Hurdling and Hurdle Drills

By James Hillier

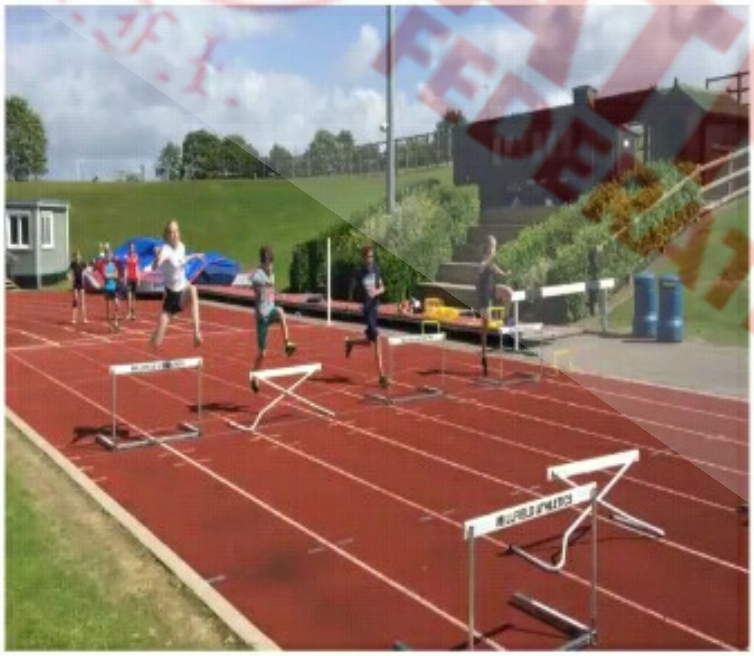
Introduction

Mentors

Sprint Hurdles Considerations

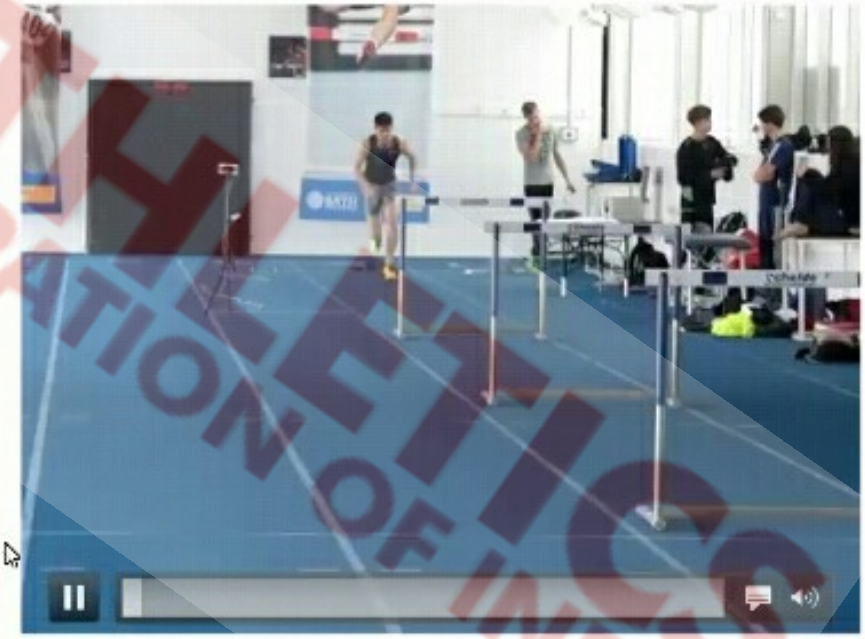
- What makes a good hurdler?
- Why are 'failed' sprinters pushed into hurdles?
- Don't focus purely on physical attributes especially at a young age
- Don't be limited by the constraints of the race
- Develop running / hurdle rhythm before hurdle clearance with beginners
- Be creative
- Don't be afraid to try new things (risk versus reward)
- Rhythm, efficiency and momentum must be considered in ALL sessions
- BIG things fix small things

Hurdling in 15 minutes



RHYTHM

- 'Ability to consistently run in a fluent, measured and uniform way'
- Rhythm is related to stride pattern (competitive rhythm) and also relates to 'sighting' hurdles with the minimum amount of compromise
- Development of specific rhythm MUST be practised as close to competitive conditions as possible
- It is more important to first develop running rhythm (i.e. Running between hurdles is initial priority over actual hurdle clearance)
- Training rhythm for both the sprint hurdles and the 300m/400m hurdles requires mental and physiological progressions so you need to continuously reflect in order to improve



