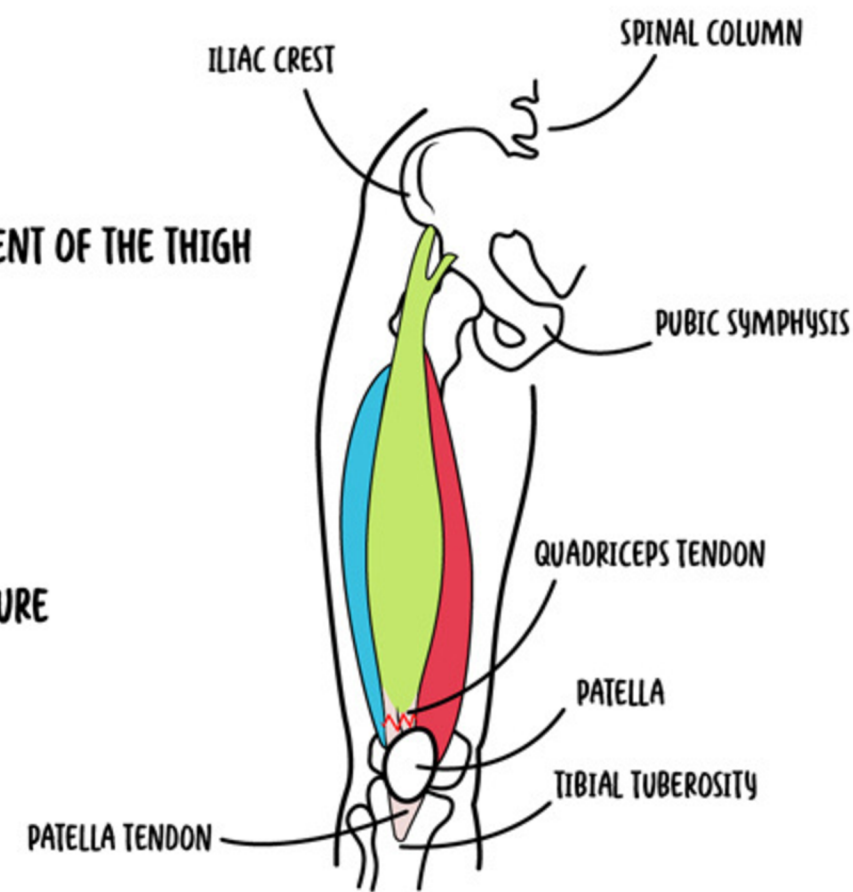


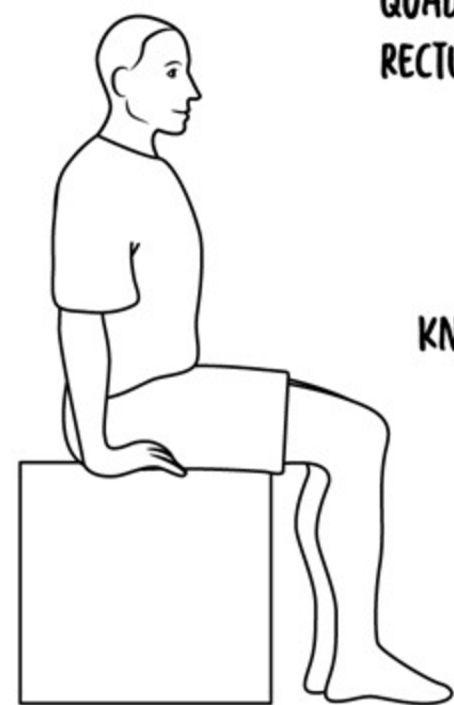
## THE QUADRICEPS

- GROUP OF STRONG MUSCLES IN THE ANTERIOR COMPARTMENT OF THE THIGH
- CONVERGE INTO THE QUADRICEPS TENDON -> ATTACHES TO THE PATELLA
- CAN BE INJURED, TYPICALLY IN ATHLETES CAUSING QUADRICEPS TENDINOPATHY OR QUADRICEPS RUPTURE

