

ORTHOPEDIC INJURIES

Treatment at the right place, time, personnel and care level matters

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- Orthopedic Surgeon
- Business owner



Orthopedic workplace injuries

Scope of the issue

Key Statistics:

- Median total cost per musculoskeletal claim: **\$20,097**
- Mean cost per claim: **\$1,477** (overall average)
- Cost distribution breakdown:
 - Medical costs: 48.4%
 - Indemnity: 46.4%
 - Legal fees: 5.2%

Highest Cost Burden (Frequency × Average Cost):

- Back injuries
- Knee injuries
- Shoulder injuries

Journal of Occupational and Environmental Medicine. 2024. Manning C, Jorgensen M.

Orthopedic workplace injuries

Scope of the issue

Costs by Anatomical Region

Most Frequently Injured Body Parts:

- Shoulder (most frequent and costliest overall)
- Lumbar spine (26.9% of all claims)
- Hand/wrist (21.7% of all claims)

Highest Average Costs Per Claim:

- Lumbar spine
- Shoulder
- Cervical spine

By Claim Severity:

- Medical-only claims: Amputations average \$3,849
- Disability/death claims: Ruptures average \$14,285
- Overall burden: Strains represent highest total cost despite lower individual costs

American Journal of Industrial Medicine. 2010. Dunning KK, Davis KG, Cook C, et al.



Orthopedic workplace injuries

Scope of the issue

Industry and Causation Factors

Industries with Highest Average Costs:

- Transportation, warehousing, and utilities
- Construction

Industries with Most Claims:

- Manufacturing: 28.4%
- Service industries: 32.8%
- Health care and office

Most Common Cause:

- Lifting: 32.0% of all claims
- Overexertion-related injuries represent significant burden in construction

Journal of Occupational and Environmental Medicine. 2024. Manning C, Jorgensen M.



Orthopedic workplace injuries

Scope of the issue

Demographic Cost Drivers

Age-Related Patterns:

- Highest claim rate: Workers aged 35-44 years (63 per 10,000 FTEs)
- Most costly claims: Workers aged 45-64 years
 - Higher average costs
 - More days away from work

Gender Differences:

- Male workers experience:
 - Longer compensation duration
 - Higher median costs compared to female workers

Prevention Implications:

- Age-specific interventions needed
- Focus on ergonomic design for aging workforce
- Target high-frequency injuries (back, knee, shoulder) for maximum cost reduction