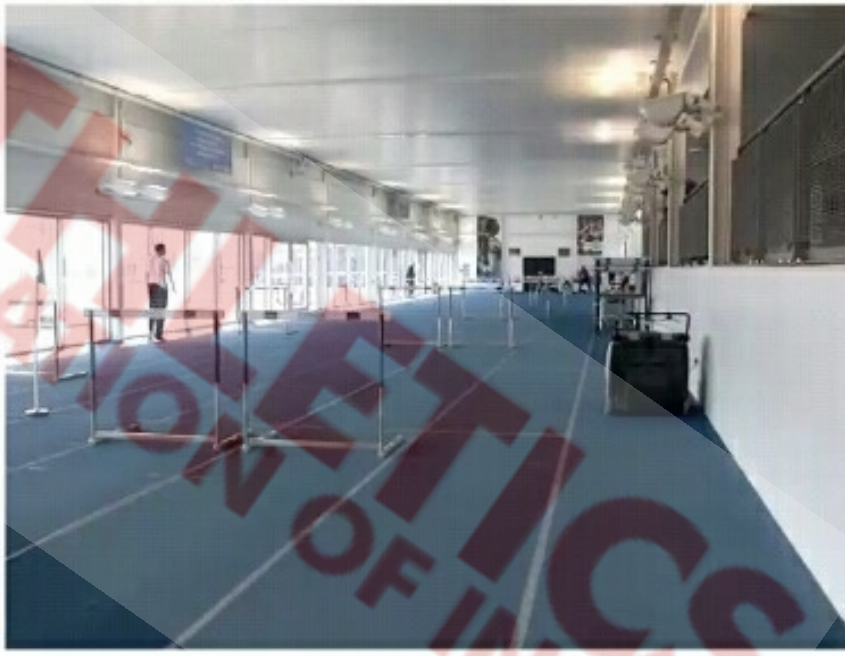
EFFICIENCY

'The amount of energy required to run at a certain speed' (McArdle, Katch & Katch, 1996)

Energy is not unlimited. Even in a sprint hurdles race it is important to set the race up in an biomechanically efficient way

Related to lactic acid accumulation in a given muscle at a given speed after a certain amount of time (i.e. Towards the end of a race)

In the 400m hurdles the objective is to minimise lactic acid accumulation in first 250 – 300, therefore allowing athlete to run faster and hurdle better at the end of the race



MOMENTUM

'The relationship between the speed of an athlete and his / her energy at a certain time'

If an athlete loses momentum they lose speed and waste energy

Momentum is directly related to rhythm and efficiency (and vice versa). If momentum is compromised then you will HAVE to see compromise in rhythm and efficiency

One of the most important elements of any hurdles race is the ability to maintain momentum over the last 3 hurdles

Technical competence, understanding of the physiological needs of the event and plenty of event specific training is therefore vital

THE SPRINT HURDLES

•A successful sprint hurdler combines high speed with accurate technical efficiency

•Technical prowess is measured by the athlete's ability to perform a series of well-timed and consistent 'hurdle strides' whilst maintaining speed and postural control

Technical Focus of EVERY Hurdle Session

Take Off → Fast 3-STRIDE Running Rhythm → Run Off

GUIDING PHILOSOPHY

- **REFLEXIVE POWER**
- POSITIONS AND POSTURE
- EQUILIBRIUM

Male Vs Female

Main difference is hurdle height relative to limb length which means that the majority of women at elite level can straddle the hurdle - Men cannot

Relative proportions are:

- Female Sub 13.00s: Hurdle is 49.7% of their height
- Male Sub 13.50s: Hurdle is 57.1% of their height

Therefore:

- Women: Take off closer to the hurdle - 1.95 - 2.10m from Hurdle, and land closer to the hurdle - 0.80 to 1.00m

- Men: 2.00-2.20 & 1.15-1.30m

- Males tend to lean further forward on attack but this is only a function of hurdle height relative to limb length - body lean will still increase speed across and off the hurdle

- Speed dominates both the male and female event at elite level but perhaps males can (at the moment) get away with small deficiencies in raw speed through excellent technique – But not much

TRAINING TASKS FOR AN 'ELITE' HURDLER

	Mesocycle	Mesocycle	Mesocycle	Goal
	General Preparation	Specific Preparation	Competition	
Speed	1	2	2	Develop Quality of Speed of Movement
Acceleration	1	2	2	Movements that develop rate of change of velocity
Sprint Technique	2	2	1	Improve Technical Competence
Hurdle Technique	2	2	1	Improve Hurdle Clearance and Approach/Run Off Skill
Hurdle Rhythm	2	1	2	Improve Running Skills between the hurdles (R.E.M)
Specific Endurance	2	1	2	Improve Hurdle Specific endurance capacity
General Strength	2	2	1	Promote general strength and conditioning (not event specific)
Maximum Strength	2	2	1	Develop high degrees of m/s recruitment and coordination (i.e. Olympic Lifts)
Maximum Power	2	2	1	Generate Power through Concentric m/s action (i.e. squats)
Reactive Strength	2	2	2	Movements exhibiting short ground contact times
Reflexive Power	2	2	1	Complex coordination training using a force overload

SPEED

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Flying 30 Times (30 + 30)

Athlete	30 metres	100 / 110m Hurdles
Colin Jackson	2.72s	12.91
Andy Pozzi	**2.68s**	**13.14**
Valdo Szucs	2.78s	13.41
Lawrence Clarke	2.88s	13.31
Mollie Courtney	3.35s	13.28

