SPORTS INJURIES IN CYCLING

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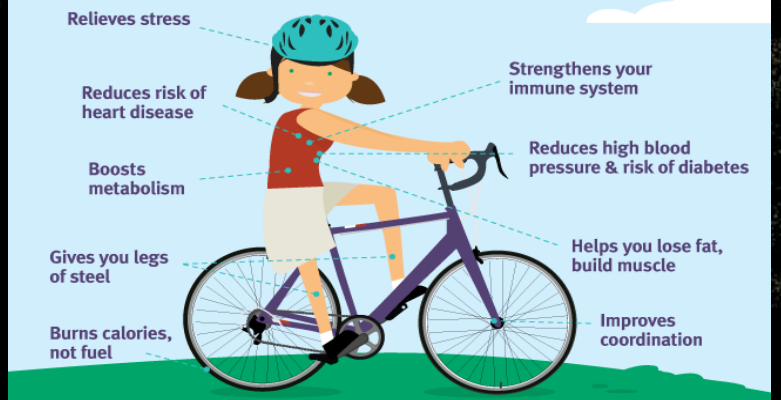
7 Reasons for Cycling

Health Benefits of Biking



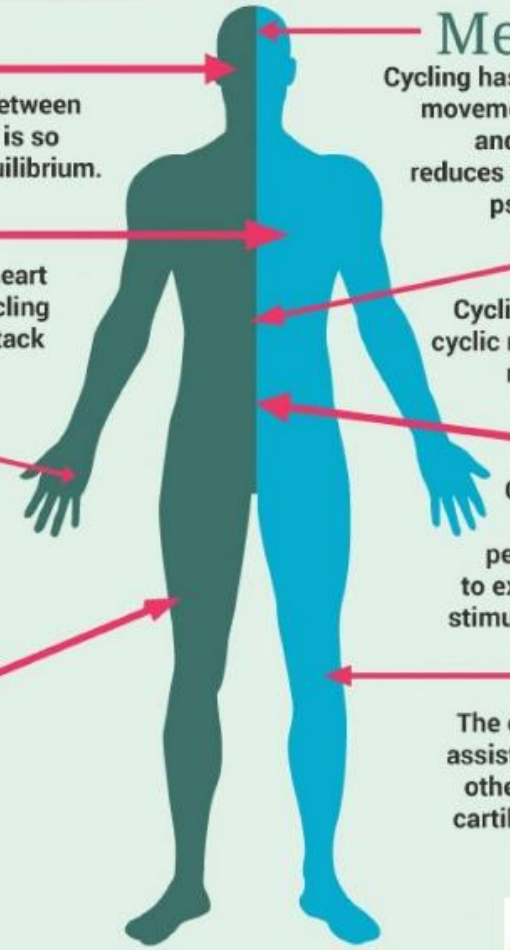
Health Benefits of Cycling

Balance
Cycling produces the balance between exertion and relaxation which is so important for the body's inner equilibrium.

Heart
All the risk factors that lead to a heart attack are reduced and regular cycling reduces the likelihood of heart attack by more than 50%.

Coordination
Moving both feet around in circles while steering with your hands and your body's own weight is good practice for your coordination skills.

Muscles
A week of inactivity reduces the strength of the muscular system by up to 50% and can harm them long-term. During cycling, most of the body's muscles are activated.



Mental Health
Cycling has relaxing effect due to uniform, movement which stabilizes physical and emotional functions. It reduces anxiety, depression and other psychological problems.

Back Pain
Cycling posture is optimum and the cyclic movement of the legs stimulates muscles in the lower back.

Waistline
Cycling is ideal for targeting problem areas. It enables people who cannot move easily to exercise. It increases fitness and stimulates the body's fat metabolism.

Joints
The circular movement of cycling assists the transport of energy and other metabolic produces to the cartilages, reducing the likelihood of arthrosis.

asian SAMRA
MULTI SPECIALTY HOSPITAL

But, injury can happen

Acute
traumatic injuries due to fall

Overuse injuries
develop gradually overtime (due to repeated movement patterns or pressures)

CYCLING INJURIES REVEALED

Bike Helmet Facts

91% of bicyclists killed in 2008 were not wearing helmets.