Common Scenario

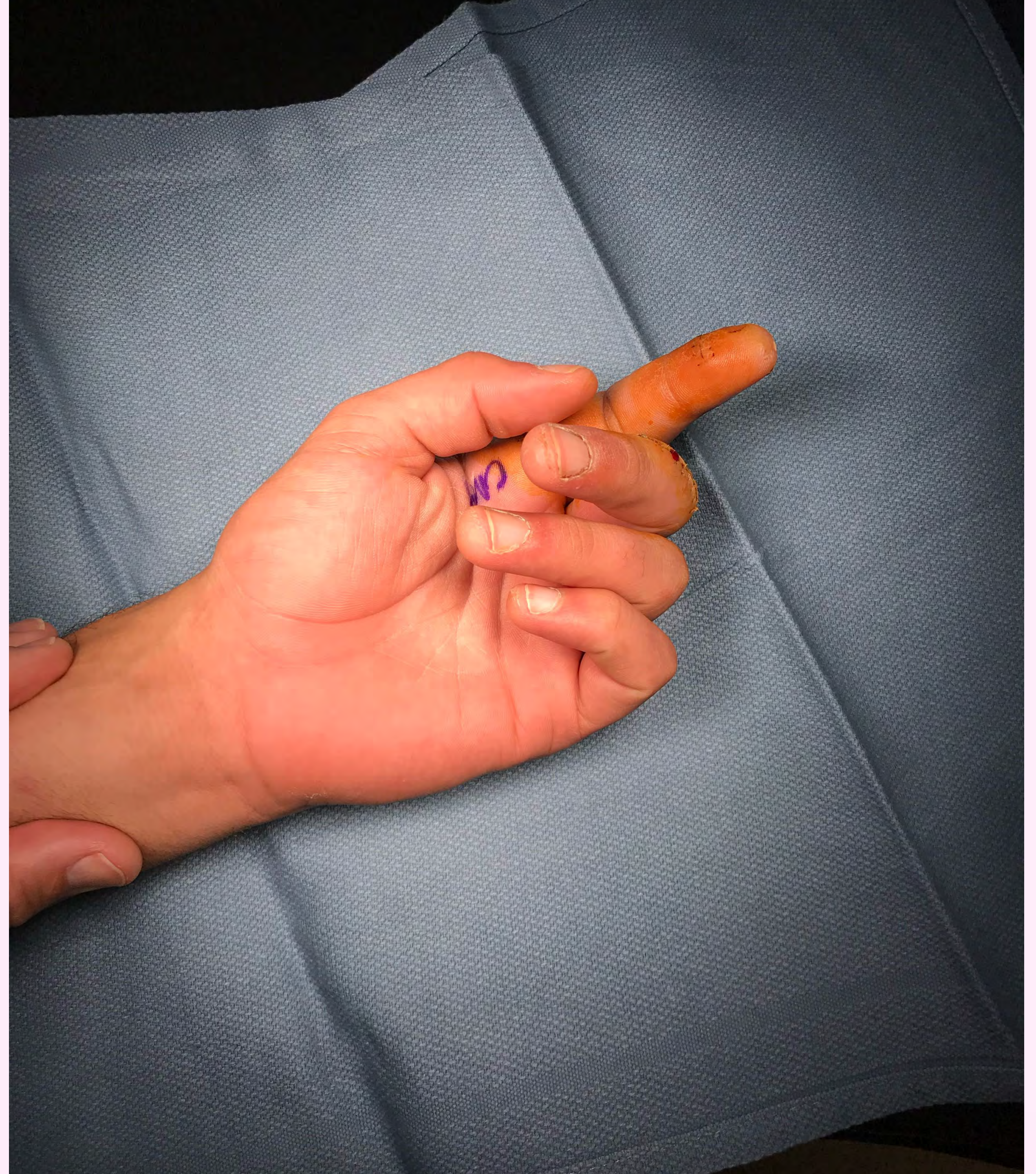
- 26 yo male Lasher
- Finger laceration PIP joint
- ER visit
- Wound closed and returned to work



