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Department of Computer Science & Engineering



“Physical Education (PE) (Sports and Athletics)– 21PE83”

TOPIC:- Athletics, Combined Events- Heptathlon & Decathlon

Presentation By

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Introduction to Hurdling: 110m & 400m

Discover the thrilling worlds of the 110m and 400m hurdles. These events blend speed, technique, and endurance. Learn about their rich history, evolution, and legendary athletes who set world records in hurdling.

110m Hurdles: The Sprint Hurdle

Course Layout

10 hurdles total. First hurdle at 10.5m, others spaced at 9.14m apart.

Hurdle Specifications

Height is 1.067m (42 inches) for men.

World Records

Grant Holloway set 12.81s in 2021. NCAA record by Renaldo Nehemiah, 12.93s (1979).

Key Phases

Start, acceleration, hurdle clearance, sprint finish.

110m Hurdles: Technique Breakdown



Approach to First Hurdle

Strategic stride pattern and rapid acceleration.



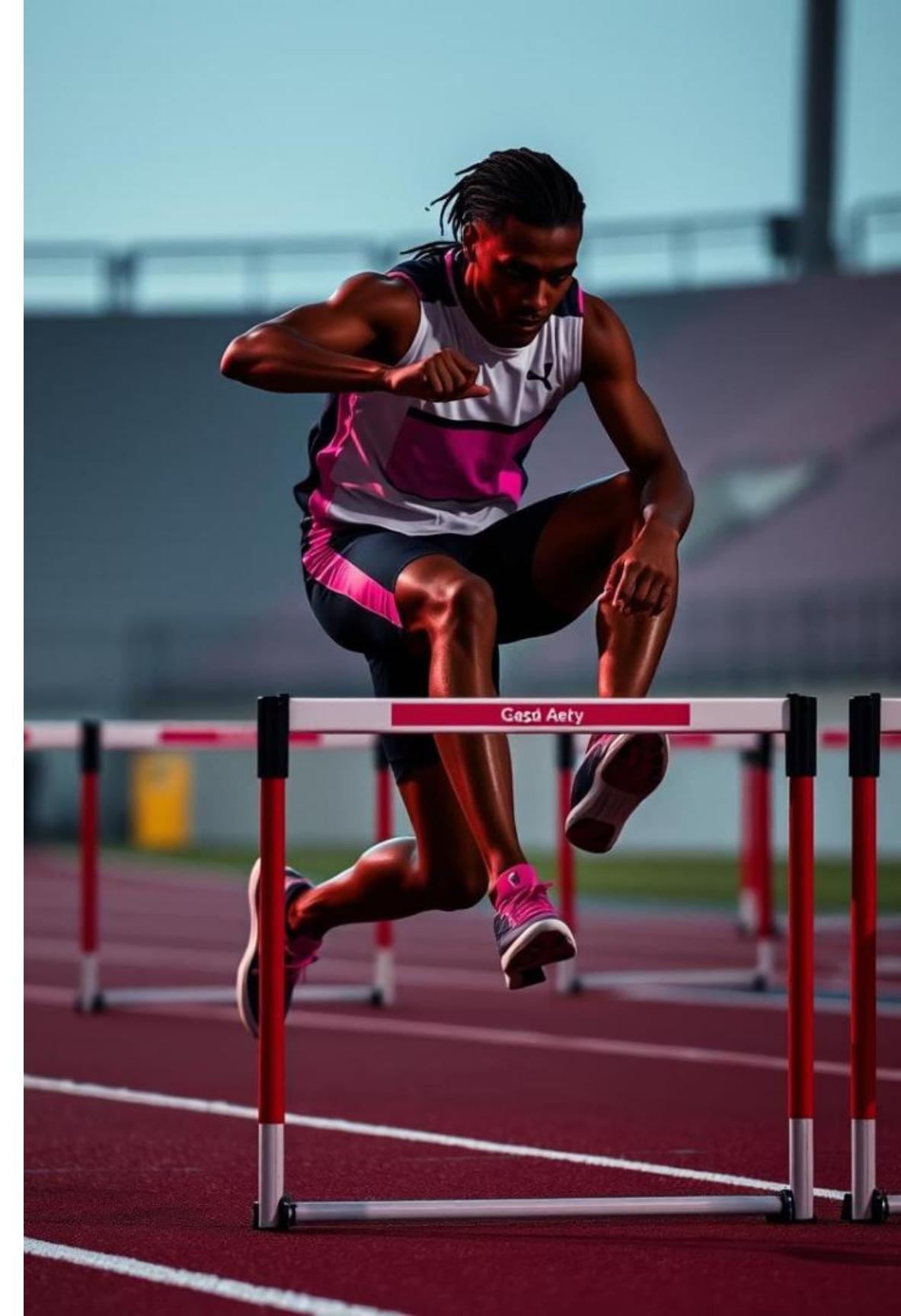
Hurdle Clearance

Lead leg fully extends; trail leg swiftly recovers.



