

A 3-year-old girl is brought to the emergency department for acute onset of right elbow pain. She was playing in the snow and started crying when her father pulled her by the arm to take her inside. On examination, the girl keeps her hand in a pronated position, refuses to use her hand, and cries when her elbow is moved. There is no swelling or deformity. Palpation of the radial head elicits mild tenderness. A click is felt when the forearm is hyperpronated, and the child stops crying and starts to use her arm. What is the most likely etiology of this child's symptoms?

- ☐ A. Lateral epicondylitis
- ☐ B. Medial epicondylitis
- ☐ C. Midshaft forearm fracture
- ☐ D. Panner disease
- ☐ E. Radial head subluxation
- ☐ F. Supracondylar fracture



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- ☐ A. Lateral epicondylitis [1%]
- ☐ B. Medial epicondylitis [0%]
- ☐ C. Midshaft forearm fracture [0%]
- ☐ D. Panner disease [0%]
- ☒ E. **Radial head subluxation** [98%]
- ☐ F. Supracondylar fracture [1%]

[Proceed to Next Item](#)**Explanation:**User Id: XXXXXXXXXX

Radial head subluxation (nursemaid's elbow)	
Mechanism	<ul style="list-style-type: none"><li>• <b>Axial traction</b> on forearm with elbow extended (child pulled, lifted, or swung by arm)</li></ul>
Physical examination findings	<ul style="list-style-type: none"><li>• Arm held <b>extended &amp; pronated</b></li><li>• No swelling, deformity, or focal tenderness</li></ul>
Treatment	<ul style="list-style-type: none"><li>• Supination of forearm &amp; flexion of elbow OR</li><li>• <b>Hyperpronation</b> of forearm</li></ul>

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Radial head subluxation (nursemaid's elbow) is one of the most common elbow injuries in children age 1-5. It occurs when infants or children are lifted or pulled by the hand or



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Radial head subluxation (nursemaid's elbow) is one of the most common elbow injuries in children age 1-5. It occurs when infants or children are lifted or pulled by the hand or arm. **Pulling** causes **axial traction** on the forearm, which causes the radial head to slip through parts of the annular ligament. Physical examination should show no swelling or angular deformity, although the radial head may be mildly tender. The child typically keeps the affected arm in a pronated position; attempted forearm supination will be resisted and cause the child to cry out in pain. While pressure is applied at the radial head, **forearm hyperpronation** or **supination plus flexion** usually reduces the annular ligament with an audible click. Either maneuver should restore full, normal use of the extremity. The response to reduction is diagnostic of this condition.

**(Choice A)** Lateral epicondylitis ("tennis elbow") is caused by repetitive contraction of the extensor muscles at the lateral epicondyle. Tenderness is elicited over the lateral epicondyle, and pain is felt with passive wrist flexion and resisted wrist extension.

**(Choice B)** Medial epicondylitis ("golfer elbow") manifests as localized tenderness over the medial epicondyle, pain with resisted wrist flexion, and pain with passive wrist extension.

**(Choices C and F)** Fractures are very common in children and manifest with significant pain, deformity, and swelling of the injured bone. A fracture is unlikely in this child, who resumes arm use after forearm supination/flexion.

**(Choice D)** Panner disease is an osteochondrosis of the capitellum. The typical patient is an adolescent who is actively engaged in sports that involve throwing. Common complaints include chronic dull pain, crepitation, and loss of pronation and supination.

#### Educational objective:

Radial head subluxation occurs when infants or children are lifted or pulled by the hand or arm. The child typically keeps the hand in a pronated position and refuses attempted forearm supination. Reduction by **forearm hyperpronation** or **supination plus flexion** is diagnostic and therapeutic.

