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# RAPID RESEARCH

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July 2021

## Inside This Week: Fixing Patellofemoral Pain (PFP)

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- ✓ Glute Max Training for Patellofemoral Pain

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  - ✓ Clinical Guidelines for PT Management of PFP

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  - ✓ Patellar Tracking in Individuals with Patellofemoral Pain



# GLUTE MAX TRAINING FOR PATELLOFEMORAL PAIN

This study examined the immediate effects of improving use of GMAX in the sagittal plane on PFP during movement, as well as peak hip internal rotation during a single-limb landing task.



## **Gluteus Maximus**

Musculus gluteus maximus

# KEY FINDINGS

**Glute Max & Movement training** consisted of:

**Resisted Standing Hip Extension Exercise**

Controlled **Forward Lean + Hip Flexion** during:

1. Bilateral static squatting;
2. Single-limb static squatting;
3. Bilateral dynamic squatting;
4. Single-limb dynamic squatting;
5. Bilateral squat jumps;
6. Single-limb squat jumps

Participants significantly **increased peak forward trunk lean and hip flexion** during the deceleration phase of landing.

Average **hip extensor moment & GMAX activation** increased significantly.

**Patellofemoral Pain reduced on average by 79%** after movement training.

## MAIN TAKEAWAYS

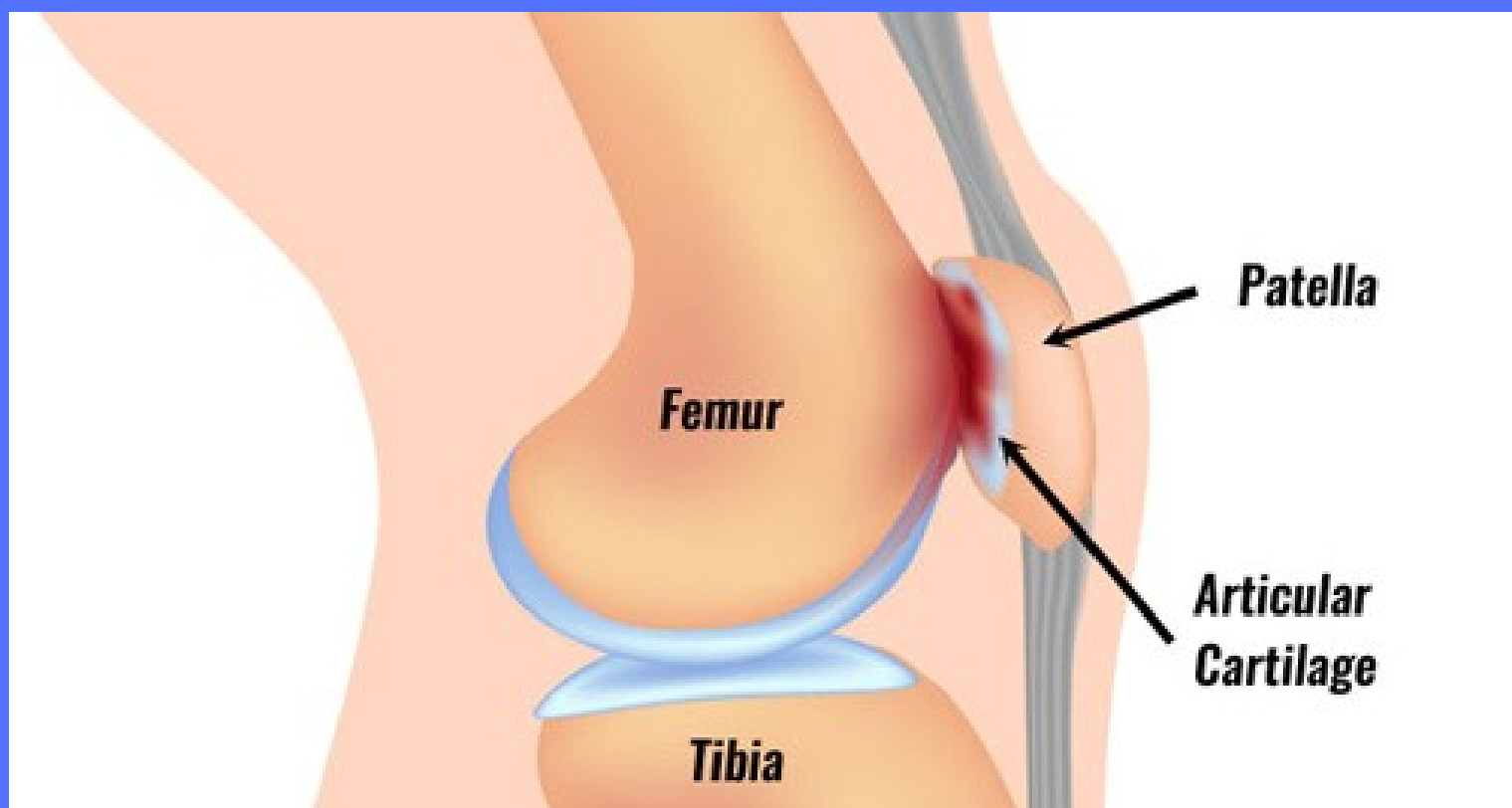
Movement training that improves GMAX activation resulted in: Immediate **kinematic and kinetic changes** at the hip.

