Worcestershire Acute Hospitals NHS Trust

Guideline for Therapy Intervention with Flexor Tendon Repair

This guidance does not override the individual responsibility of health professionals to make appropriate decision according to the circumstances of the individual patient in consultation with the patient and /or carer. Health care professionals must be prepared to justify any deviation from this guidance.

This guideline is for use by the following staff groups:
Therapists

Lead Clinician(s)

Amanda Rawlings	Physiotherapist
An Van Hyfte	Occupational Therapy Clinical Specialist
Alison Hinton	Occupational Therapy Clinical Specialist
Sunita Farmah	Occupational Therapy Clinical Specialist

Approved by Clinical governance hands on: 13th March 2024

Review Date 13th March 2027
This is the most current document and is to be used until a revised version is available:

Key amendments to this guideline

Date	Amendment	By:
March 2005	Approved by Clinical Effectiveness Committee	
July 2010	Changes to advice given	Julie Elliott
July 2010	Reviewed by the Hand Therapy Clinical Governance group	
October 2012	Changes to lay-out and wrist position in splint following review of guideline	An Van Hyfte
November 2014	Changes to some of the terminology and appendix added	An Van Hyfte
September 2017	Reviewed by Hand Therapy Clinical Governance Group. Minor amendment to the exclusion criteria with regard to treating paediatrics	Alison Hinton

Oct 16	Documents extended for approval as per TMC paper approved on 22nd July 2015	TMC
December 2017	Sentence added in at the request of the Coroner	
May 19	Reviewed and approved by clinical governance for hand therapy	An Van Hyfte
April 21	Document reviewed. Minor amendments made to 'competencies required' in order to include junior rotating therapists. Content of the guideline remains up to date and in line with latest research (additional references added).	An Van Hyfte
March 24	Document reviewed. Content of the guideline remains up to date and in line with latest research. Recommendation for Ultrasound treatment removed as this treatment will no longer be offered by physiotherapy in the Trust.	An Van Hyfte

Guideline for Therapy Intervention with Flexor Tendon Repair

Introduction

This guideline covers the post operative care of patients with a flexor tendon repair throughout zones 1-5 for patients attending therapy departments within Worcestershire. Flexor Tendon Zones – Determined by the anatomy of fibrous sheaths and insertion of the flexor digitorum superficialis and profundus, the volar aspect of the digits and hand are divided into 5 specific zones. Surgery, management, rehabilitation and prognosis vary according to the zone in which the flexor tendon injury occurs.

All patients following a flexor tendon repair should be referred to occupational therapy/physiotherapy (as soon as is practical) after surgery for hand rehabilitation. The referral should describe the full patient diagnosis and the operation details.

Within this document the term Therapist refers to either Occupational Therapist or Physiotherapist.

Competencies Required

- Therapists who have undertaken a period of supervised practice in this field within the previous two years.
- Junior therapists who have undertaken basic training in hand therapy should be supervised by an experienced therapist who has held a caseload in this area within the previous 2 years.
- Adherence to the Trusts guidelines on wound management and infection control aseptic technique for therapists.

Patients Covered

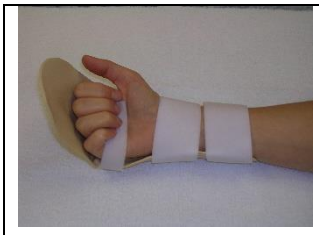
- Any patient able to comply with the Early Active Mobilisation Regime (EAM), following a flexor tendon repair to zones 1-5.

Exclusions

Patients unable to comply with the regime should be discussed with the referring consultant, and an individual regime agreed. For example when treating paediatrics it may be preferable to keep them immobilised in a cast due to potential difficulties with compliance.