ACCELERATION

7 STRIDE VS 8 STRIDE

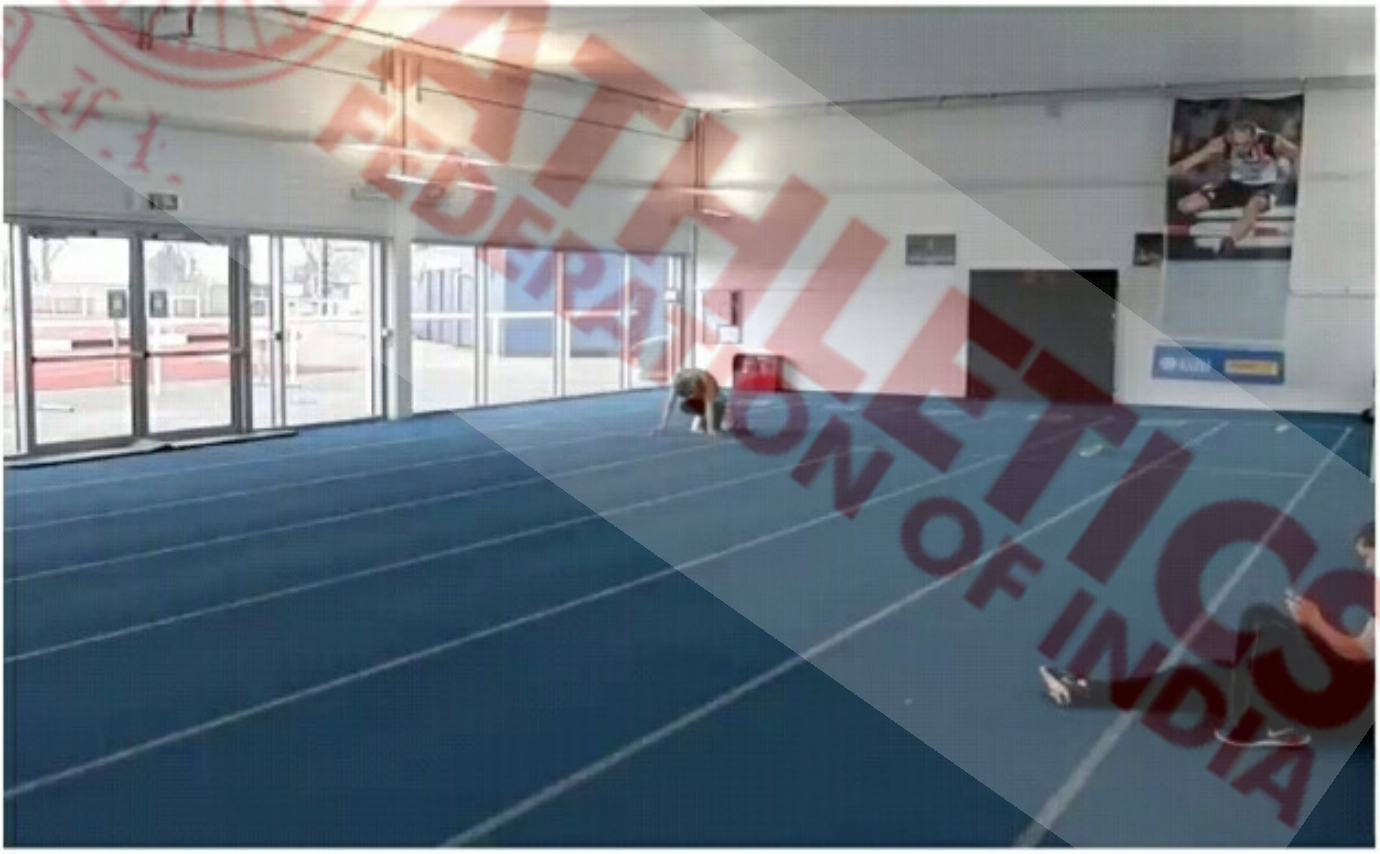
SPRINT TECHNIQUE

- Important to develop good sprinting technique
- Sprint hurdling is a sub-maximal event therefore flat sprinting is inuring
- Develop Speed Reserve
- Develop Efficiency
- Hurdling is 'modified' sprinting
- Speed with a Rhythmic, Efficient Pattern is key

HURDLE TECHNIQUE

- Good Hurdle Technique is setup from a good take off
- Athletes should attack the hurdle driving knee, ankle, and then toe at the hurdle
- Shorter athletes should lean MORE than taller athletes
- Lead Leg and Trail Leg should be working together in equilibrium
- Athlete should aim for a 'flat' flight path close to the top of the hurdle

