

# Orthobiologics in Tendons

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08/05/2022

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## Disclosures

- No financial interests or conflicts of interest related to this talk
- Full disclosures:
  - Ossur Americas AMSSM Fellow Grant (2020-2021)

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## Goals and Objectives

- Discuss role of orthobiologics in treatment of tendon conditions
  - Review of common orthobiologics
  - Common tendon conditions
- Does it work?
  - Review of the evidence on use of orthobiologics



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## Orthobiologics

### Definition

- Biological substances which are used to enhance healing of musculoskeletal injury
  - Autologous Whole Blood
  - Platelet Rich Plasma
  - Mesenchymal Cells (Stem Cells)



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## Tendinopathy

- Limited or tenuous blood supply to many tendons throughout the body
- Risk of prolonged/chronic injury due to:
  - Slow healing
  - Repetitive demands
- Resultant injury: Tendonitis = Tendinosis = Teninopathy



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## Orthobiologics and Tendon

- Due to poor vascularization and repetitive use, injury develops to the tendon without a readily available ability to heal
- Orthobiologics used to augment healing process
  - Whole Blood and PRP
    - Introduce growth factors to the site of injury
  - Mesenchymal Stem Cells
    - Introduce new cells to the area which may differentiate and restore injured tissue



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## Image Guidance

- Opinion
  - Blind injection serves no purpose in the use of orthobiologics
    - Can only say the substance was injected, but:
      - Where did it go?
      - How do you know?
  - Orthobiologics should be placed in an area of identifiable injury under image guidance
    - Can say where and what was injected



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## Case Reports

**Platelet-Rich Plasma Injection for Quadriceps  
Tendinopathy: A Case Report**

**Osteitis Pubis Treated With Platelet-Rich Plasma: A  
Case Report**



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## Great Trochanteric Pain Syndrome

PRP

- 2015, Jacobson, et al
  - Michigan
- Gluteal Tendinosis or Partial tear
  - US guided fenestration versus PRP
- n=30
  - 50/50 split
  - 24 female subjects



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## Great Trochanteric Pain Syndrome

PRP

- Similar outcomes at 92 days post procedure
  - Notable that at 2 week follow up a greater percentage of the fenestration group had improved pain scores.



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## Patellar Tendinopathy

### PRP

- 2019: Scott, et al
- Study of 61 patients
  - Exercise +
    - LR-PRP
    - LP-PRP
    - Saline
  - Injection performed next to the tendon under US guidance



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## Patellar Tendinopathy

### PRP

- No significant difference between PRP (LR or LP) versus saline, when combined with exercise based rehabilitation



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# Patellar Tendinopathy

## PRP

- May 2022
  - Journal of Family Practice
    - Brief review of 3 RCTs, suggested inconsistent results
      - Noted that it does not rule out benefit, only that it raises questions



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# Lateral Epicondylitis

## PRP and Tennis Elbow

- Paramanatham M, et al
  - Prospective Cohort Study- 2022
    - Kohar, India
- n=80
  - Failed physical therapy and oral medication
- PRP injected at the point of maximal tenderness
- Improvement in VAS and MAYO functional at 12 and 24 weeks



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## Lateral Epicondylitis

### PRP

- Viewpoint in BMJ Open Sport and Exercise Medicine, Karjalainen et al
  - Draw attention to their recent Cochrane review on PRP and tennis elbow
    - No benefit versus placebo



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## Recommendations

- Don't go in blind
  - Image guidance to direct therapy to desired location
- Informed Consent
  - Don't oversell benefit
- Consider all options



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## Summary

- Growing evidence in the area of orthobiologics suggesting potential role in use of tendon injury
- Need for additional well designed studies
- Better understanding of composition of injectant
  - Impact of NSAIDs
  - Impact of DMARDs



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