Helments reduce the risk of head injury by 85%, brain injury by 88%, and severe brain injury by more than 75%.

Most Common Injuries Due To Overuse

30.3% Lower Back

48.8% Neck

36.1% Groin/Buttock

41.7% Knee

31.1% Hands

Two-thirds of accident deaths are from traumatic brain injuries

1 IN 8 BICYCLISTS WITH REPORTED INJURIES HAS A TRAUMATIC BRAIN INJURY

19 States require drivers to keep 3 feet away from bicyclists at all times

Injuries on bicycles result in 580,000 emergency department visits each year

Christensen Law Firm

Sources:// http://www.helmets.org/stats.htm / http://bicycleuniverse.info/transpo/almanac-safety.html / http://www.bicyclinginfo.org/facts/crash-facts.cfm / http://www-nrd.nhtsa.dot.gov/Pubs/811386.pdf http://www.iihs.org/research/fatality_facts_2008/bicycles.html#sec1 / http://www.aafp.org/afp/2001/0515/p2007.html

COMMON CAUSE OF CYCLING INJURIES

- Failure to warm up
- Overtraining
- Poor exercise technique
- Excessive loading on the body
- No safety precautions
- Accident
- Inappropriate equipment
- Reoccurring injury
- Genetic factors
- Muscle weakness or imbalance
- Lack of flexibility
- Joint laxity

CRAMP

- Most common → on bike / on road race / in day-to-day life
- Description :
  - Intense pain
  - Tight muscle (muscle spasm, muscle fibers involuntarily contracting
- Common sites → quadriceps, hamstrings, calves, upper back, and neck
- Causes → multifactoral → fatigue, dehydrated, lack of salts, underlying injury, unusual biomechanical strain

STRAIN

- Soft tissue injury → pulled muscle
- Most common → calf muscle strain
- Causes → muscle weakness, improper warm-up, cycling too much in a day, improper technique (foot pointing upward and calf hyperextended at the lowest cycle position), tight muscle, cold weather, fatigue

NECK PAIN

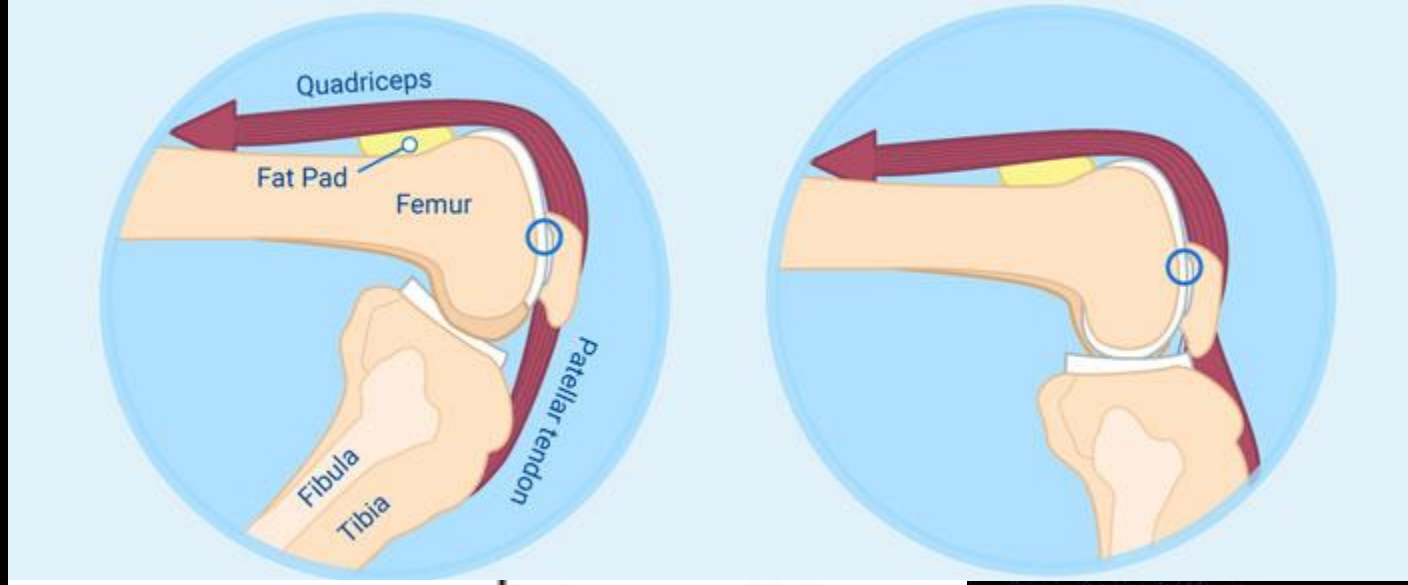
- **Very common complaint**
- Symptoms → pain and ache in neck, radiate to middle part of back, difficult to rotate and bend head, feel "*blocked*"
- Causes →
- "*too stretched* out", lack of flexibility in upper back and neck, BARS TOO LOW → neck hyperextension, poor adaption to sustained posture, overstrained → painful muscle spasm, fatigue