Details of the Guideline

Time	Intervention
In theatre	• Following the repair, a dorsal based POP is applied to the forearm and covering the full extent of the digits. • The positioning should be: Wrist – neutral position to 20°extension MCPs - 60° to 80° flexion IP joints - full extension • If there is a clinical reason for a variation in the positioning, it must be clearly documented on the therapy referral.
As soon after surgery (ideally 24-48 hrs) 	• To be seen by a therapist. • Remove the surgical dressing and theatre POP. • Apply a lighter dressing to any of the wound areas using a-septic technique. • Removable thermoplastic splint constructed- positioned as per theatre instructions, on operation notes and/or referral. Do NOT apply strapping underneath digits. ***General Considerations*** • Cotton stockinette (**not** tubigrip) can be worn under the splint to absorb perspiration. • Be aware that patients can be allergic to the splint materials, and this requires monitoring. • If the patient has nerve involvement and sensation/reduction loss care is required when applying materials which can be over 60° C • Splinting information leaflet to be given to the patient
From splint application – up to 6 weeks post op Exercise 1  Exercise 2	**<u>Early Active Regime</u>** All exercises will be demonstrated by a therapist and the patient will receive written instructions on their exercise regime for home use. **<u>Week 1</u>** (up to 7 days from the splint application) • **Exercise 1 –** to be carried out **WITHIN THE SPLINT- *passive*** flexion of all digits - flexing each finger slowly to the patient's full limit x 5 per hour**. • **Exercise 2 –** to be carried out **WITHIN THE SPLINT- *active*** flexion- to flex the digits towards the distal palmer crease with DIPs flexed x 5 per hour**. • **Exercise 3 -** to be carried out **WITHIN THE SPLINT-** to gently push forward the MCP joints on



Advice given

each finger and actively straighten the PIP and DIP joint. To be carried out × 5 per hour**.

***Frequency of exercise may vary depending on post -surgery inflammation/ oedema*

Oedema control

- Patients are taught to elevate the arm at every opportunity, (including exercising in elevation) keeping the hand above heart level. At night they are advised to prop the arm up on pillows.
- Patients are taught to use massage techniques (retrograde) to assist in the reduction of Oedema.
- Patient is advised to maintain range of movement on elbow/shoulder regularly.
- Patient is advised to keep splint **on** at all times.
- Patient is advised not to use the affected hand for any activity i.e. work/ driving/lifting/housework
- Follow up appointment to be booked in 1 week's time.

Week 2 (7 - 14 days post op)

- **Exercise regime:** As for week 1 - repetition increased to 10 per hour.
- Sutures will be removed from day 10 -14 in clinic at the consultant's discretion..

Post suture removal

- ***Hand hygiene*** advice given (to wipe down arm/hand using commercially available antiseptic wipes with the arm supported on a flat surface, with the hand/wrist in a fixed position and the splint removed).
  Patients are not advised to shower without the splint until splint is removed at week 6.
- Advice to be given on the cleaning of the splint.
- ***Scar management*** **:** to start once the stitches are removed and the wound is closed (with no signs of infection). Scar massage is introduced using a non perfumed moisturiser

	Week 3-5 (after 15 days post op) • Exercise 1+2 as for week 2 • Exercise 3 remove splint, holding forearm/hand/wrist, with the elbow supported on a firm surface. Remove the splint with fingers protected in flexion by cupping them with unaffected hand. The wrist can flex and extend within the patient's normal range of movement. Repeat this 10 times/3 times per day. **Week 6** • Remove the splint during the day and continue week 5 exercise regime. (Wear the splint at night **only** or for protection in a crowded situation) • Introduce light use of the hand including using grip and not lifting anything heavier than a mug of fluid. The patient can return to work if he has a sedentary job. **Week 7 –12** • The patient may drive • The patient will up grade all of the activities of daily living, until they are able to lift a full kettle. • The patient should have full active wrist and digit extension, protected stretching exercises should be introduced if this is a problem. • ***Serial Splinting:*** If contractures are identified, serial splinting is introduced at night to provide a constant stretch from week 8 onwards. **Week 12 and upward** • Strengthening programme if required • Commence gentle passive flexion and continue with scar management if full extension hasn't been achieved. • The patient can return to manual work. Playing of sports as recommended by the consultant/therapist.

APPENDIX

Patients who had a Flexor Carpi Ulnaris (FCU) or Flexor Carpi Radialis (FCR) repaired only should follow the same regime. However, the forearm based dorsal blocking splint will exclude the digits, holding the wrist in a neutral position.
The digits can flex and extend within the patient's normal range of movement; however, they should not use their hand in activities of daily living.

Monitoring Tool

This should include realistic goals, timeframes and measurable outcomes.

How will monitoring be carried out?

Who will monitor compliance with the guideline?

