

# Puberty, Girls and Performance

During puberty, body undergoes rapid physical and hormonal changes. Common for young athletes, especially females, to have temporary plateaus or declines in athletic performance.

Why?

Body Length Changes

Body Composition Changes

Hormonal Changes (Estrogen)

Menstruation and Energy

## “Awkward Phase”

- bones grow faster than muscle, altering body before muscles can adapt
- centre of gravity shifts lower and pelvis/hips get wider
- body proportions change faster than brain can adapt and loses it's body map
- Relearning how to move in new body, especially rough on newer swimmers as movements patterns are newer

## Body Composition and Power to Weight Ratio

- Increased Estrogen - signals the female body to increase body fat mass
- This can temporarily alter power-to-weight ratio, especially combined with new body proportions.
- longer limbs, weakened muscles pulling a heavier body

## Increase Injury Risk

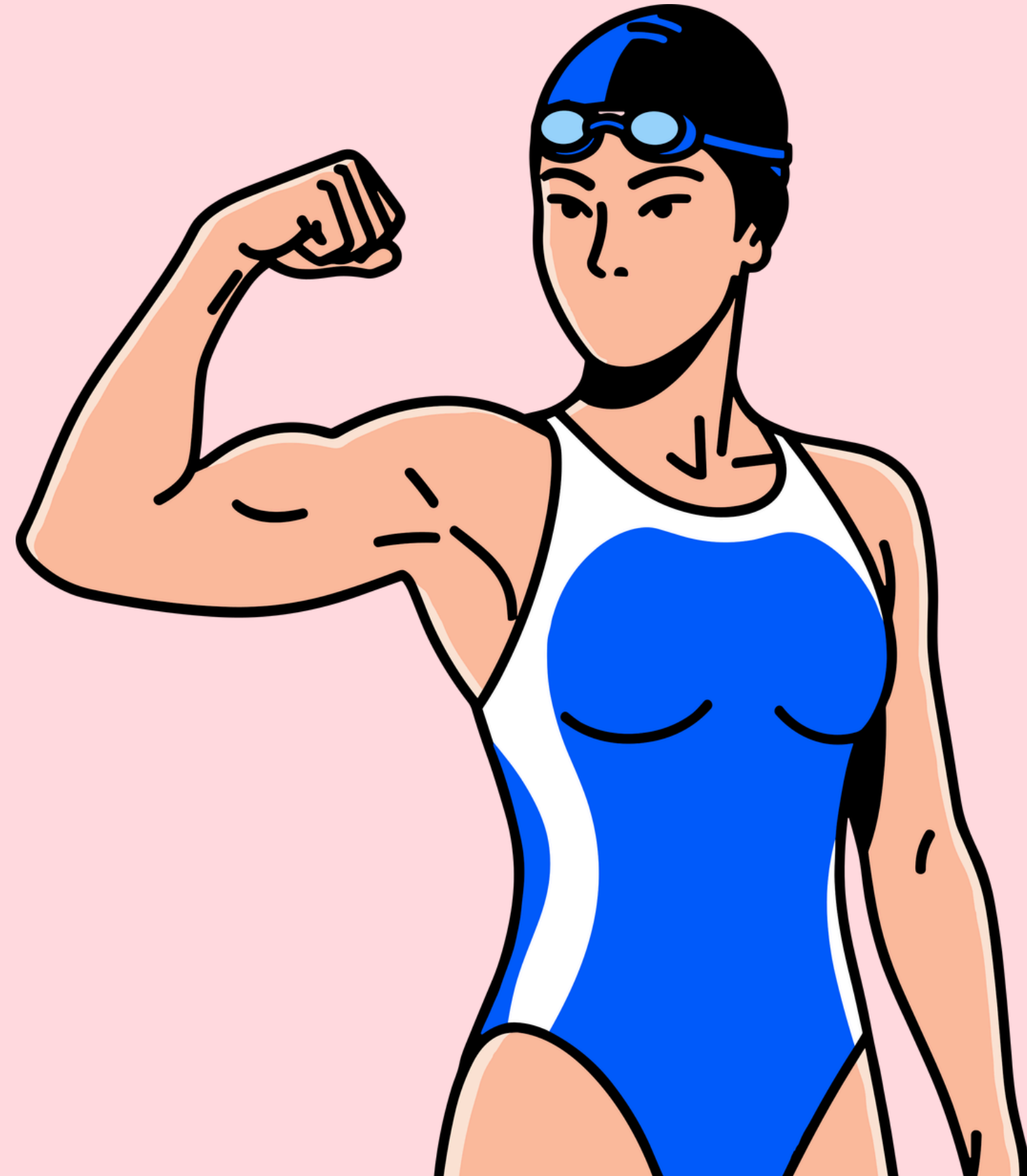
- ACL Tear - 8x more likely in pubertal girls!
- wider hips causing knees to cave in + looser joints (estrogen)
- stress fractures - rapid growth bones are less dense (more on this later)

# As you get used to your new body...

Your VO2 Max (cardio) and lactate threshold ("burn" limit) remain constant through your cycle  
Studies show menstrual cycles have limited impact on performance physically.

If anything, your body is primed for performance at the start of your cycle and a few days after: less pain, faster recovery!

Mentally, however pre-period and period symptoms make you feel weaker and slower, though physiologically you are not.



# Keeping Girls in Sport



The puberty performance plateau and onset of menstruation are common frustration points for female athletes, particularly swimmers.

Lots of physical changes and mood changes happening! Can be overwhelming and frustrating!

It's important to understand these changes are NORMAL and to support athletes to stay in the sport.

Focus on the process