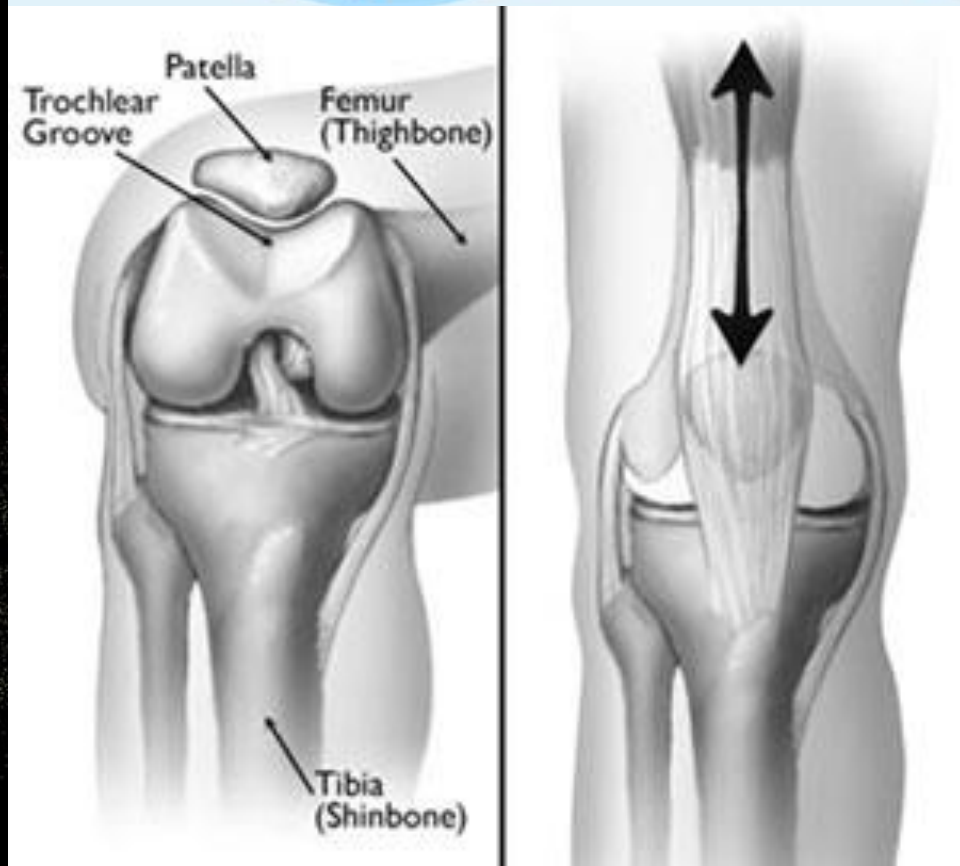
KNEE PAIN

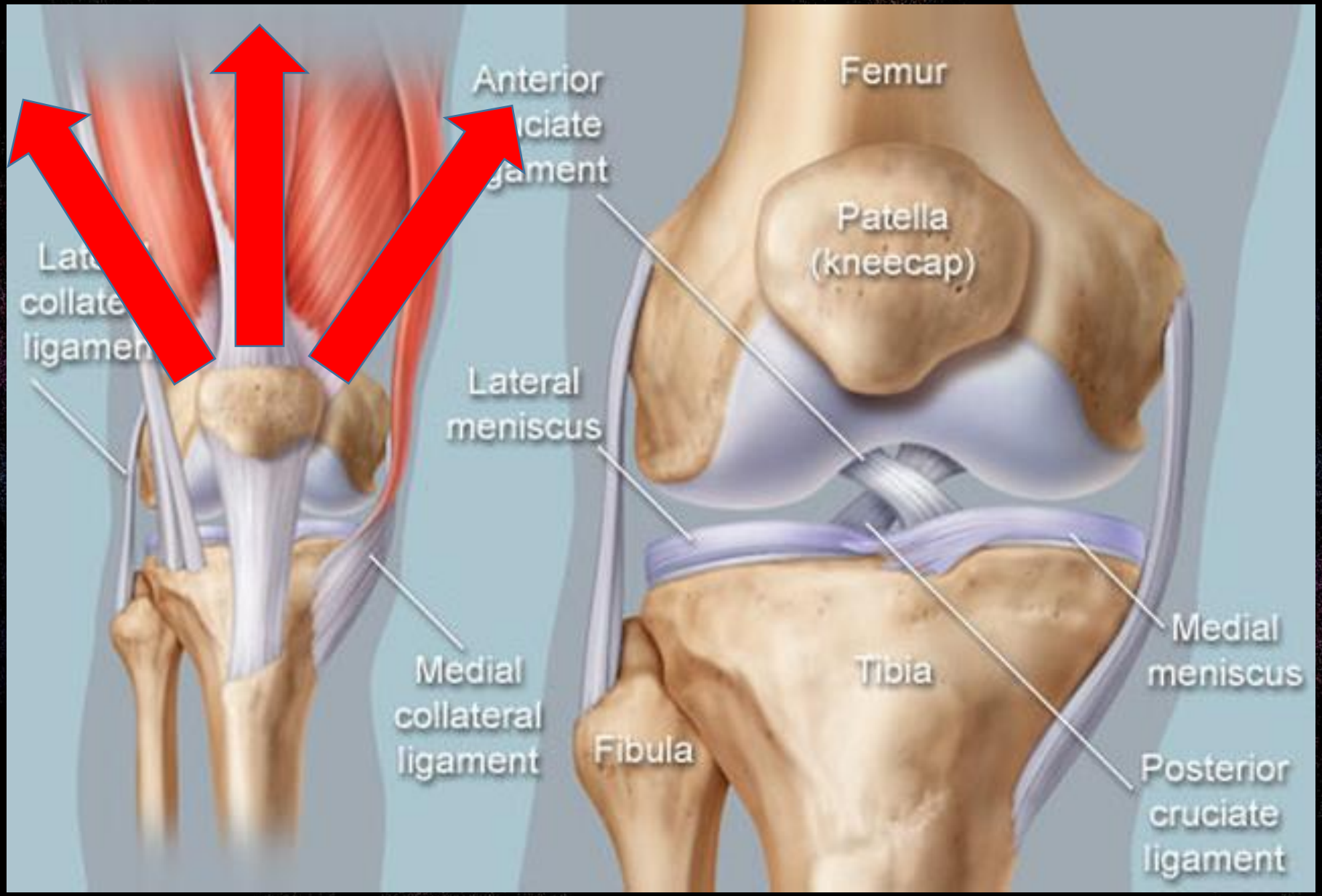
- One of the most common area of injury → **difficult to diagnose**
- Most common symptoms → pain in kneecap
- Causes → patellofemoral pain syndrome, ITB syndrome, patella tendonitis, bursitis,
- Meniscus tears, ACL/PCL injury → rare → unless result from trauma (heavy fall, leg bend unnaturally)