Immediate **changes in self-reported Patellofemoral pain** during a single-limb landing task.

Movement training focused on improving GMAX use in the **sagittal plane** resulted in helpful **changes to control rotation and knee pain.**

# CLINICAL GUIDELINES FOR PT MANAGEMENT OF PFP

This review examined clinical guidelines for PT management of patellofemoral pain for applicability and convergence of recommendations.



# KEY FINDINGS

4 clinical practice guidelines were included in the review.

Guideline-recommended **interventions were consistent** for:

Exercise therapy

Foot orthoses

Patellar taping

Patient education

Combined interventions

Electrotherapeutic modalities were **not consistent**.

**Not recommended:**

Manual therapy (in isolation).

Dry needling

Patellar bracing.

## MAIN TAKEAWAYS

Recommendations from higher-quality clinical practice guidelines **may conflict with routine PT** management of patellofemoral pain.

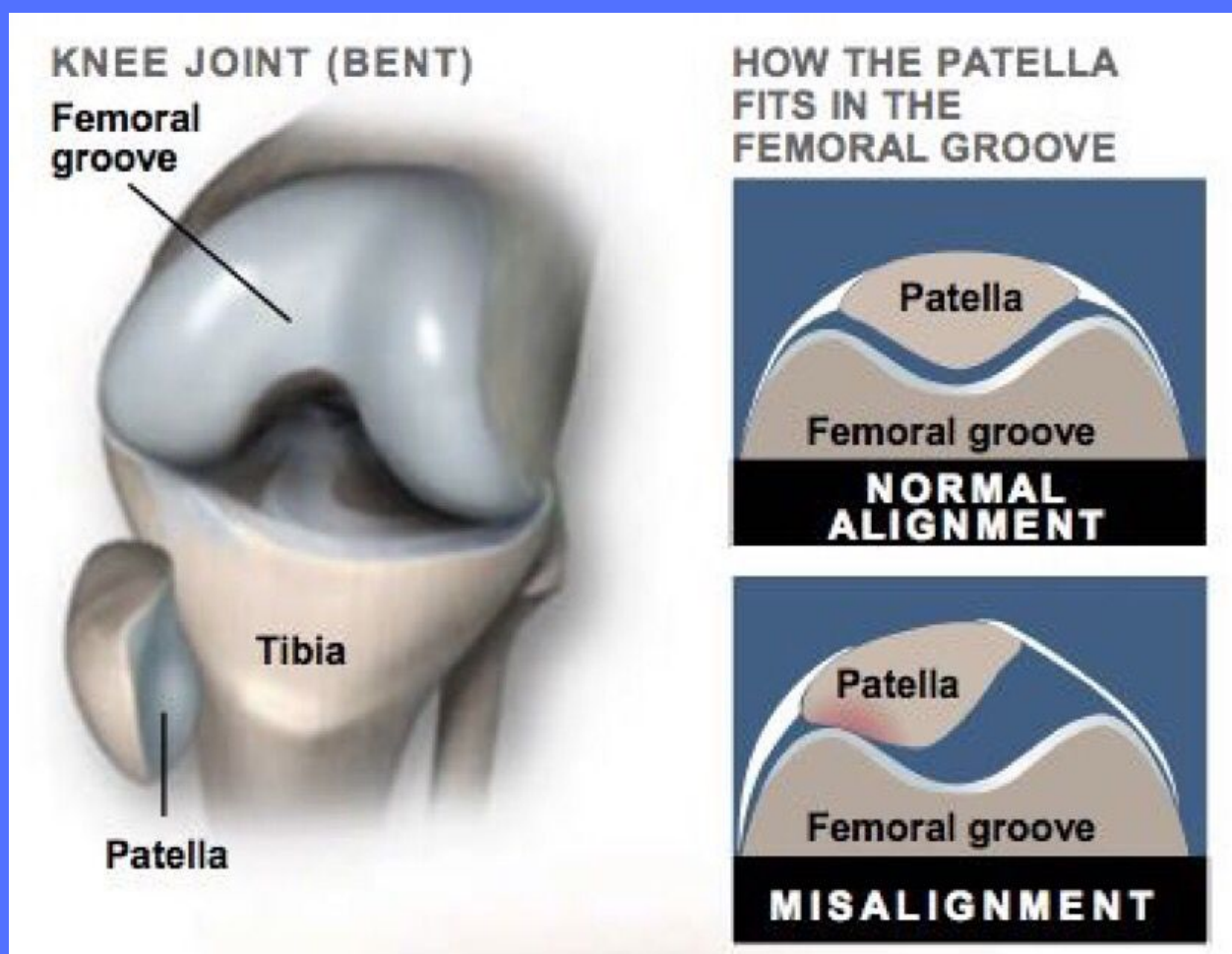
There is an important **gap between evidence and practice** in the PT management of patellofemoral pain.

This review offers high-quality guidance for recommended **PT exam, treatments, and evaluation processes** for PFP.

Improving **load tolerance, movement quality, and strength of hip musculature** should be a staple in PT management of PFP.

# PATELLAR TRACKING IN INDIVIDUALS WITH PATELLOFEMORAL PAIN

This study compared patellar motion during lunges in individuals with and without PFP. Also for 3D patellar alignments in a non-weight-bearing (NWB), and weight-bearing (WB) knee extended positions.