HURDLE TECHNIQUE – APPROACH ACCURACY



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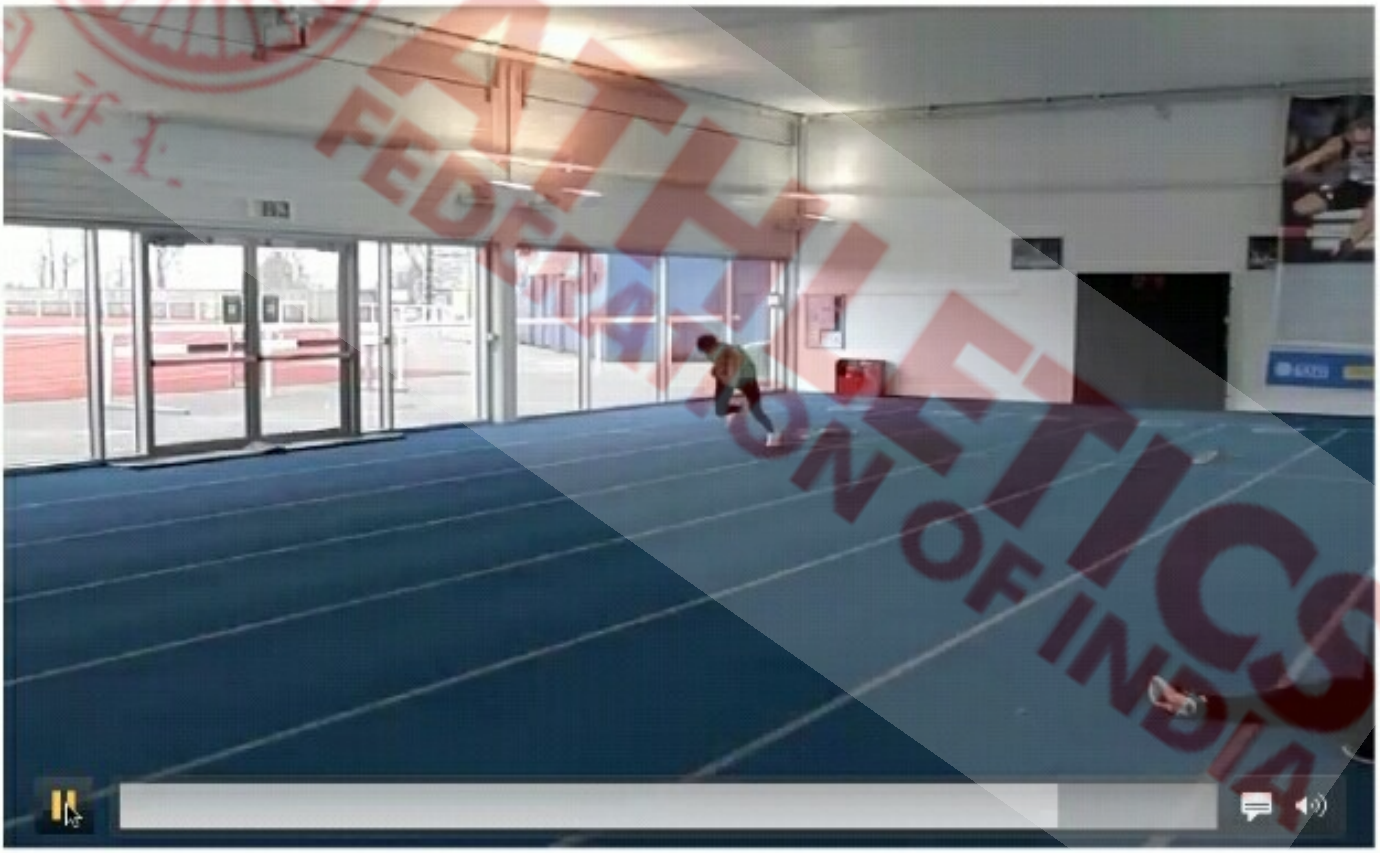

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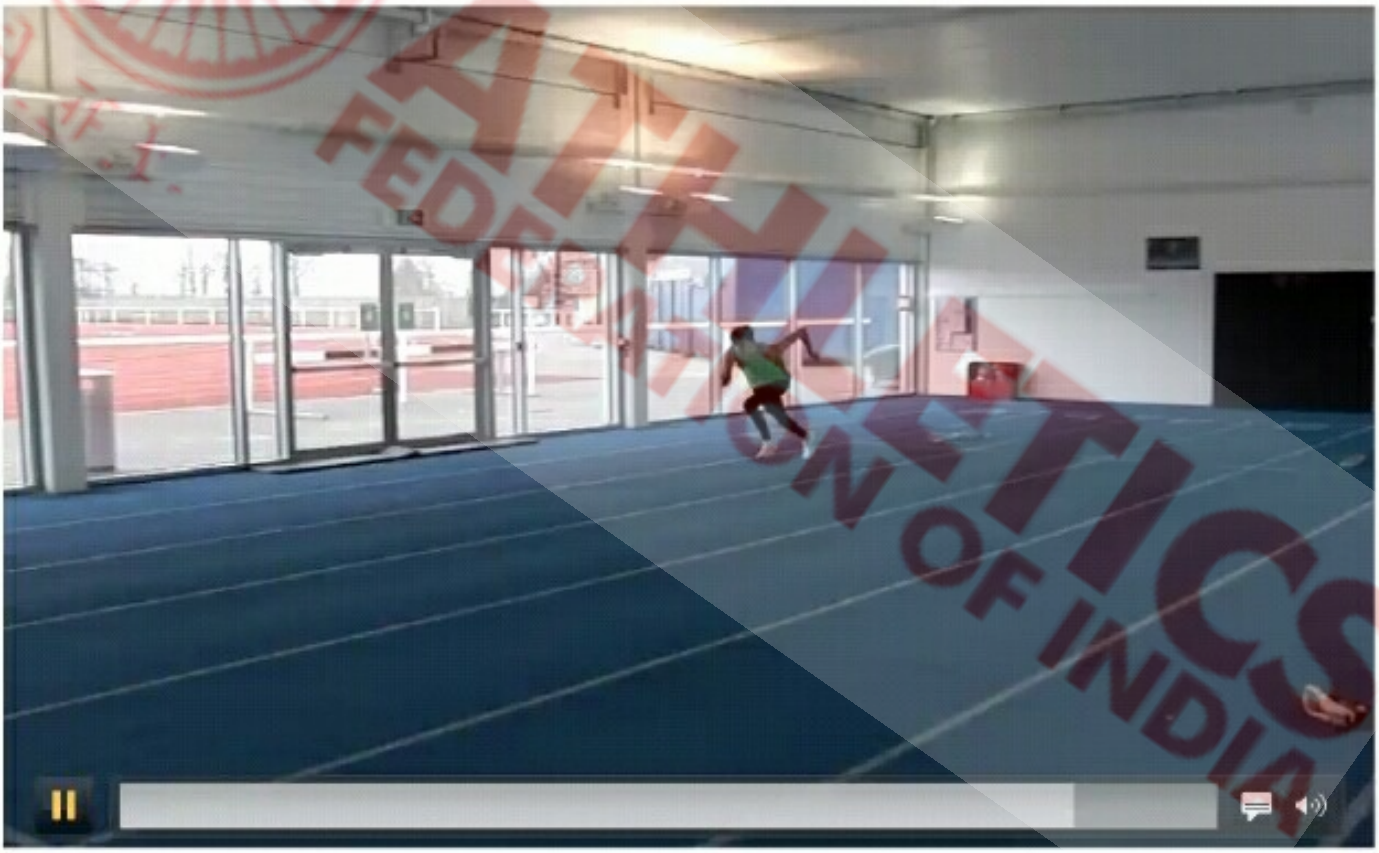