KNEE PAIN

- Patellofemoral pain syndrome
  - Symptoms → pain, deep ache around kneecap, stiff getting up from sitting
  - Cause → imbalance muscle on thigh or hip → change in balance of tension across kneecap






Anterior
Femur
Patella
(kneecap)
Lateral
meniscus
Medial
collateral
ligament
Tibia
Medial
meniscus
Fibula
Posterior
cruciate
ligament

- **Iliotibial band syndrome**
  - Symptoms → pain outside kneecap, tightness in the same side hip
  - Cause → repeated movement, over training, incorrect saddle adjusments, decreased flexibility in hip external rotators (gluteus maximus muscle) → alter muscle balance around knee, create tension outside the knee → irritation kneecap

- **Patella tendonitis**
  - Symptoms : tenderness and pain underneath kneecap on front leg, sore after riding, painful during first few minutes cycling
  - Cause → irritation after over training, poor bike set up

Factor	Possible result
Bike fit	
Saddle too high	Knee extension that irritates the ITB, stress on biceps tendon, patellofemoral loading, hip stressed by rocking while pedaling, posterior knee pain
Saddle too low	Stress on patellar and quadriceps tendons
Saddle too far forward	Stress on anterior knee from pedaling in hyperflexed position
Saddle too far back	ITB stretch from excessive forward reach for pedal, stress on biceps tendon

BACK PAIN

- Very common affecting almost 60% cyclist at some point
- Symptoms → sharp pain or ache in the lower part of back, radiate to buttocks and thigh, stiffness when get up from sitting
- Causes → sustained posture with decreased flexibility in hips, irregular stretches, bad posture, improper saddle (too low / too high), mashing gears, too much differential between saddle and bar height, poor core strength

Hand pain

- Usually not pain but numbness
- 2 common nerve: ulnar and median nerve
- Cause :
  - Prolong compression of nerve,
  - Improper position of hand