Flexor tendon injury

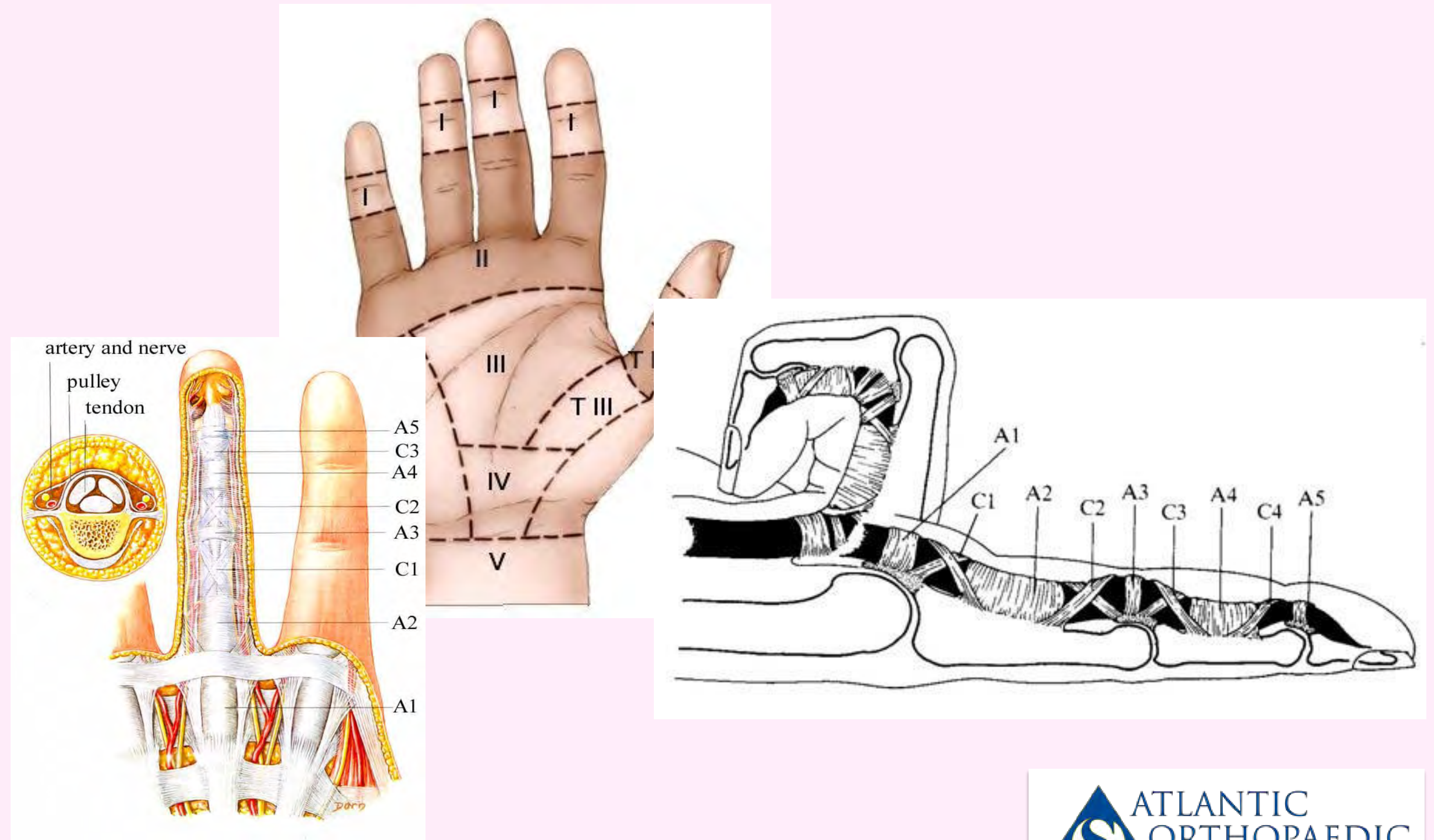
REALLY?

- 3 months later...



Flexor tendon injuries

- Anatomy
- Nutrition
- Healing
- Diagnosis
- Techniques
 - C/I of primary repair
 - Zone I
 - Zone II injuries
 - Partial lacerations
 - Post op rehab



Flexor Tendon injury

(a)



(b)



Flexor tendon injury

opportunities

- Initial evaluation
- Therapy
- Follow up



Shoulder strain

What

- 62 yo fork lift driver



Shoulder Strain

- Next day report
- Sent to urgent care
- NSAIDS/acetaminophen
- RTW



Shoulder strain

WHAT?

- Pain continues
- Ortho referral



Shoulder strain

What the...

- PT referral
- OOW
- NORCO/Flexaril
- RTC 1 month



Shoulder strain

- Midlevel eval
- Continue PT
- Continue NORCO
- OOW
- RTC 1 month



Shoulder strain

- 2 months-
- MD eval
- MRI ordered
- OOW
- Continue NORCO
- Continue PT



Shoulder strain

- 3 months-
- MRI - Unauthorized
- Re-order MRI
- Continue PT
- Continue NORCO
- OOW



Shoulder strain

- 6 months -
- MRI partial supra-spinatus tear, ACJ OA, Labral tear
- Surgery recommended



Shoulder strain

- 9 months later...
- 14 months later...
- 2 years later...