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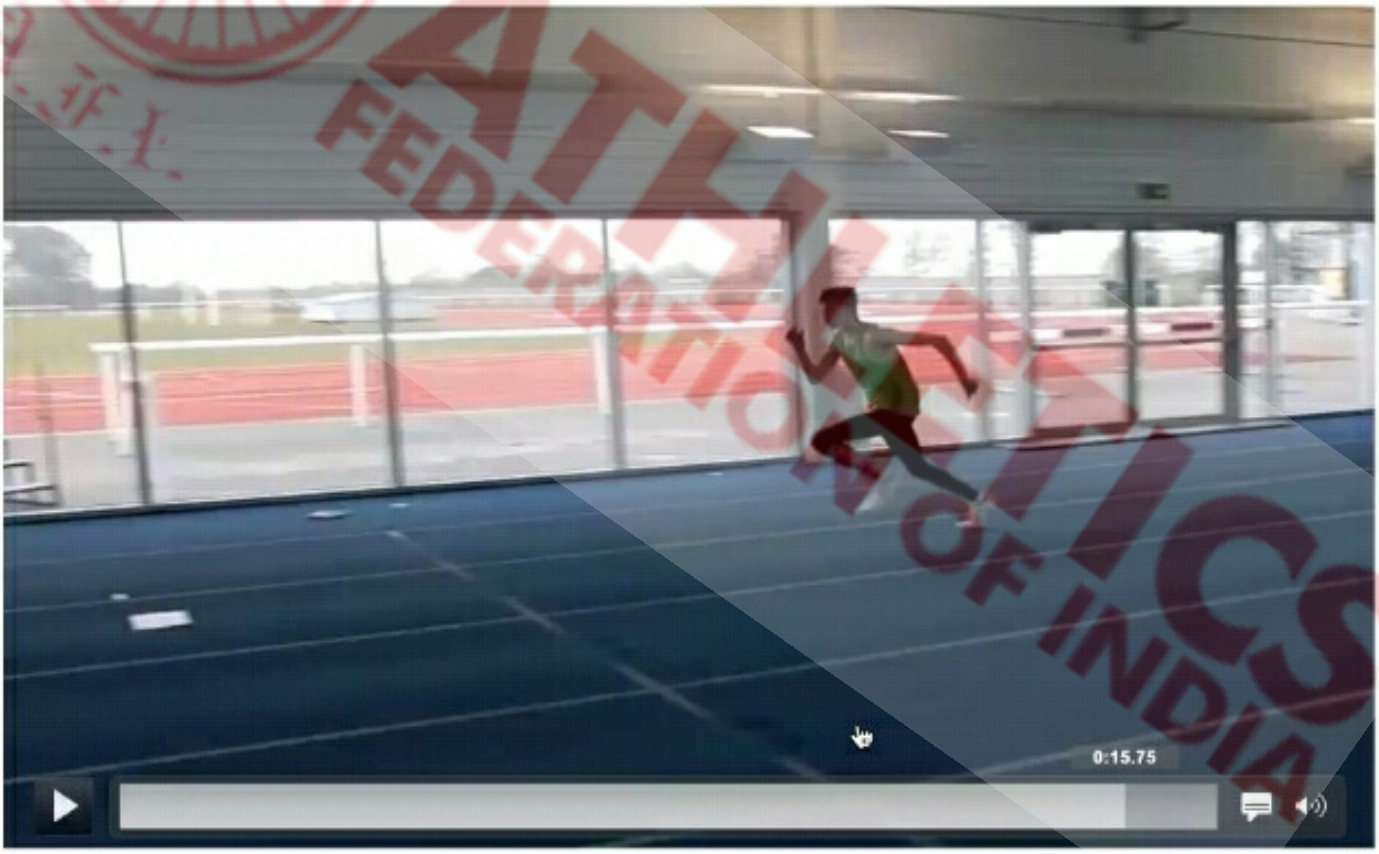