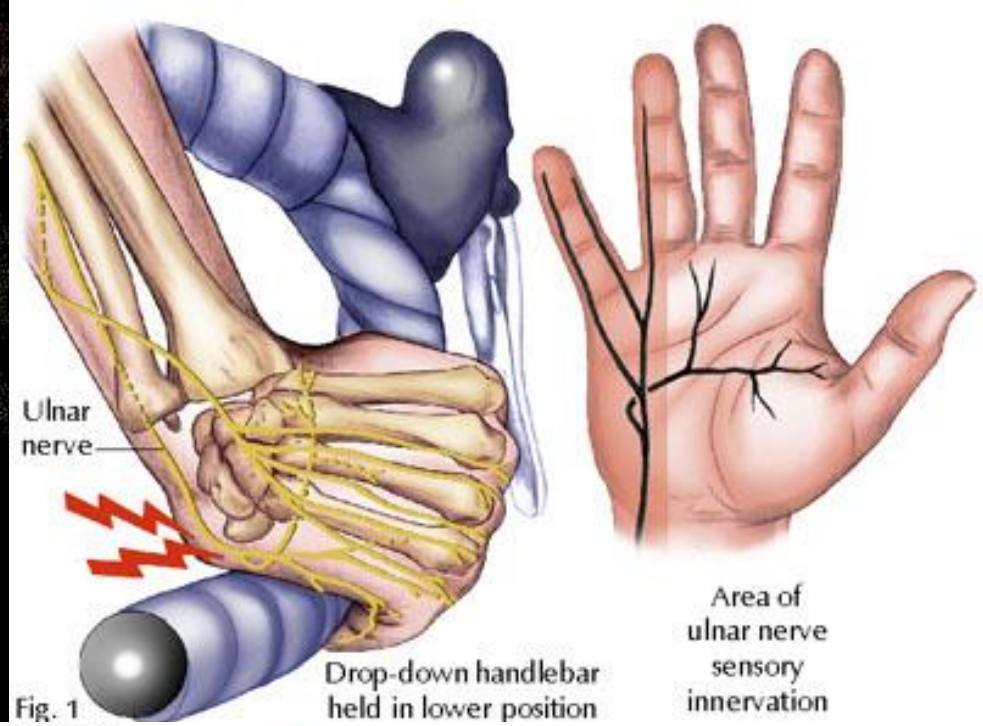
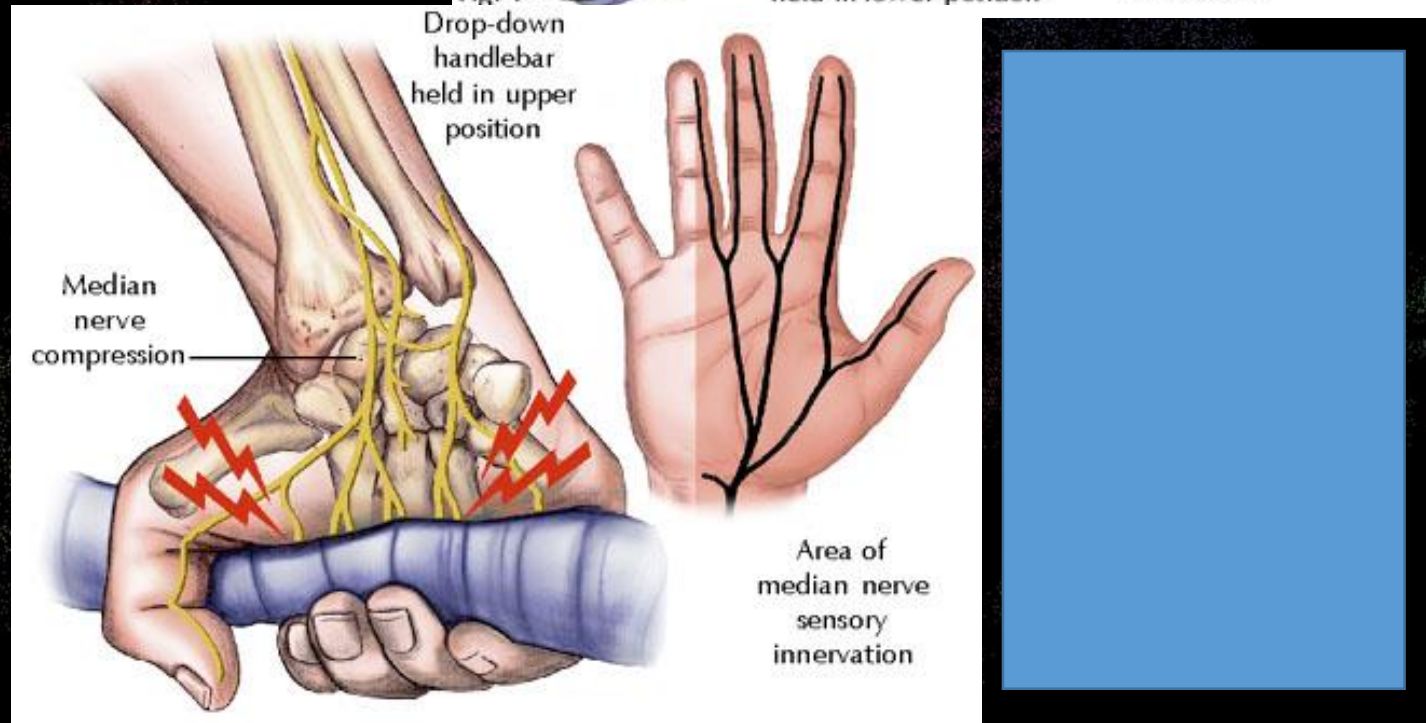