#### References:

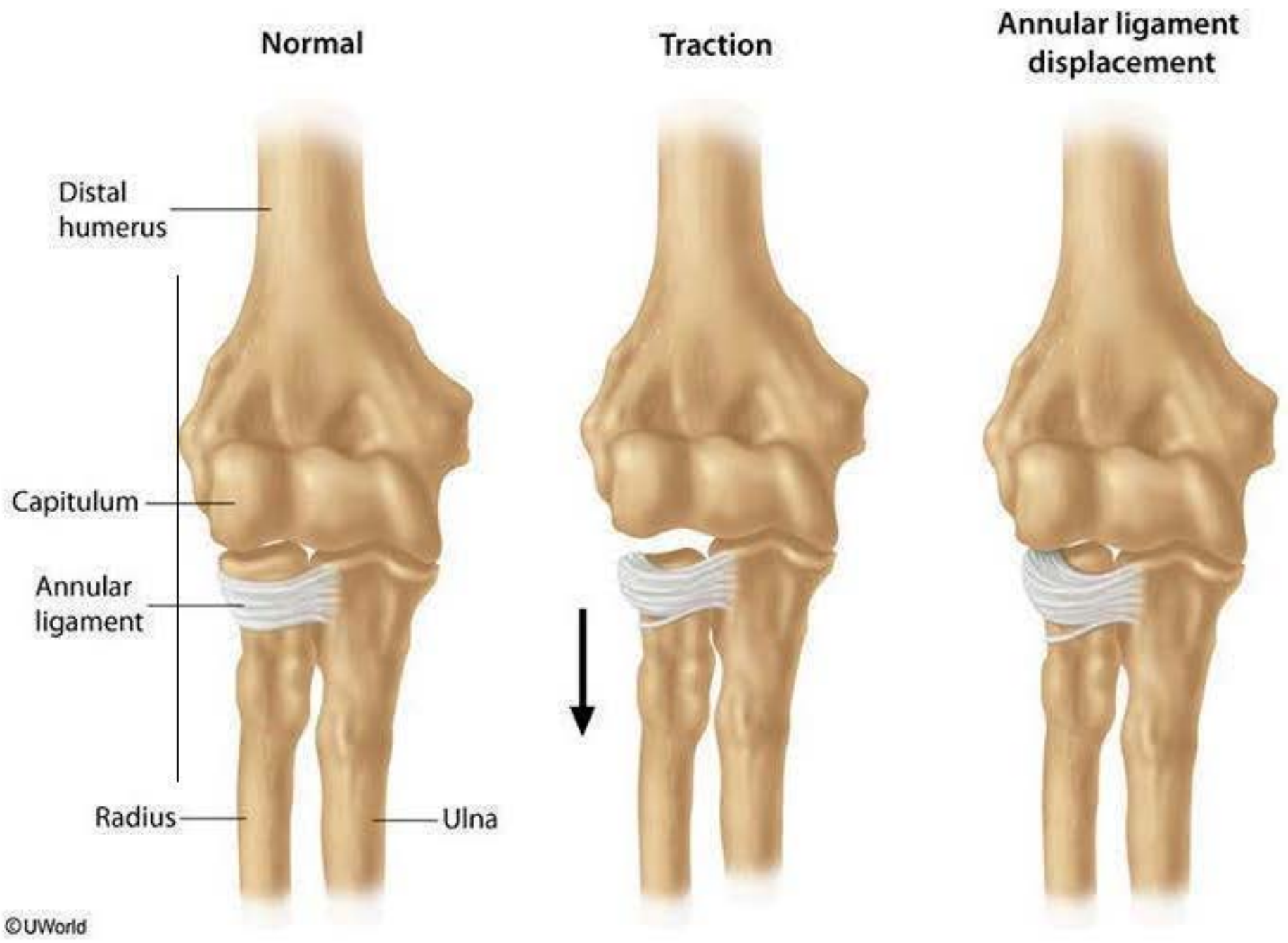
1. **Randomized comparison of pain perception during radial head subluxation reduction using supination-flexion or forced pronation.**
2. **Manipulative interventions for reducing pulled elbow in young children.**



Media Exhibit

head subluxation

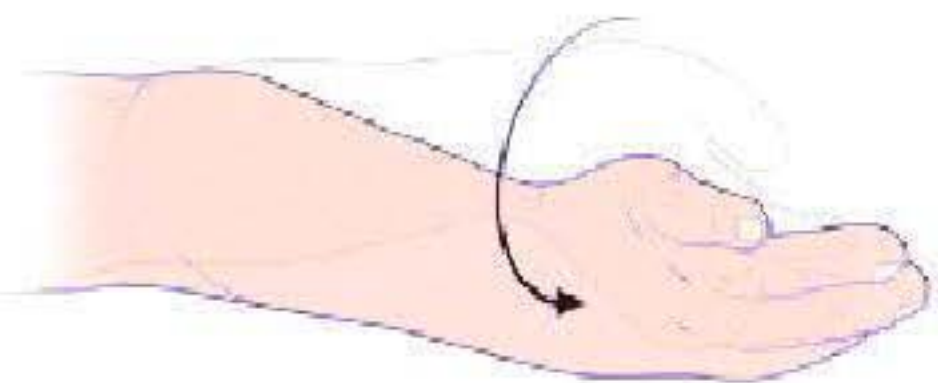
Radial head subluxation (nursemaid's elbow)



Media Exhibit

aid's elbow reduction maneuvers

Nursemaid's elbow  
reduction maneuver

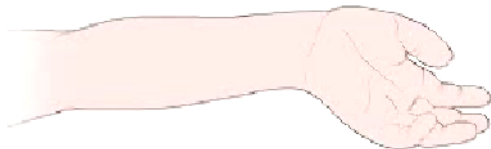


Hyperpronation



# Nursemaid's elbow

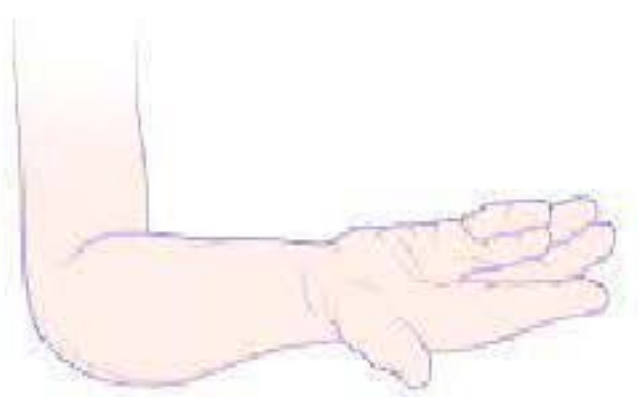
reduction maneuver



Media Exhibit

aid's elbow reduction maneuvers

Nursemaid's elbow  
reduction maneuver



# Nursemaid's elbow

reduction maneuver