# KEY FINDINGS

WEEK 2: JULY 2021

## **Lateral Tilt at Full knee extension:**

PFP:  $11.77^{\circ} \pm 7.58^{\circ}$

Healthy:  $0.86^{\circ} \pm 4.90^{\circ}$

## **Superiorly Shifted at Full Knee Extension:**

PFP:  $17.49 \pm 8.44$  mm

Healthy:  $9.47 \pm 6.16$  mm

## **Significant differences were also found between groups for:**

Patellar tilt at  $45^{\circ}$ ,  $60^{\circ}$ , and  $75^{\circ}$  of knee flexion.

Superior-inferior shift of the patella at  $30^{\circ}$  flexion.

## **Lateral Tilt in Non weight-bearing knee extended position:**

PFP:  $7.44^{\circ} \pm 6.53^{\circ}$

Healthy group:  $0.71^{\circ} \pm 4.99^{\circ}$

# MAIN TAKEAWAYS

**Laterally tilted and/or superiorly shifted** position of the patella may indicate a higher risk for developing PFP.

**Assessing patella position should be considered during:**

Knee extension in supine lying and upright standing.

During a dynamic lunge

Both **passive and active patellar stabilization** are potential causative factors for patellar malalignment/maltracking.

These findings may also explain the **higher prevalence of isolated lateral patellofemoral joint osteoarthritis** than medial.

# GIVE US YOUR FEEDBACK!

## MEMBERS

We are on a mission to make research more accessible, easier to interpret, and quicker to implement.

Help us by giving 1 minute of your time to leave feedback for us.

We would greatly appreciate any feedback you have, as it helps us continually improve!

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