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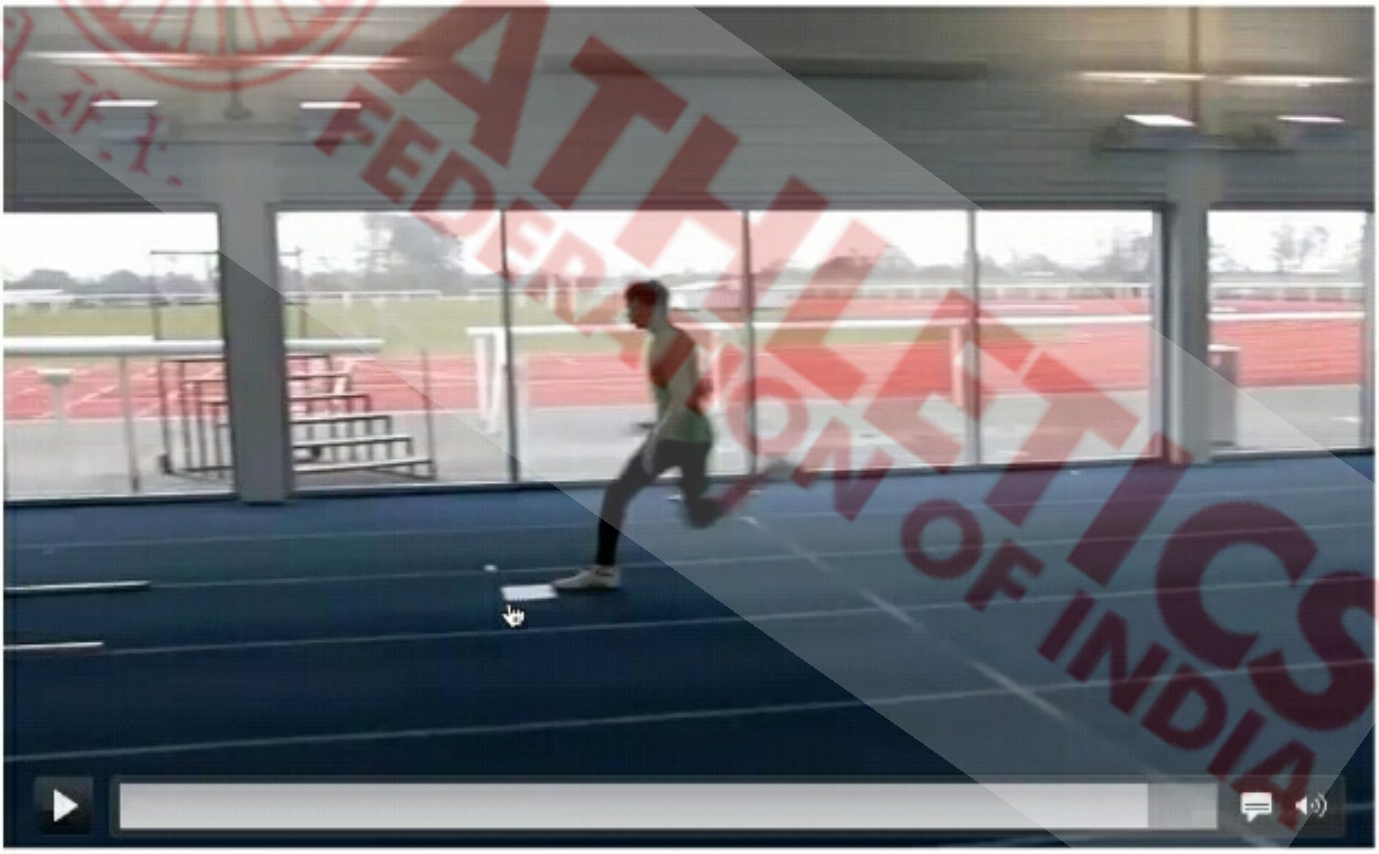

TRAINING IDEAS AND CONCEPTS – DEVELOPING A POWERFUL TAKE OFF

- Reactive strength
- Reflexive power
- Working penultimate step
- Free leg Coordination
- Correct foot position
- Force production