Shoulder strain

- **Good**
 - Initial evaluation and treatment
- **Bad**
 - No management of patient
- **Ugly**
 - Narcotics
 - OOW



Shoulder work comp

What do we know

Prevalence of Rotator Cuff Abnormalities at Age 60

Nearly Universal Finding:

- **99% of individuals over age 40** have at least one rotator cuff abnormality on MRI
- **96% of asymptomatic shoulders** show MRI abnormalities

Specific Findings in 60-Year-Olds:

- **Partial-thickness tears:** 50-65% prevalence
- **Full-thickness tears:** 10-28% prevalence
- **Tendinopathy:** 25% overall prevalence

Age-Related Progression:

- Prevalence and severity increase with age
- No significant sex differences
- Younger than 40 years: 43% partial-thickness tears, 0% full-thickness tears
- Age 70+ years: 65% partial-thickness tears, 29% full-thickness tears

Key Point: These findings represent normal age-related structural changes, not necessarily disease requiring intervention

American Academy of Orthopaedic Surgeons (2025). 2025. Gregory A. Brown MD PhD, Stephen Weber MD, Jaskarndip Chahal MD, et al



Shoulder strain

What we know

MRI Finding Does NOT Confirm Causality Unless:

- Clear traumatic event
- Acute strength loss
- Persistent functional deficit[1]

Practice Recommendations:

- **Routine imaging should NOT guide diagnosis or treatment** of atraumatic shoulder pain[1]
- Use more precise terminology: "structural alteration" or "degeneration" rather than "tear"
- Reframe findings as normal age-related changes rather than disease[1]
- Base treatment decisions on clinical presentation, not imaging alone[2]

Bottom Line: MRI abnormalities in 60-year-old shoulders are the norm, not the exception

The Journal of Bone and Joint Surgery. American Volume. 1995. Sher JS, Uribe JW, Posada A, Murphy BJ, Zlatkin MB.



Shoulder work comp

What do we know

Poor Correlation Between MRI Findings and Symptoms

Asymptomatic vs. Symptomatic Shoulders:

- **Asymptomatic shoulders:** 96% have rotator cuff abnormalities
- **Symptomatic shoulders:** 98% have rotator cuff abnormalities

Findings Equally Common in Both Groups:

- Tendinopathy: No difference between symptomatic and asymptomatic
- Partial-thickness tears: No difference between symptomatic and asymptomatic

Full-Thickness Tears:

- Unadjusted analysis: 14.6% in symptomatic vs. 6.5% in asymptomatic shoulders
- **After adjusting for clinical exam and other MRI findings:** No significant difference (absolute difference 0.8%, 95% CI: -3.4% to 6.0%)

Critical Finding:

54% of asymptomatic patients aged 60+ have partial or complete rotator cuff tears on MRI

Most rotator cuff abnormalities are compatible with normal, painless, functional activity

American Academy of Orthopaedic Surgeons (2025). 2025. Gregory A. Brown MD PhD, Stephen Weber MD, Jaskarndip Chahal MD, et al



Shoulder work comp

My approach

- Physical and history
- Early therapy - Only if needed
- Early return to work
- NSAIDS
- Diagnostic/Therapeutic/Prognostic injection

Workplace disability reduction

What works

1. Health-Focused Interventions

- Physical therapy with specific exercise prescriptions
- NSAIDs and acetaminophen (avoid opioids)
- Early behavioral health assessment when recovery delayed

2. Service Coordination

- Designated return-to-work coordinator
- Communication between worker, employer, healthcare providers, insurers
- Case management with barrier identification

3. Work Modification

- Workplace accommodations and modified duty
- Ergonomic adjustments to reduce physical strain
- Stay-at-work programs whenever possible

Workplace disability reduction

What works

Stay-at-Work/Return-to-Work Promotion:

- Normalize activity and participation levels
- Maintain worker in workplace in some capacity whenever possible
- Use CLRRT paradigm: Capacity, Limitation, Risk, Restriction, Tolerance
- Focus on functional assessment and outcomes

Avoid Common Pitfalls:

- Waiting for complete recovery before return-to-work
- Failing to identify barriers early (workplace issues, personal issues, psychiatric diagnoses)
- Inadequate communication between stakeholders
- Prolonged inactivity leading to deconditionin

Journal of Occupational and Environmental Medicine. 2025;67(4):e267-e280. doi:10.1097/JOM.