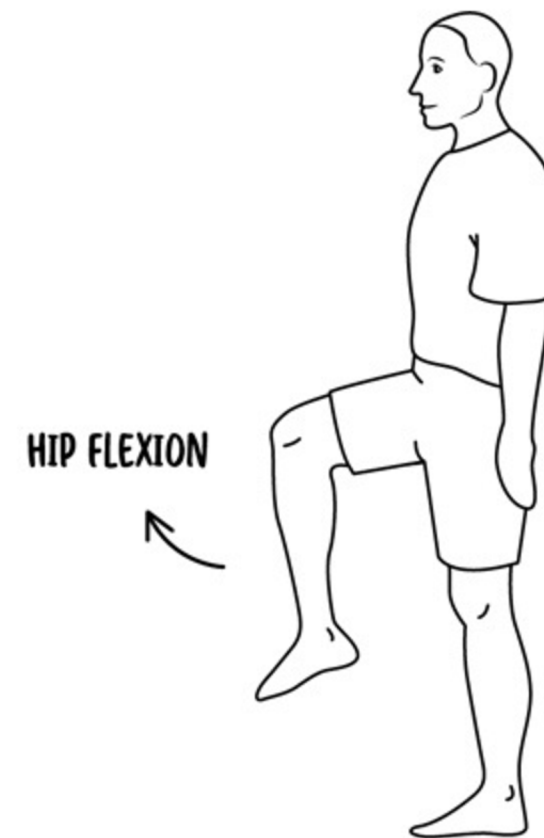


### BASIC ACTION

QUADRICEPS MUSCLES - KNEE EXTENSION  
RECTUS FEMORIS + HIP FLEXION



KNEE EXTENSION



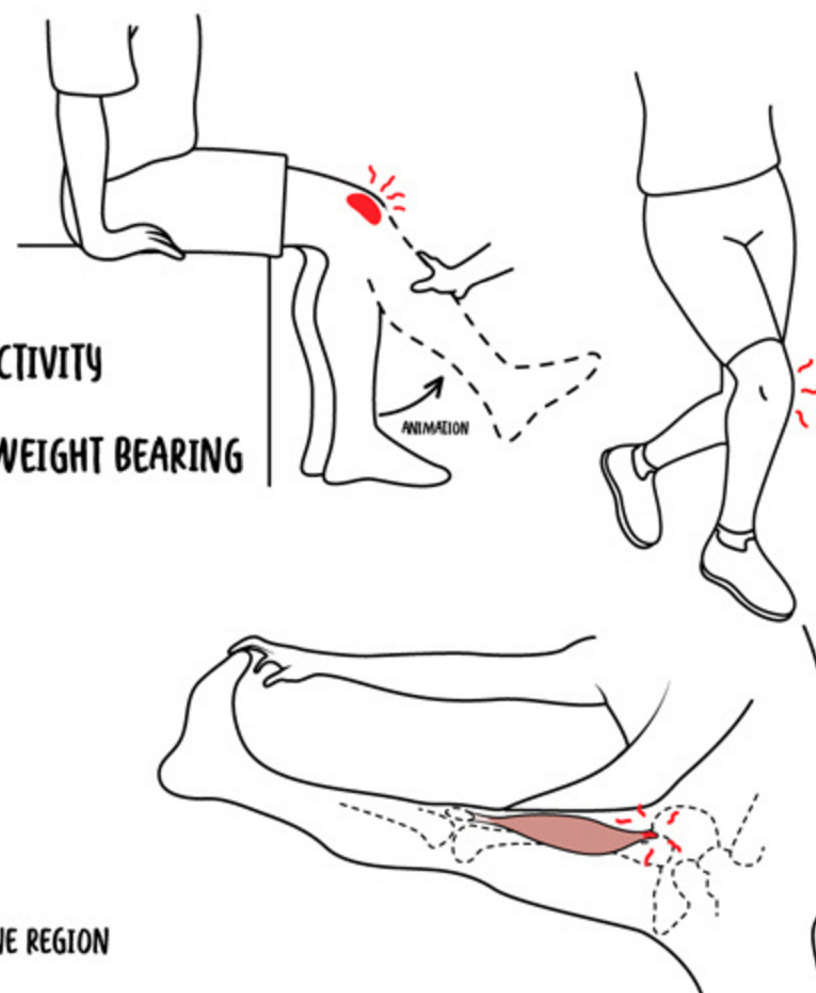
HIP FLEXION

### CLINICAL PRESENTATION

- PRESENT AS PAIN AND TENDERNESS OVER THE TENDON

### QUADRICEPS TENDINOPATHY

- MILD TENDINOPATHY PAIN - JUMPING AND STRENUOUS ACTIVITY
- MORE SEVERE TENDINOPATHY - ANTALGIC GAIT, REDUCED WEIGHT BEARING IF SEVERE AND KNEE MOTION IS LIMITED
  - PAIN ON KNEE FLEXION AND REDUCED ABILITY TO EXTEND THE KNEE
  - PAIN CAN BE ELICITED DURING RESISTED KNEE EXTENSION
- TENDERNESS OVER THE SUPERIOR POLE OF THE PATELLA
- ELICITED WITH HIP FLEXION MAY INDICATE TENDINOPATHY OF THE PROXIMAL RECTUS FEMORIS TENDON
  - TENDERNESS ON DEEP PALPATION OF THE ANTERIOR INFERIOR ILIAC SPINE REGION