Landing & Transition

Maintain horizontal speed and minimize disruptions.



400m Hurdles: The Endurance Hurdle

Course Layout	Hurdle Height	Energy Demands	World Records
10 hurdles; 45m to first and 35m spacing between hurdles.	<ul style="list-style-type: none">Men: 0.914m (36 inches)Women: 0.762m (30 inches)	Combines anaerobic bursts with aerobic endurance.	Karsten Warholm holds 45.94s (2021). NCAA record by Kerron Clement, 47.56s (2005)

400m Hurdles: Pacing and Strategy



Stride Adjustments

Maintain rhythm while conserving energy for later stages.



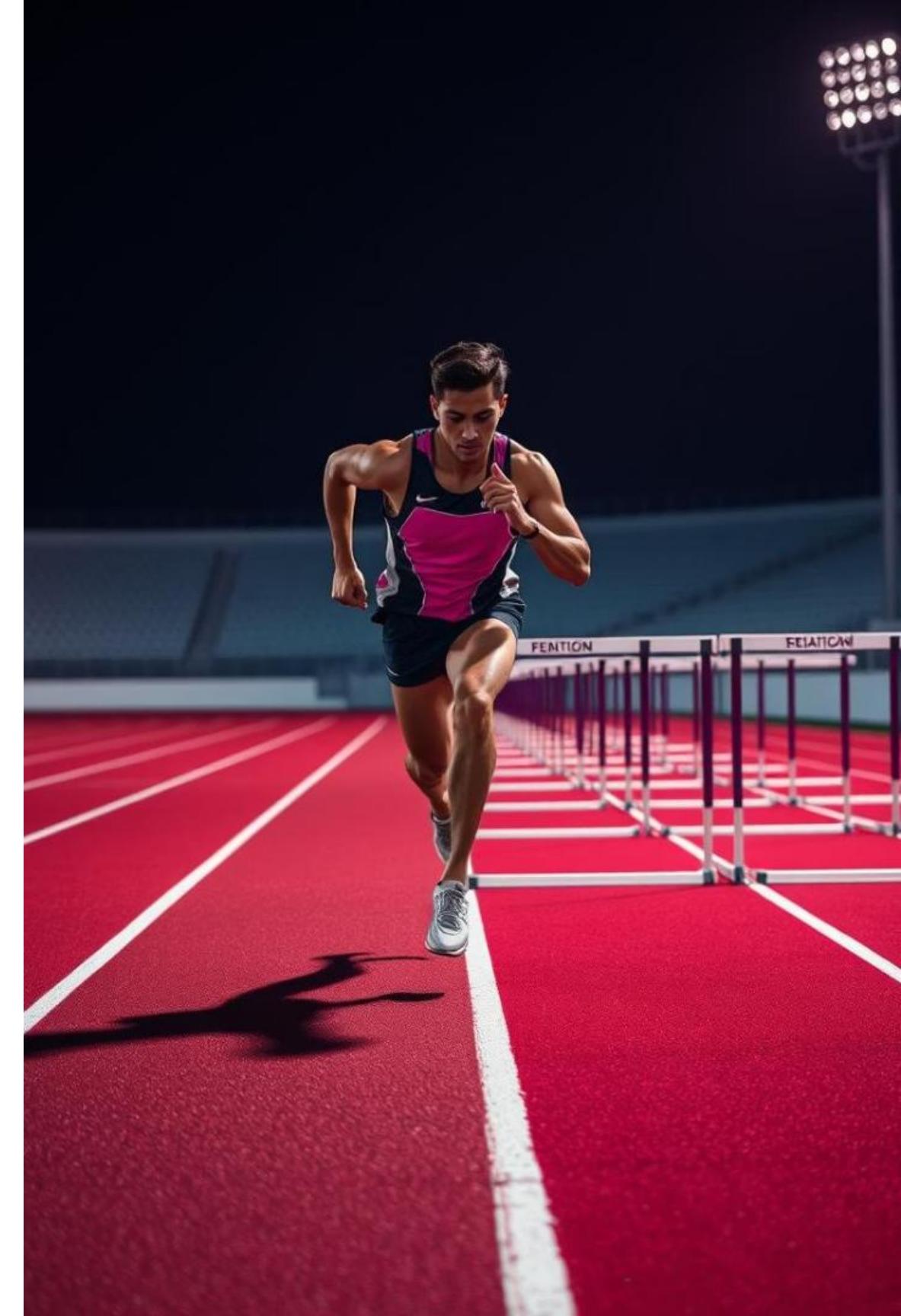
Hurdle Approach

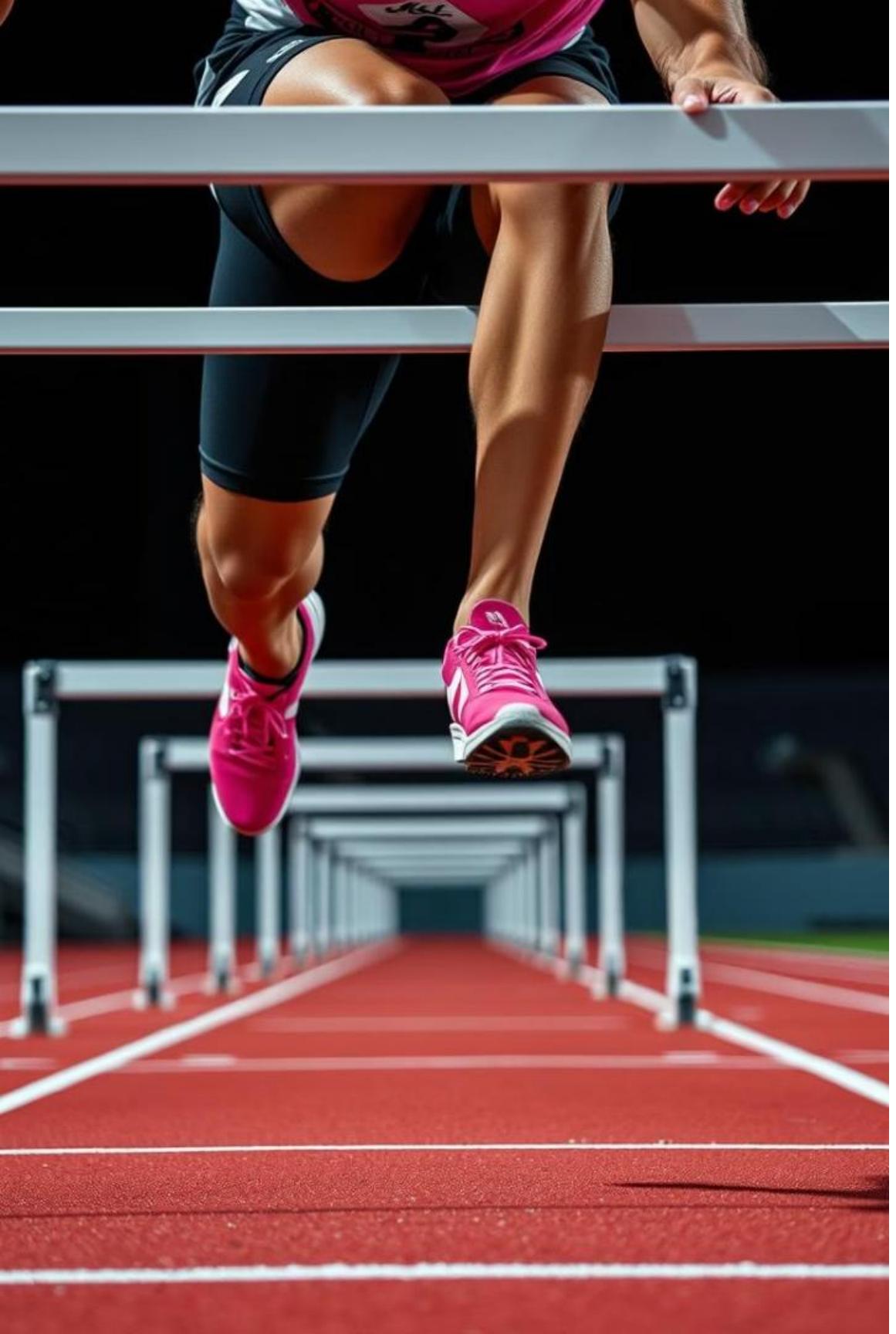
Adapt stride length to fatigue while clearing hurdles smoothly.