Page/ Section of Key Document	Key control:	Checks to be carried out to confirm compliance with the policy:	How often the check will be carried out:	Responsible for carrying out the check:	Results of check reported to: *(Responsible for also ensuring actions are developed to address any areas of non-compliance)*	Frequency of reporting:
	WHAT?	**HOW?**	**WHEN?**	**WHO?**	**WHERE?**	**WHEN?**
	• Time frame of treatment • Outcome • General adherence of guideline • Any deviation clarified	Audit	Once a year	Senior therapists	Results audit to be discussed in the hand clinical governance group for therapies.	Once a year

References

Beale S (2009) Flexor Tendon Workshop Birmingham Hand Centre; University of Birmingham NHS Foundation Trust

Elliott J (2000) Occupational Therapy Splinting and Hand Therapy procedure; Worcestershire Acute Hospitals NHS Trust

Elliott J (1999) Occupational Therapy Risk Assessment COSSH; WAHNHST

Selly Oak Hospital Birmingham: Hand Protocols

Hand Therapy Protocols (2002) Queen Victoria Hospital NHS Trust

Hand Interest Group Gloucestershire Therapies (1999) Physiotherapy protocol following flexor tendon injury; Gloucestershire Hospitals NHS Trust.

Coventry and Warwickshire University Hospitals Hand unit Protocols

Worcestershire Hand Therapies Group (2002) Hand Therapy Protocols Alexandra Hospital/Worcester Royal Hospitals; WAHNHST

Salter M, Cheshire L (2000) Hand Therapy Principles and Practice: Chapter 12 Splinting the Hand; Butterworth Heinemann

Hunter James, Mackin Evelyn, Callahan Anne (1995) Rehabilitation of the Hand: Surgery and Therapy Forth Edition Mosby

Kannas S. et al. Rehabilitation following zone II flexor tendon repairs, Techniques in Hand and Upper Extremity Surgery, 2015, vo. 10 no1, p 2-10.

Veddar NB. Et al., Zone II flexor tendon repair: a randomised trial of active place-and-hold therapy compared with passive motion therapy, Journal of Bone & Joint surgery, 2010, vol 92 no.6, p 1381-1389.

Venkatramani H. et al., Flexor tendon injuries, Journal of Clinical Orthopaedics and Trauma, 2019, Vol. 10 no 5, p 853-861.

Contribution List

Key individuals involved in developing the document

Name	Designation
Amanda Rawlings	Physiotherapist
An Van Hyfte	Clinical Specialist Occupational therapist
Alison Hinton	Clinical Specialist Occupational therapist
Sunita Farmah	Clinical Specialist Occupational therapist
Judith Jehring	Physiotherapist

Circulated to the following individuals for comments

Name	Designation
Physiotherapy Departments (outpatients)	WRH, Alex, Kidderminster
OT Departments (outpatients)	WRH, Alex, Kidderminster
Miss Henning	Orthopaedic surgeon Worcestershire Acute Trust
Mr Simon	Orthopaedic surgeon Worcestershire Acute Trust

Supporting Document 1 - Equality Impact Assessment Tool

Herefordshire & Worcestershire STP - Equality Impact Assessment (EIA) Form
Please read EIA guidelines when completing this form

Section 1 - Name of Organisation (please tick)

Herefordshire & Worcestershire STP		Herefordshire Council		Herefordshire CCG	
Worcestershire Acute Hospitals NHS Trust	*V*	Worcestershire County Council		Worcestershire CCGs	
Worcestershire Health and Care NHS Trust		Wye Valley NHS Trust		Other (please state)	

Name of Lead for Activity	**An Van Hyfte**

Details of individuals completing this assessment	**Name**	**Job title**	**e-mail contact**
	An Van Hyfte	**Clinical specialist OT**	**a.vanhyfte@nhs.net**