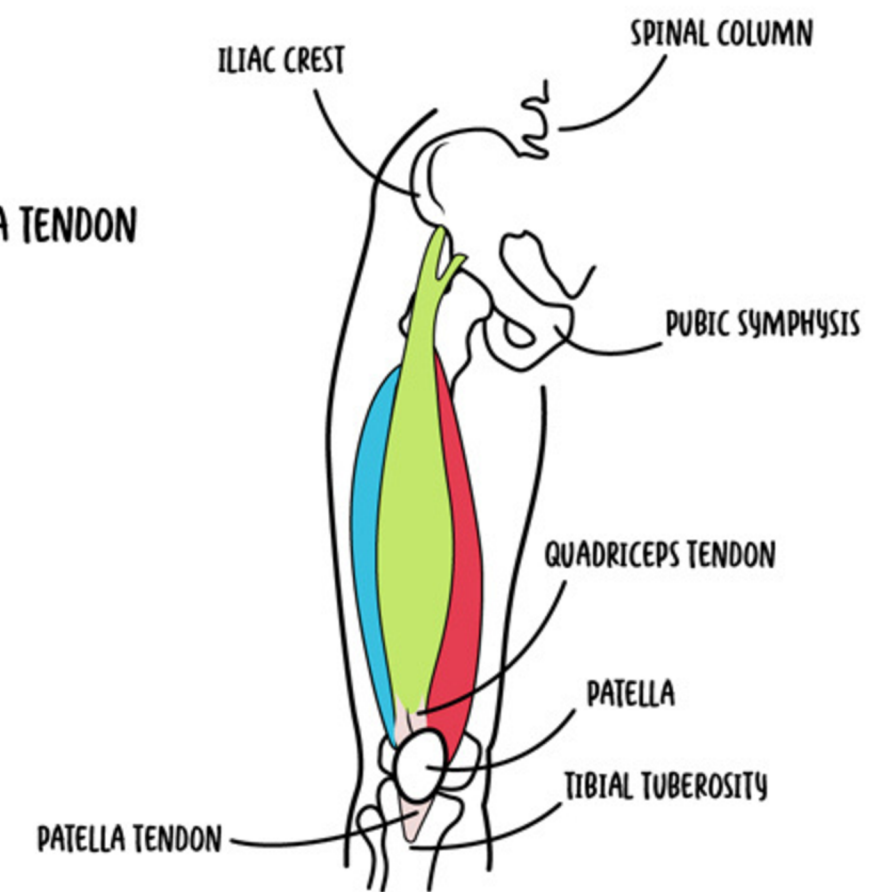


## ANATOMY

- DIFFERENT ORIGINS
- CONVERGE AND INSERT ONTO THE PATELLA AS THE PATELLA TENDON

### FOUR INDIVIDUAL MUSCLES

- RECTUS FEMORIS
- VASTUS LATERALIS
- VASTUS MEDIALIS
- VASTUS INTERMEDIUS

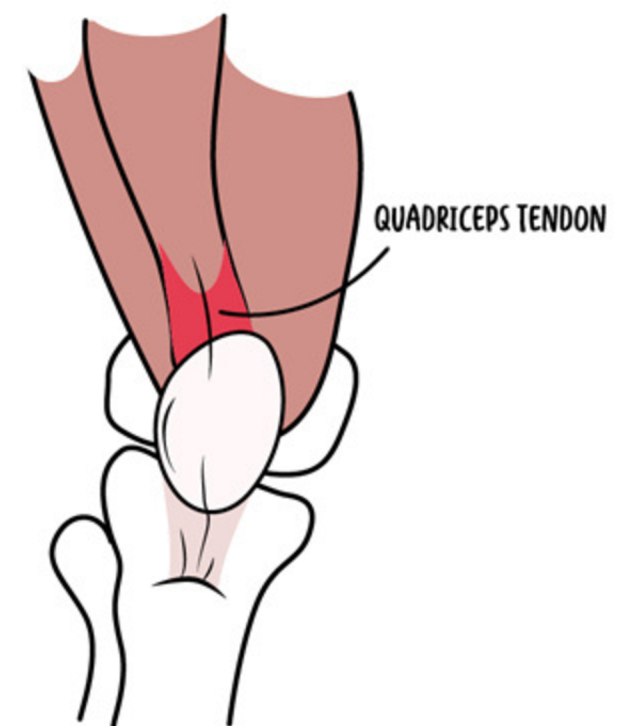


### CLINICAL PRESENTATION

- PRESENT AS PAIN AND TENDERNESS OVER THE TENDON

### QUADRICEPS TENDINOPATHY

- LESS COMMON THEN PATELLA TENDINOPATHY
- DEVELOPS OVER WEEKS TO MONTHS FROM REPETITIVE OVERUSE WITHOUT ADEQUATE TIME FOR THE TENDON TO RECOVER