Fig. 1



MANAGEMENT

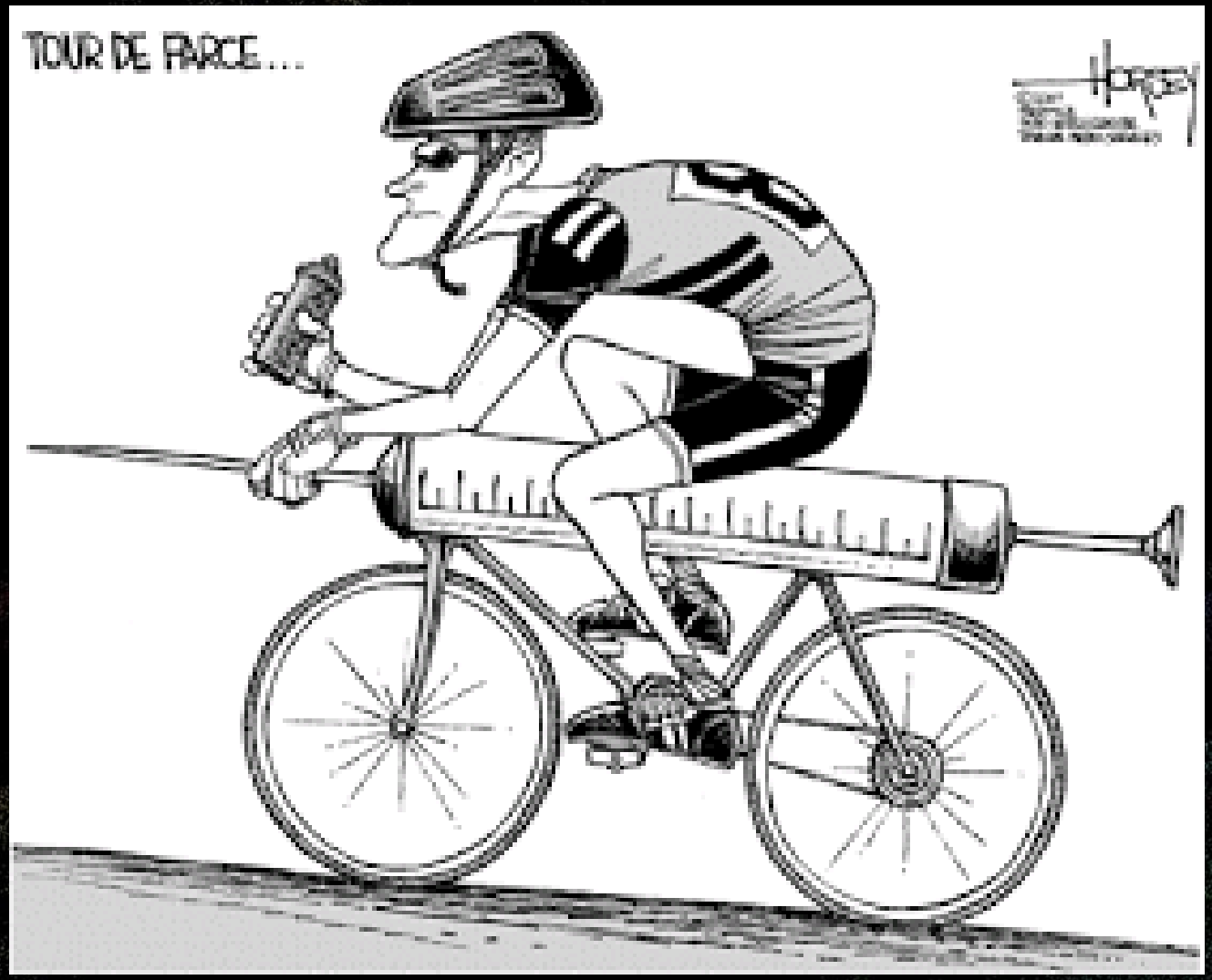
- **Rest** → first 24-48 hours after injury is **critical treatment period** → might need immobilization
- **Ice** → first 48 hours post injury, 20 mins at a time every 3-4 hours
- **Compression** → wrap with elastic bandage, to reduce swelling
- **Elevation** → put higher than heart, elevate at night

FALL SAFELY

- **Don’t brace for the fall** → keep your hands on the bars or as close to your body as possible to protect your face and chest
- **Learn how to fall** → get into a ball and using the tuck-and-roll method
- **Pick a good landing spot** → aim for as safe a spot as you can to land

