotherapy service and therefore support, escalation and/or onward referral maybe indicated for splinting and wound care.

Below are links to literature produced for patients regarding Trapeziectomy surgery.

Hand and wrist surgery | Treatment options | Versus Arthritis

Osteoarthritis of the base of the thumb | NHS Lanarkshire (scot.nhs.uk)

OA BASE of THUMB– AHP Clinical Guidelines

AW (Sussex Hand Surgery Trapeziumectomy)

Post operatively patients will generally be placed in cast for 6 weeks. Some surgeons prefer the provision of a custom-made (fabricated) splint that may require adjustment over time and will in many cases be required to be worn continuously for 4-6 weeks and up to 8 weeks in total. With time, exercises can be modified and progressed over the first 12 weeks and loading/pinching increased after 12 weeks, however individual tailored care may need to be considered. Some patients will require minimal intervention; others will require more. Assess and arrange for ongoing therapy as necessary following local referral protocols.

It is important to note that recovery can take many months for the full benefit of surgery to be appreciated.

CMCJ Replacement replaces the joint at the base of the thumb (CMCJ) with an artificial/implant joint. Often this surgical option is only viable if the arthritis is local only to the CMCJ and is not evident within the STT region.

Post operatively patients will be in a heavy bandage for 2 weeks following surgery and following removal will commence mobilisation/soft splint use, as needed.

STUDIES

There is a national research trial currently being undertaken called The Surgery versus Conservative Osteoarthritis of thumb trial (SCOOTT). This study aims to explore and compare Trapeziectomy with Carpometacarpal joint replacement and conservative management of OA.

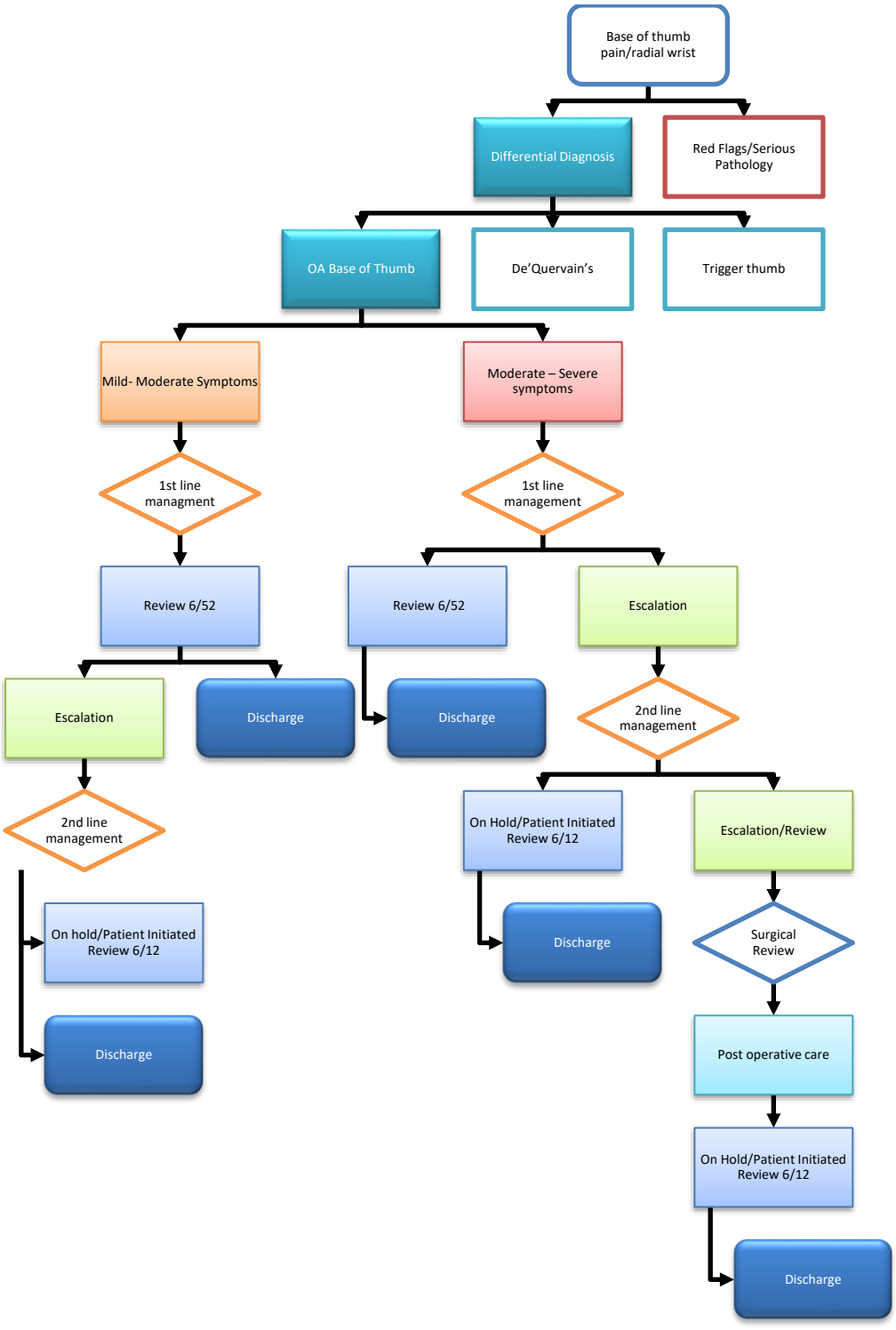
SCOOTT - Health Sciences, University of York

The 'Thumb Osteoarthritis prognosis for self-management 'study aims to analyse and interpret data around the experience of care, outcomes, and factors that might influence supported self-management for thumb-base osteoarthritis.