Date assessment completed	**24/04/2024**

Section 2

Activity being assessed (e.g. policy/procedure, document, service redesign, policy, strategy etc.)	Title: **Guideline for Therapy Intervention with Flexor Tendon repair (WAHT-OCT-001)**			
What is the aim, purpose and/or intended outcomes of this Activity?	This is an evidence-based guideline for the rehabilitation of patients who have had a surgical repair of the flexor tendon throughout zones 1-5 in the hand.			
Who will be affected by the development & implementation of this activity?	❑ Service User ❑ Patient ❑ Carers ❑ Visitors		❑ Staff ❑ Communities ❑ Other _____ **V N/A**	
Is this:	**V** Review of an existing activity ❑ New activity ❑ Planning to withdraw or reduce a service, activity or presence?			
What information and evidence have you reviewed to help inform this assessment? (Please name sources, eg demographic information for patients / services / staff groups affected, complaints etc.	We have compared our guideline with the practice of specialist hand therapy units in Queen Elisabeth Birmingham, UHCW, Pulvertaft centre Derbyshire and have revisited the existing literature available on the British Association of Hand Therapists (BAHT) website.			
Summary of engagement or consultation undertaken (e.g. who and how have you engaged with, or why do you believe this is not required)	Discussed with the main consultants and reviewed in the hand-therapy clinical governance meeting held on 13/03/2024			
Summary of relevant findings	Guideline is up to date			

Section 3

Please consider the potential impact of this activity (during development & implementation) on each of the equality groups outlined below. **Please tick one or more impact box below for each Equality Group and explain your rationale**. Please note it is possible for the potential impact to be both positive and negative within the same equality group and this should be recorded. Remember to consider the impact on e.g. staff, public, patients, carers etc. in these equality groups.

Equality Group	Potential positive impact	Potential neutral impact	Potential negative impact	Please explain your reasons for any potential positive, neutral or negative impact identified
Age	V			
Disability	V			

Equality Group	Potential positive impact	Potential neutral impact	Potential negative impact	Please explain your reasons for any potential positive, neutral or negative impact identified
Gender Reassignment	v			
Marriage & Civil Partnerships	v			
Pregnancy & Maternity	v			
Race including Traveling Communities	v			
Religion & Belief	v			
Sex	v			
Sexual Orientation	v			
Other Vulnerable and Disadvantaged Groups (e.g. carers; care leavers; homeless; Social/Economic deprivation, travelling communities etc.)	v			
Health Inequalities (any preventable, unfair & unjust differences in health status between groups, populations or individuals that arise from the unequal distribution of social, environmental & economic conditions within societies)	v			

Section 4

What actions will you take to mitigate any potential negative impacts?	Risk identified	Actions required to reduce / eliminate negative impact	Who will lead on the action?	Timeframe
	N/A	.		

How will you monitor these actions?	By regular audit of notes, observed practice (please see monitoring section of the document)			
When will you review this EIA? (e.g in a service redesign, this EIA should be revisited regularly throughout the design & implementation)	**June 2027**			

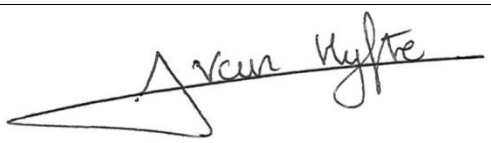
Section 5 - Please read and agree to the following Equality Statement

1. Equality Statement

1.1. All public bodies have a statutory duty under the Equality Act 2010 to set out arrangements to assess and consult on how their policies and functions impact on the 9 protected characteristics: Age; Disability; Gender Reassignment; Marriage & Civil Partnership; Pregnancy & Maternity; Race; Religion & Belief; Sex; Sexual Orientation

1.2. Our Organisations will challenge discrimination, promote equality, respect human rights, and aims to design and implement services, policies and measures that meet the diverse needs of our service, and population, ensuring that none are placed at a disadvantage over others.

1.3. All staff are expected to deliver services and provide services and care in a manner which respects the individuality of service users, patients, carer's etc, and as such treat them and members of the workforce respectfully, paying due regard to the 9 protected characteristics.

Signature of person completing EIA	An Van Hyfte 
Date signed	24/04/2024
Comments:	
Signature of person the Leader Person for this activity	
Date signed	
Comments:	

Supporting Document 2 – Financial Impact Assessment

To be completed by the key document author and attached to key document when submitted to the appropriate committee for consideration and approval.

	Title of document:	Yes/No
1.	Does the implementation of this document require any additional Capital resources	No
2.	Does the implementation of this document require additional revenue	No
3.	Does the implementation of this document require additional manpower	No
4.	Does the implementation of this document release any manpower costs through a change in practice	No
5.	Are there additional staff training costs associated with implementing this document which cannot be delivered through current training programmes or allocated training times for staff	No
	Other comments:	

If the response to any of the above is yes, please complete a business case and which is signed by your Finance Manager and Directorate Manager for consideration by the Accountable Director before progressing to the relevant committee for approval