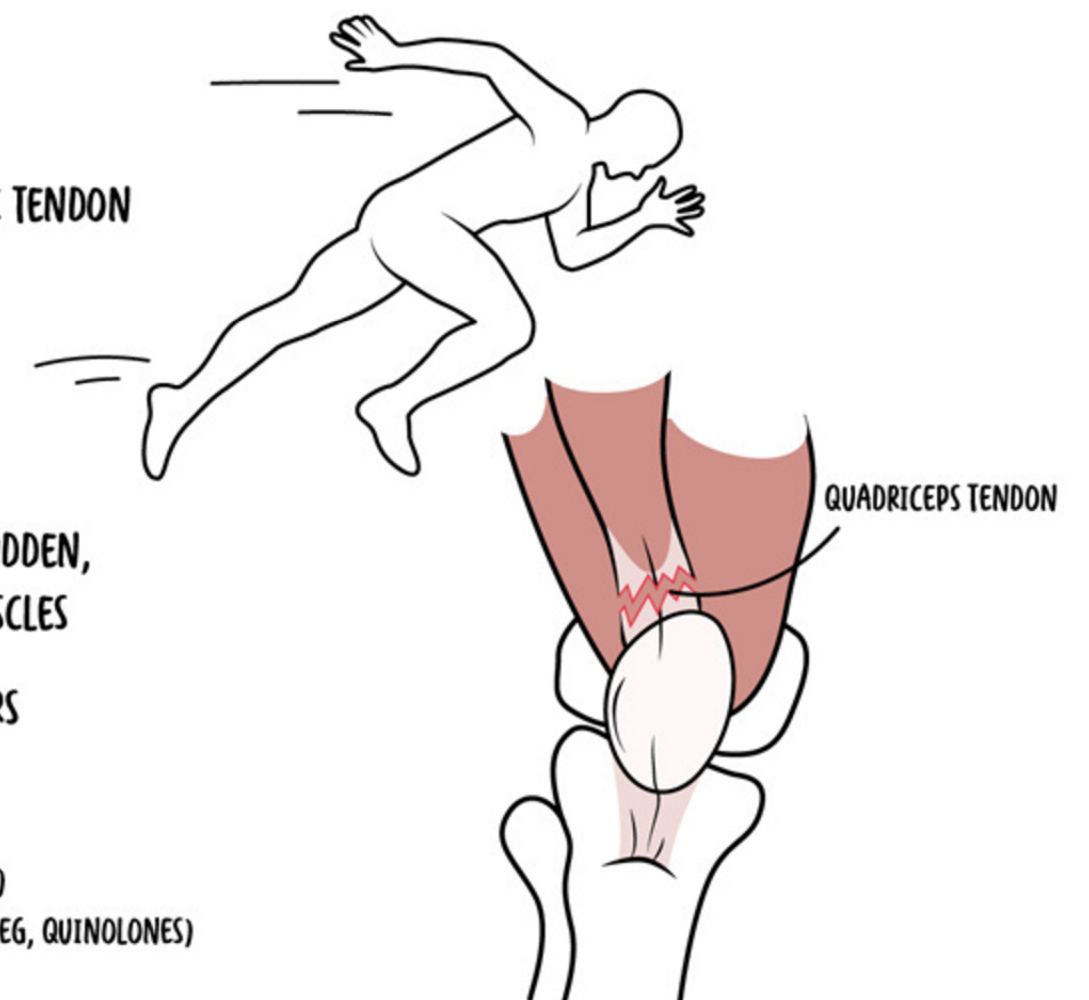


### CLINICAL PRESENTATION

- PRESENT AS PAIN AND TENDERNESS OVER THE TENDON

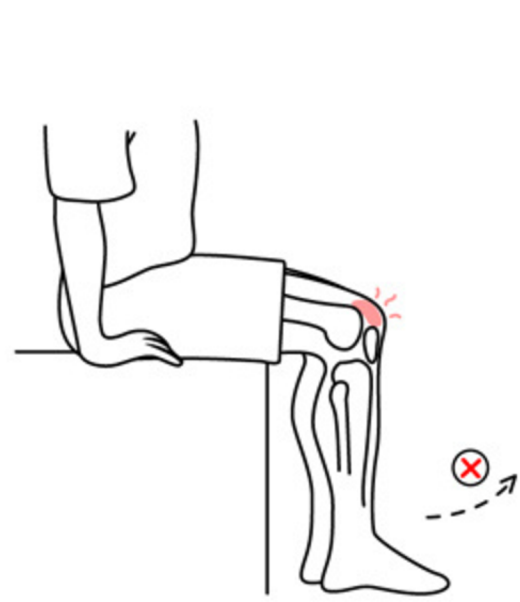
### QUADRICEPS TENDON RUPTURE

- OCCURS IN OLDER PEOPLE/ NON-ATHLETES
- IN ATHLETES USUALLY ACUTE FOLLOWING A SUDDEN, STRONG CONTRACTION OF THE QUADRICEPS MUSCLES
- CONSIDER SECONDARY CAUSES OF ACUTE TEARS
  - ANABOLIC STEROID ABUSE
  - RENAL DISEASE
  - METABOLIC BONE DISEASE (HYPERPARATHYROIDISM)