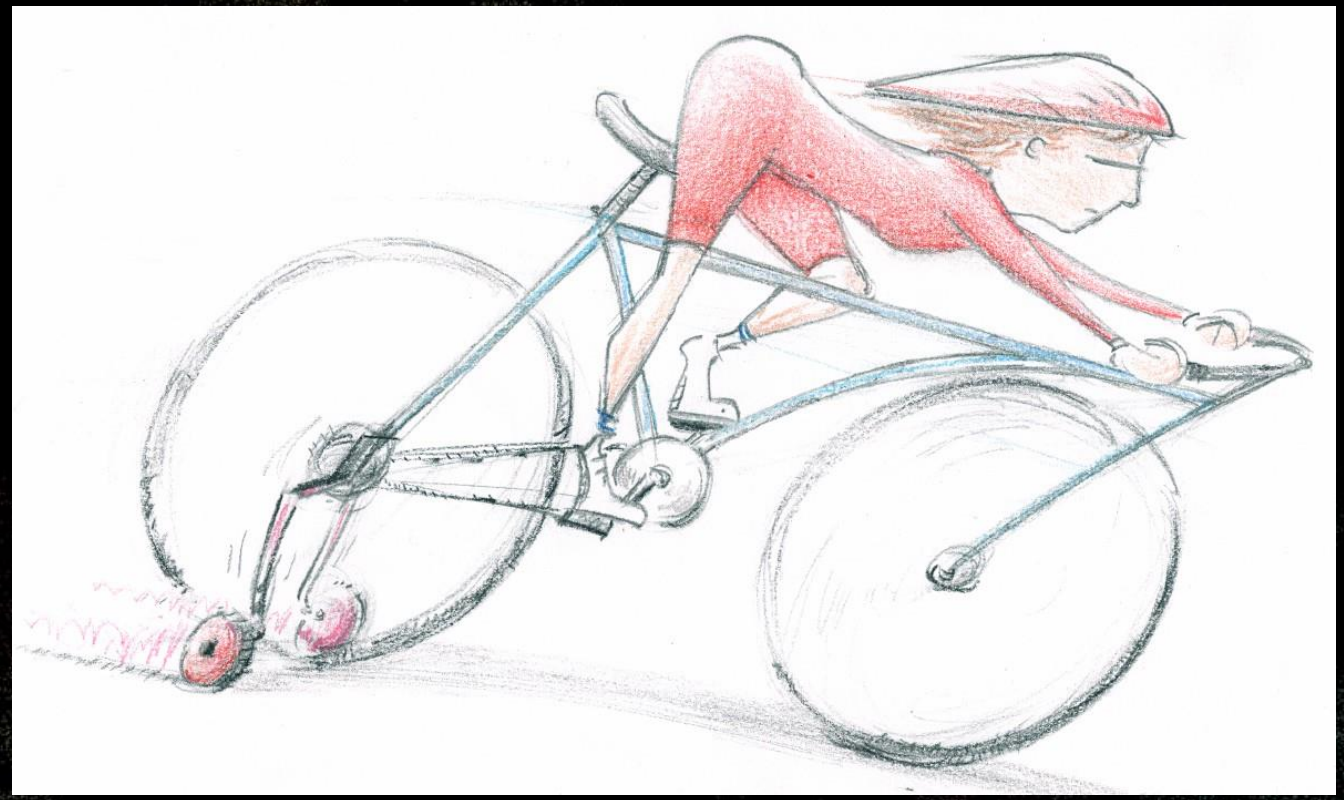
When to see doctor ?

- Severe pain, especially on walking
- Severe swelling
- Altered sensation, paresthesia, anesthesia
- Unable to complete normal daily activities after initial 72 hours



PREVENTION

- Adequately hydrated - balance fluid
- Regular stretching → warm up and cool down
- Protective clothing
- Right seat height
- Change forward / back seat position
- Proper crank length
- Right gear ratio
- Shoes with cleats
- Align cleats
- Train properly for length, duration, intensity



Bike fitting should :

- Individual
- Based on flexibility, strength, posture, type of bike
- gradual

Is bike fitting important ?

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