Final 100m

Maximize speed and form to finish strong without losing balance.





Hurdle Clearance: Common Techniques

Lead Leg Mechanics

Extend leg, precise foot placement, sharp angle to hurdle.

Trail Leg Mechanics

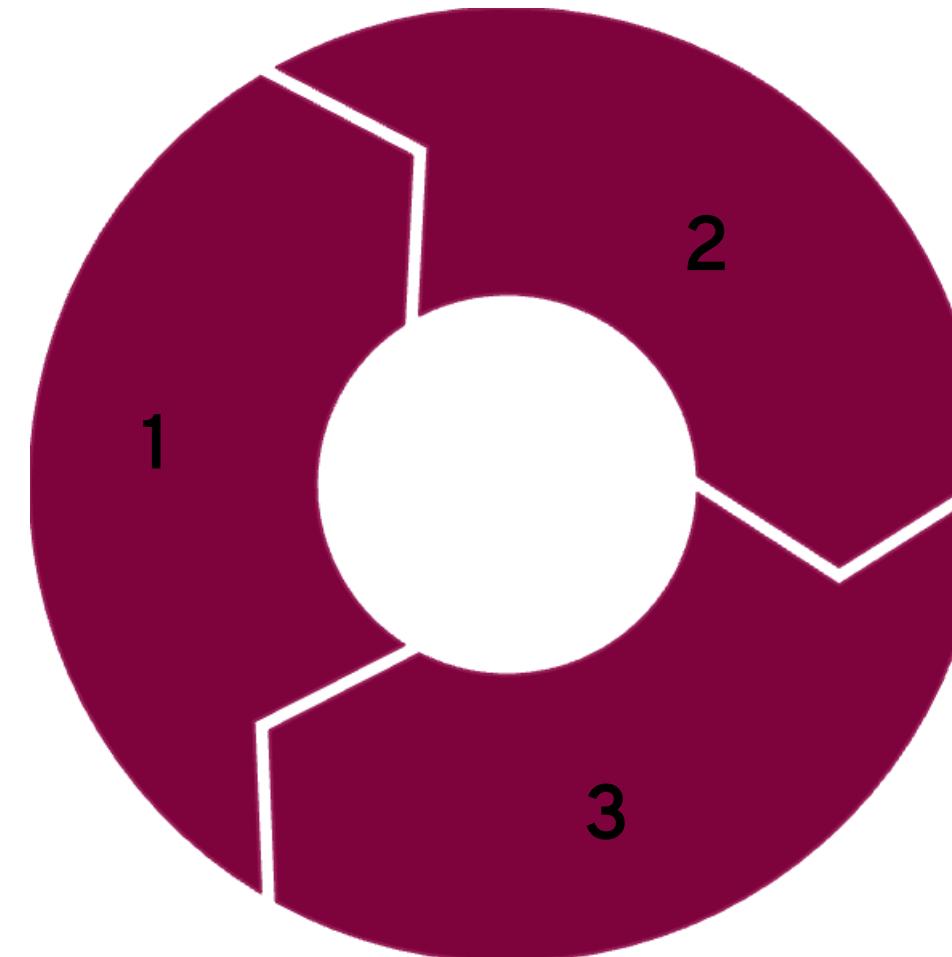
Quick recovery with hip rotation to minimize air time.

Body Position

Lean slightly forward while balancing for smooth clearance.

Training for Hurdles: Strength and Conditioning

Plyometrics
Jump exercises to boost power and explosiveness.



Core Strength
Build stability crucial for balance during hurdle clearance.

Flexibility
Increase range of motion for smoother, efficient technique.



Training for Hurdles: Drill Examples

Lead Leg Drills

Hurdle hops and lead leg swing overs to enhance extension.

Trail Leg Drills

Swing overs and hurdle walk-throughs to improve quick recovery.

Rhythm Drills

Consistent stride pattern practice to maintain race tempo.



Injury Prevention in Hurdling

Common Injuries

Hamstring strains, ankle sprains, hip flexor issues most frequent.

Warm-Up & Cool-Down

Essential routines prepare muscles and reduce injury risk.

Stretching

Regular flexibility exercises maintain muscle balance and health.



Conclusion: The Art and Science of Hurdling



Combination of Skills

Speed, technique, and mental strength create champions.



Continuous Evolution

Training methods and performances keep advancing the sport.



Further Engagement

Q&A time plus resources for deeper hurdling knowledge.