  - MEDICATIONS ASSOCIATED WITH TENDON RUPTURE (EG, QUINOLONES)



Armando H. Faigl

- CLINICAL EXAMINATION**
- GAP IN BETWEEN PATELLA AND QUADS
  - UNABLE TO PERFORM KNEE EXTENSION IN COMPLETE QUADRICEPS TENDON TEARS
  - OFTEN INVOLVE AVULSIONS OF A PORTION OF THE TENDON



COMPLETE QUADRICEPS TENDON RUPTURE  
CAUSES PATELLA TO MOVE DOWN (PATELLA BAJA)



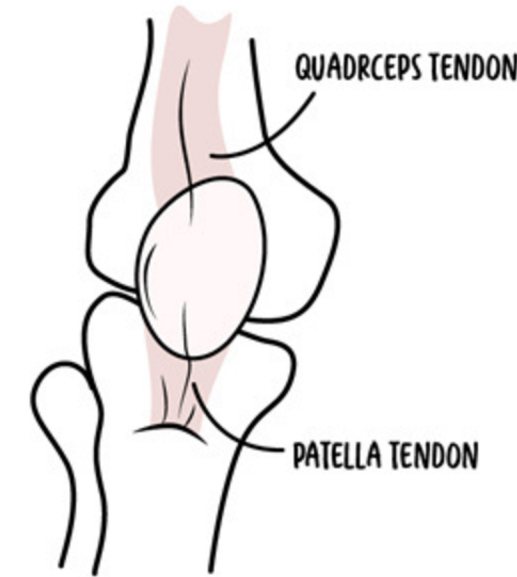
COMPLETE PATELLA TENDON RUPTURE  
CAUSES PATELLA TO MOVE UP (PATELLA ALTA)