HURDLE TECHNIQUE – TAKE OFF

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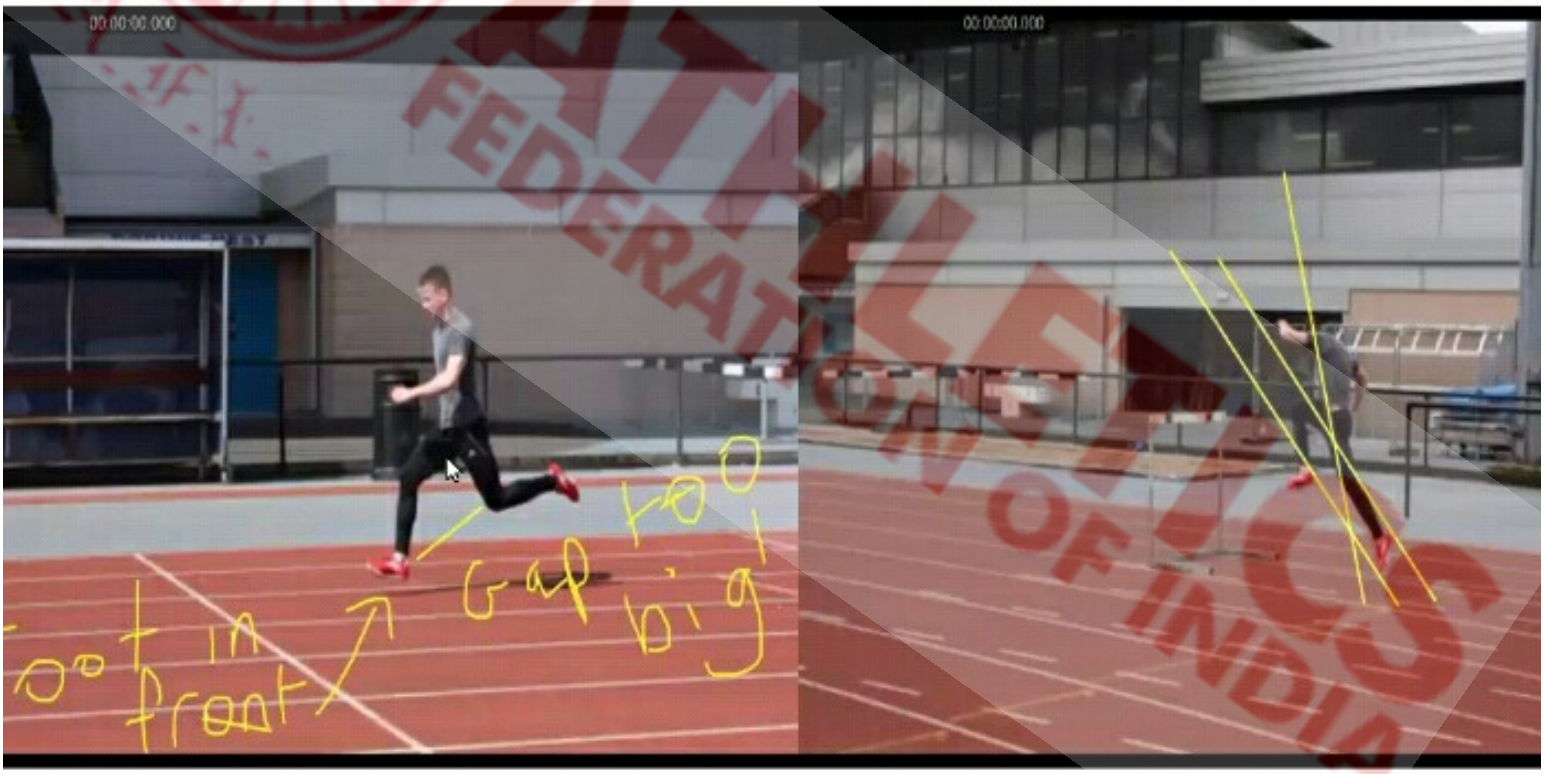
HURDLE TECHNIQUE – TAKE OFF CONSIDERATIONS



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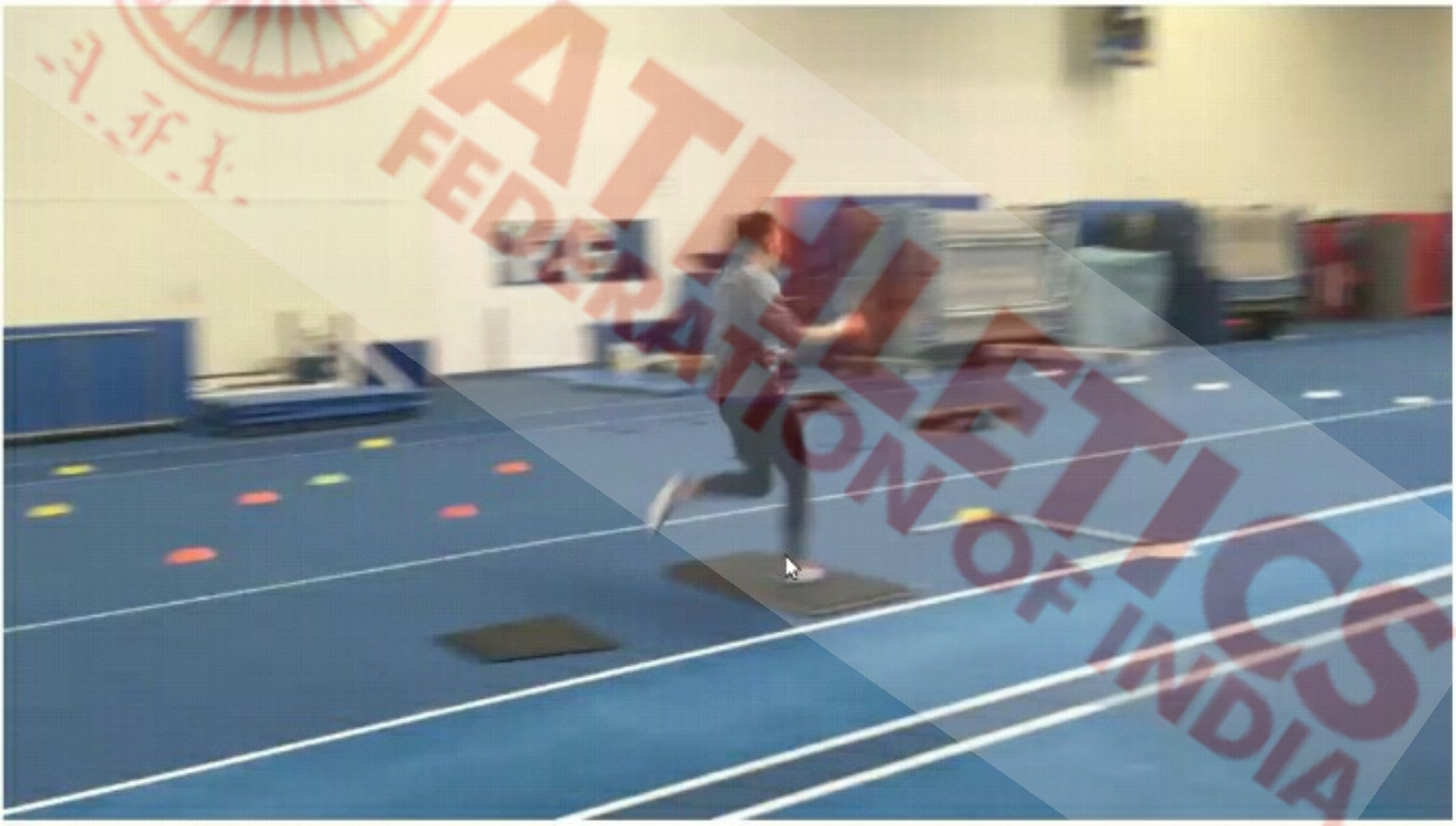