TheTopsStudy

OA BASE of THUMB– AHP Clinical Guidelines

Treatment Management



References/Evidence

GUIDELINES:

Clinical Knowledge Summaries CKS

'How should I suspect a diagnosis of Osteoarthritis?'

Nice Quality Standards Dec 2023

Assessment | Diagnosis | Osteoarthritis | CKS | NICE

Scenario: Management | Management | Osteoarthritis | CKS | NICE

Osteoarthritis National Clinical Guidelines for care and management in Adults

Nice Guidelines No.59

London: Royal College of Physicians UK 2008

ISBN-13, 978-1-86016-329-6

Osteoarthritis: care and management - NCBI Bookshelf (nih.gov)

Final-Published-WoS-Guidelines-for-Malignant-Spinal-Cord-Compression-v2.0.pdf (scot.nhs.uk)

EVIDENCE REVIEW:

British Society for Surgery of the Hand

Evidence based management of adults with thumb base osteoarthritis(1).pdf (bssh.ac.uk)

NHS INFORM:

Osteoarthritis of the thumb | NHS inform

OA BASE of THUMB– AHP Clinical Guidelines

KNOWLEDGE NETWORK/REFERENCES:

1. Bleuel, J., Bruggemann, G-P., Gonska, C., Hamann, N., Heidemann, J., Heinrich, K., Wu, H., 2014. A Stabilization effectiveness and functionality of different thumb orthoses in female patients with first carpometacarpal joint osteoarthritis. *Clinical Biomechanics.* **29**, pp. 1170-1176. Available at:

2. Brismee, J.M., Norman, M., Sobczak, S., Tang, T. S., 2021 Clinical evaluation of thumb *base osteoarthritis: A scoping review. Hand Therapy.**26**(2), pp. 63-78.* Available at : https://*doi.org/10.1177/17589983211002560*

3. Chong, W., Faramand, A., Fang, F., Hai, Y., Wang, P., Wang, X., Zha, X., Zhang, Y., 2022. Efficacy and safety of corticosteroid in the treatment of hand osteoarthritis: a systematic review and meta-analysis of randomized controlled trial. *Clinical Rheumatology.* **41**, pp.1825-1832. Efficacy and safety of corticosteroid in the treatment of hand osteoarthritis: a systematic review and meta-analysis of randomized controlled trials - PubMed (nih.gov)

4.Coert, L., Coert, J.H., Galied, S. R., Hovius, S.E.R., Jolanda, J., Ouwendijk, M., Ouwendijk, R., Saltzherrz, M., Selle, R.W., Van Neck, J.W., 2013. Computed tomography for the detection of thumb base osteoarthritis: comparison with digital radiography. *Skeletal Radiology*.**42**, pp.715–721. https://doi.org/10.1007/s00256-013-1586-7

5. DeMott, L.,2017. Novel isometric exercises for the dynamic stability programs for thumb carpal metacarpal joint instability. *Journal of Hand Therapy*. **30** (3), pp.372-375. Available at: https://doi.org/10.1016/j.jht.2016.09.005

6. Gelberman, R. H., Boone, S., Oseli, D. A., Cherney, S., Calfee, R. P. ,2015. Trapeziometacarpal Arthritis: A Prospective Clinical Evaluation of the Thumb Adduction and Extension Provocative Tests. *The Journal of Hand Surgery (American Ed.)*. **40**(7), pp. 1285–1291. Available at: https://doi.org/10.1016/j.jhsa.2015.04.012

7. Higgenbotham, C., Boyd, A., Busch, M., Heaton, D., & Trumble, T. (2017). Optimal management of thumb basal joint arthritis: challenges and solutions. *Orthopaedic Research and Reviews*, ***9***, 93–99. Available at: https://doi.org/10.2147/ORR.S138809

8. Kjeken, I., Grotle, M., Hagan, K, B., Osteras, N., 2015. Development of an evidence-based exercise programme for people with hand osteoarthritis. *Scandinavian Journal of Occupational Therapy.***22** (2), pp.103-116. Available at: https://doi.org/10.3109/11038128.2014.941394