## INVESTIGATIONS

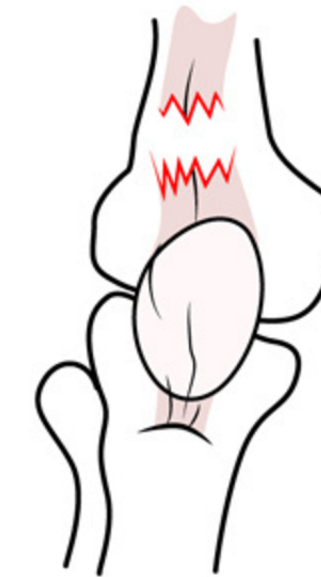
- HISTORY AND EXAMINATION FINDINGS
- US
- MRI TO INVESTIGATE UNUSUAL CASES (TUMOUR)



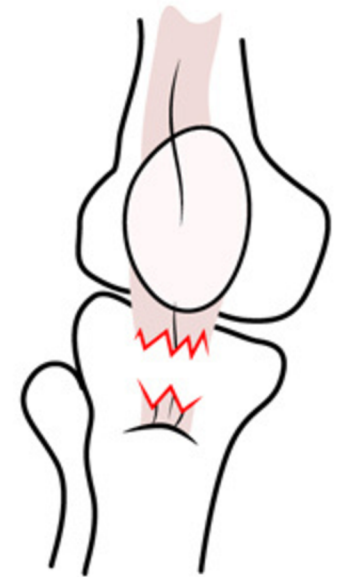
- CLINICAL EXAMINATION**
- GAP IN BETWEEN PATELLA AND QUADS
  - UNABLE TO PERFORM KNEE EXTENSION IN COMPLETE QUADRICEPS TENDON TEARS
  - OFTEN INVOLVE AVULSIONS OF A PORTION OF THE TENDON



NORMAL PATELLA POSITION



COMPLETE QUADRICEPS TENDON RUPTURE  
CAUSES PATELLA TO MOVE DOWN (PATELLA BAJA)



COMPLETE PATELLA TENDON RUPTURE  
CAUSES PATELLA TO MOVE UP (PATELLA ALTA)