Orthopedic walk-in clinic

Metric	Orthopedic Urgent Care	Emergency Department	Improvement
Wait time to see provider	17 minutes	45 minutes	62% faster
Total visit time	43 minutes	156 minutes	72% shorter
Time to orthopedic specialist	1.2 days	3.4 days	65% faster

Slide 1: Efficiency Outcomes – Orthopedic Urgent Care vs. Emergency Department
Dramatic Improvements in Access and Throughput

Additional Efficiency Data:

- Visit length: 1.43 hours (urgent care) vs. 6.1 hours (ED) (p 0.001)[1]
- Patients more likely to have low-acuity injuries: 60.1% (urgent care) vs. 18.1% (ED)[1]

Source: Anderson TJ, Althausen PL. J Orthop Trauma. 2016[2]



Orthopedic walk-in clinic

Setting	Average charge per visit
Orthopedic Urgent Care	\$461
Hospital Emergency Department	\$8,150
Savings per Visit	\$7,689 (94%)

Orthopedic walk-in clinic

Appropriate Patient Selection Criteria

- ✓ Low-acuity musculoskeletal injuries
- ✓ Ambulatory patients
- ✓ Closed fractures
- ✓ No signs of compartment syndrome or vascular compromise
- ✓ No need for sedation or emergency reduction

Recommendations for Safe Implementation:

1. Establish robust triage protocols for orthopedic emergencies
2. Train staff to recognize red flags (compartment syndrome, open fractures, neurovascular compromise)
3. Develop clear transfer pathways to ED/trauma center
4. Maintain communication with hospital partners

Orthopedic walk-in clinic

What we see

- Fractures
- Small lacerations
- Sprains/strains



Orthopedic walk-in clinic

What not to send...

- Open fractures
- Amputations
- Head trauma
- Spine injuries
- Large lacerations



Orthopedic walk-in clinic

- Ortho MD/mid level as 1st line of evaluation
- Appropriate documentation
- Work note generated
- Appropriate referral to specialized surgeon

Orthopedic specialization

Does it matter??

- Generalist vs Specialist
- 9 different specialties



Therapy PT/OT/CHT

What's the difference?

Doctor of Physical Therapist

- Doctoral degree with accreditation examination
- Manages and treats individuals with conditions that limit their ability to move and function in daily life. They create personalized treatment plans using exercises and hands on techniques to reduce pain, improve mobility and prevent injury or surgery.
- Can become very specialized.



Therapy PT/OT/CHT

What's the difference?

Occupational Therapist

- Masters or Doctoral degree with accredited examination
- A licensed healthcare professional who helps individuals across their lifespan develop, recover, or maintain the daily living and working skills needed to live independently



Therapy PT/OT/CHT

What's the difference

Certified Hand Therapist

- OT+ 4000 hours (3 years) of direct clinical experience in upper extremity
- Apply and pass the hand certification exam
- 6000- 7000 in the US



PT/OT/CHT

What matters

- Experienced Therapists
- Specialized care
- Staffing ratio
- Direct communication with surgeon



PT, OT, CHT

Physician owned vs non-physician owned

Outcome Measure	Hospital Outpatient	Private Practice	Difference	References
Functional status improvement	3.1 points greater	Baseline	Below MCID (9 points)	[1]
Number of visits	2.9 fewer	Baseline	More efficient	[1]
Roland Morris Disability (LBP)	No difference	No difference	$p > 0.05$ at 12 months	[2]
SF-36 Role Physical	Baseline	5.64 points better	$p = 0.021$	[2]

Key Finding: Similar Clinical Outcomes Across Settings

Randomized Trial Findings (Low Back Pain):

- No significant differences between public (hospital) and private PT for 15 of 16 outcome measures at 12 months[2]
- Private practice patients had higher satisfaction with treatment outcomes ($p = 0.020$)[2]
- Both groups improved significantly over time for biomedical outcomes[2]

PT, OT, CHT

Our practice

- OT/PT single city Work comp visits average 14.5 visits per diagnosis
- 18 of 85 patients required work conditioning
- 14- FD, 3 MD, 1 surgical intervention
- Non-work comp average visit rate- 8.5

Summary

- **Treatment at the right place, time, personnel and care level matters**
- **Improved outcomes**
- **Cost savings**
- **Higher client satisfaction**





Questions???