9. Lawrence, E. L., Dayanidhi, S., Fassola, I., Requejo, P., Leclercq, C., Winstein, C. J., Valero-Cuevas, F. J., 2015. Outcome measures for hand function naturally reveal three latent domains in older adults: strength, coordinated upper extremity function, and sensorimotor processing. *Frontiers in Aging Neuroscience*, **7**, pp.108–108. Available at: https://doi.org/10.3389/fnagi.2015.00108

10. Merritt, M. M., Roddey, T. S., Costello, C., Olson, S.,2010. Diagnostic Value of Clinical Grind Test for Carpometacarpal Osteoarthritis of the Thumb. *Journal of Hand Therapy*, **23**(3), pp.261–268. Available at: https://doi.org/10.1016/j.jht.2010.02.001

11. McQuillan, T. J., Kennedy, D., Crisco, J. J., Weiss, A.P., Ladd, A. L.,2016. Weaker Functional Pinch Strength Is Associated with Early Thumb Carpometacarpal Osteoarthritis. *Clinical Orthopaedics and Related Research*, **474**(2), pp. 557–561.Available at: https://doi.org/10.1007/s11999-015-4599-9

12. Mobargha, N., Esplugas, M., Garcia-Elias, M., Lluch, A., Megerle, K., Hagert.E., 2016. The effect of individual isometric muscle loading on the alignment of the base of the thumb metacarpal. *The Journal of Hand Surgery.***41** (4), pp. 374-379. Available at: https://doi.org/10.1177/1753193415597114

13**.** National Institute for Health & Care Excellence. (2022) *Evidence review for additional benefit of imaging in the diagnosis of osteoarthritis. Osteoarthritis in over 16s: diagnosis and management.* Available at: NG226 Evidence review A Accessed: 17 June 2025

14. National Institute for Health & Care Excellence. (2025) *NICE Quality Standards Osteoarthritis.* Available at: NICE quality standards | Goals and outcome measures | Osteoarthritis | CKS | NICE Accessed: 17 June 2025

15. Pogliacomi, F., Oldani, D., Schiavi, P., Pedrazzini, A., Ferraril, A., Leigheb, M., Pedrini, M, F., Vaienti, E., Ceccarelli, F., Calderazzi, F.,2021. Metacarpophalangeal joint hyperextension in rhizarthrosis: is surgical correction necessary? *Acta Biomed.* **92.** Available at: ACTA-92-573.pdf (nih.gov)

16. Spaans, A.J., Van Minnen, P.L., Kon, M., Schuurman, A.H., Schreuders, A.R., Vermeulen, G.M., 2015. Conservative Treatment of Thumb Base Osteoarthritis: A Systematic Review. *Journal of Hand Surgery*. **40** (1), pp.16-21. Available at: https://doi.org/10.1016/j.jhsa.2014.08.047

17. Stockmans, F., Venneste, M., Vereeck, E.E., 2021. The effect of orthoses on the kinematics of the trapeziometacarpal, scaphotrapeziotrapezoidal, and radioscaphoid joints. *Journal of Orthopaedic Research***. 39**, pp.196-203. The effect of orthoses on the kinematics of the trapeziometacarpal, scaphotrapeziotrapezoidal, and radioscaphoid joints (asht.org)

18.The British Society for Surgery of the Hand. (2025) *Basal Thumb Arthritis* .Available at: Basal thumb arthritis | The British Society for Surgery of the Hand Accessed: 17 June 2025

19. Wade, R, G., Paxman, C, B., Tucker, N, C., Southern, S., 2018. Kinesiology taping reduces the pain of finger osteoarthritis: a pilot single-blinded two-group parallel randomized trial. *J Pain Res*.**11**, pp. 1281–1288.

PATIENT INFORMATION AND LINKS:

Osteoarthritis of the base of the thumb | NHS Lanarkshire (scot.nhs.uk)

Base of Thumb Arthritis

Osteoarthritis of the thumb | NHS inform

Osteoarthritis | NHS inform

Basal thumb arthritis | The British Society for Surgery of the Hand (bssh.ac.uk)

Osteoarthritis (OA) of the hand and wrist (versusarthritis.org)

Appendices

1. Governance information for Guidance document

Lead Author(s):	Jayne Ford-Anderson (APP Hand Therapist)
Endorsing Body:	Physiotherapy
Version Number:	1
Approval date	19.06.2025
Review Date:	19.06.2028
Responsible Person (if different from lead author)	

CONSULTATION AND DISTRIBUTION RECORD	
Contributing Author / Authors	Debbie Pipe AP Hand Therapist
Consultation Process / Stakeholders:	Brian Slattery Strategy Lead Physiotherapy Alison Peters Team Lead MSK Physiotherapy Nicholas Kinniburgh Consultant Physiotherapist Alison Taylor Hand Therapist Debbie Pipe AP Hand Therapist
Distribution	Guideline for AHP's working within acute and secondary care

OA BASE of THUMB– AHP Clinical Guidelines

CHANGE RECORD			
Date	**Lead Author**	**Change**	**Version No.**
		e.g. Review, revise and update of policy in line with contemporary professional structures and practice	1
			2
			3
		.	4
			5