

# DISTAL TORUS FRACTURE

## EXECUTIVE SUMMARY

PHYSICIAN OWNER: BRIDGET BURKE, PA ORTHOPEDICS



## Primary Objective

Torus fractures are also called buckle fractures. A torus fracture occurs when one side of the bone gets pushed in, and the other side of the bone bends out. A torus fracture does not cause a complete break in the bone. Torus fractures are most common in children because their bones are softer than adult bones. A torus fracture can occur in any long bone, but it most commonly occurs in the forearm or wrist. A “minimalist” approach to distal torus fractures has shown to be as successful as traditional treatment of casting, frequent imaging, and frequent follow ups with a specialty provider. The intended outcome of this pathway is to utilize splinting rather than casting and reduce number of follow ups and x-rays needed to evaluate distal torus fractures.

Inclusion criteria: Patient any age with distal forearm injury and/or suspicion for forearm fracture

Exclusion criteria: All other fractures

## Rationale

A Distal Torus Fracture pathway for the Emergency Department and Outpatient care (Urgent Care and Children's Physicians) management will improve the timeliness and efficiency of patient care by standardizing the splinting, imaging, and discharge instructions patients receive. There will be a need for splints to be available in the Emergency Department and Outpatient locations.

## Metrics

1. Increase percent of patients with distal torus fracture discharged with splint
2. Decrease percent of patients return to ED/CP/UC within 72 hours after splinting
3. Decrease percent of patients requiring re-imaging at follow up visit

## Evidence

### Use of Splint

Splinting continues to allow for appropriate fracture healing, immobilization and pain control. Use of a splint reduces the need for a clinical visit to an orthopedic specialists. Splint use is contraindicated in:

- Proximal two-thirds (not distal one-third) fractures of the forearm
- Dorsal angulation > 15 degrees on metaphysis to shaft
- Ulna is abnormal or shows a non-buckle fracture

1. Firmin F & Crouch R. Splinting versus casting of torus fractures to the distal radius in the paediatric patient presenting at the emergency department (ED): a literature review. J Int Emerg Nursing; 17:173-8
2. Little, K. Increasing Brace Treatment for Pediatric Distal Radius Buckle Fractures: Using Quality Improvement Methodology to Implement Evidence-based Medicine. J Pediatr Orthop 2019;39:e586-e591.
3. Plint AC, Perry JJ, Correll R, Gaboury I, Lawton L. A randomized, controlled trial of removable splinting versus casting for wrist buckle fractures in children. Pediatrics 2006;117:691-7.

**Update:** 7/2020

**Disclaimer:** Pathways are intended as a guide for practitioners and do not indicate an exclusive course of treatment nor serve as a standard of medical care. These pathways should be adapted by medical providers, when indicated, based on their professional judgment and taking into account individual patient and family circumstances.

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4. West S, Andrews J, Bebbington A, Ennis O, Alderman P. Buckle fractures of the distal radius are safely treated in a soft bandage: a randomized prospective trial of bandage versus plaster cast. J Pediatr Orthop 2005;25:322-5.
5. Williams BA, Alvarado CA, Montoya-Williams DC, Matthias RC, Blakemore LC. Buckling down on torus fractures: has evolving evidence affected practice? J Childrens Orthopaedics 2018; 12:123-8

### **Vitamin D & Calcium Therapy**

Our bodies need both Vitamin D and calcium to build healthy bones in childhood, and maintain bone health in adulthood. For children over 1 year, and adults, the recommended amount is 600 to 1000 IU Vitamin D per day and 1,000 mg of calcium per day.

1. <https://www.nap.edu/resource/13050/Vitamin-D-and-Calcium-2010-Report-Brief.pdf>

### **Imaging**

Frequent imaging in distal torus fractures is unnecessary. A distal torus fracture is identified by a two-view forearm x-ray. Criteria for a distal torus fracture are:

- Fracture location is in distal 1/3 of radius
  - There is less than 15% angulation
1. Kuba MHM, Izuka BH. One Brace: One Visit: Treatment of Pediatric Distal Radius Buckle Fractures with a Removable Wrist Brace and No Follow-up Visit.

## Recommendations

1. Develop a standard initial evaluation and treatment plan to provide early splinting and appropriate imaging for distal torus fractures.
2. Standardize patient disposition with splinting and vitamin D supplements.
3. Guide appropriate follow up with the Primary Care Physician (PCP) after discharge.

## Team Members

Bridget Burke, PA-C, Orthopedic Surgery

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Amy Vacek, Quality & Patient Safety Nurse

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