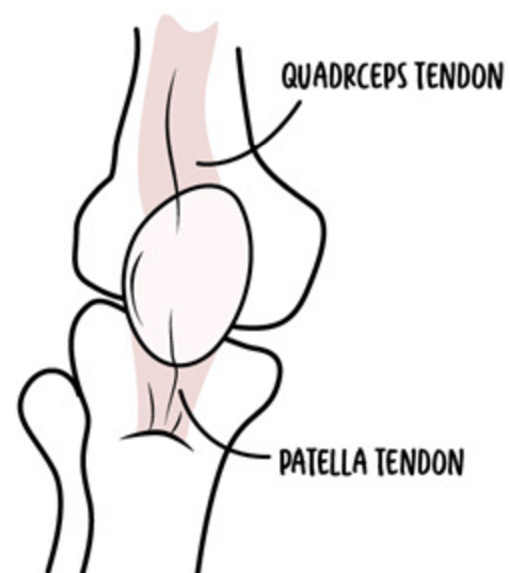
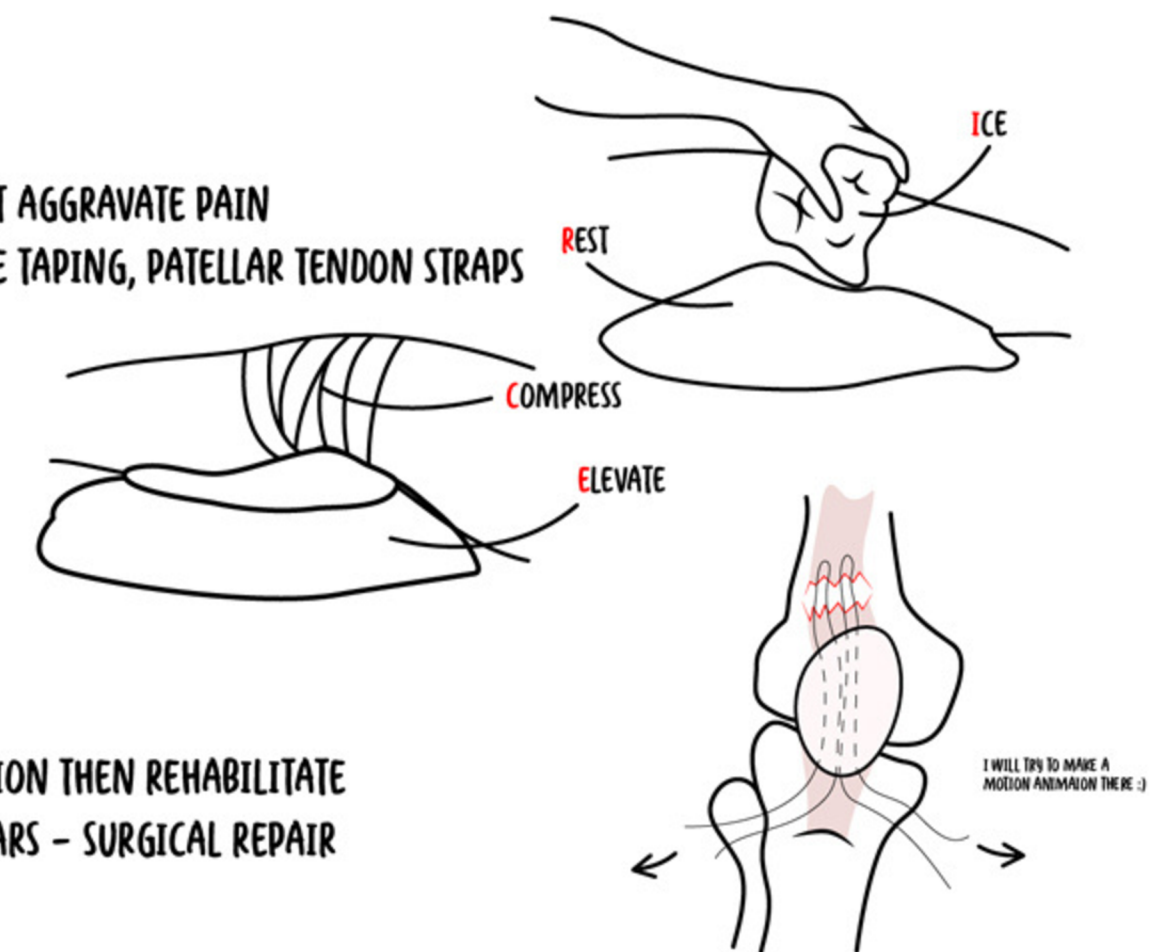
## TREATMENT

### QUADRICEPS TENDINOPATHY

- ACUTE TENDINOPATHY - RICE AND DO NOT AGGRAVATE PAIN
- SYMPTOMATIC RELIEF - RICE, SUPPORTIVE TAPING, PATELLAR TENDON STRAPS
- MASSAGE
- GLUCOCORTICIDS

### QUADRICEPS TENDON RUPTURE

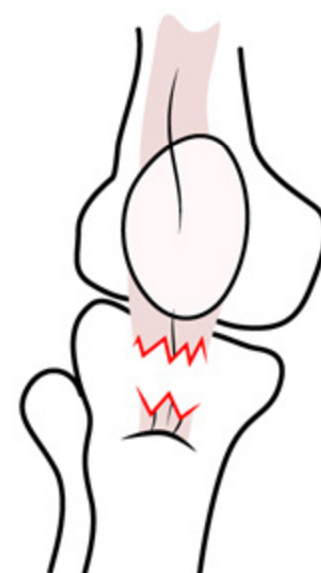
- RICE
- CRUTCHES
- ORTHOPAEDIC REVIEW
- PARTIAL - MOBILISE FOR 4/52 IN EXTENSION THEN REHABILITATE
- COMPLETE OR ATHLETES WITH PARTIAL TEARS - SURGICAL REPAIR



NORMAL PATELLA POSITION



COMPLETE QUADRICEPS TENDON RUPTURE  
CAUSES PATELLA TO MOVE DOWN (PATELLA BAJA)



COMPLETE PATELLA TENDON RUPTURE  
CAUSES PATELLA TO MOVE UP (PATELLA ALTA)