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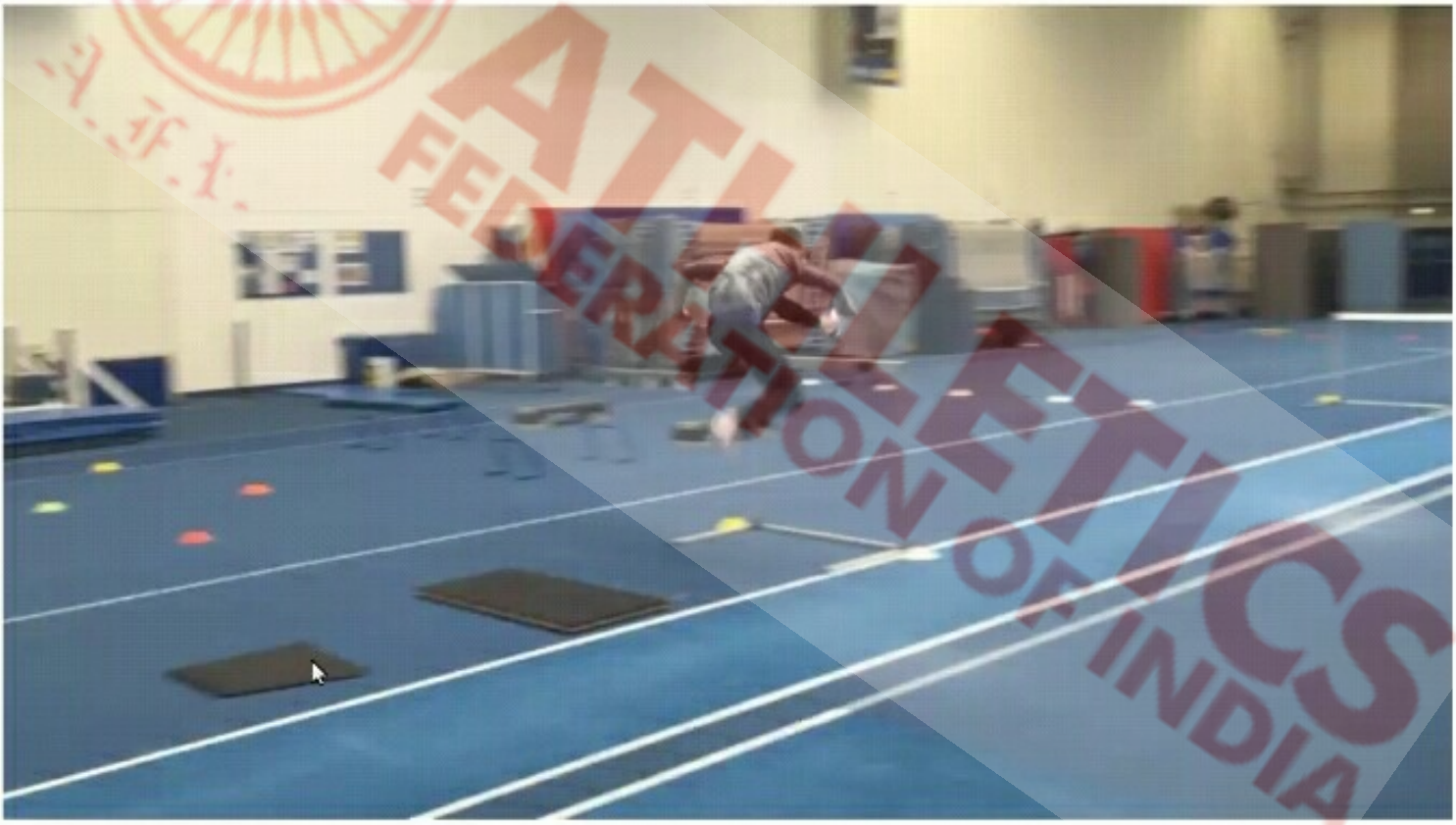

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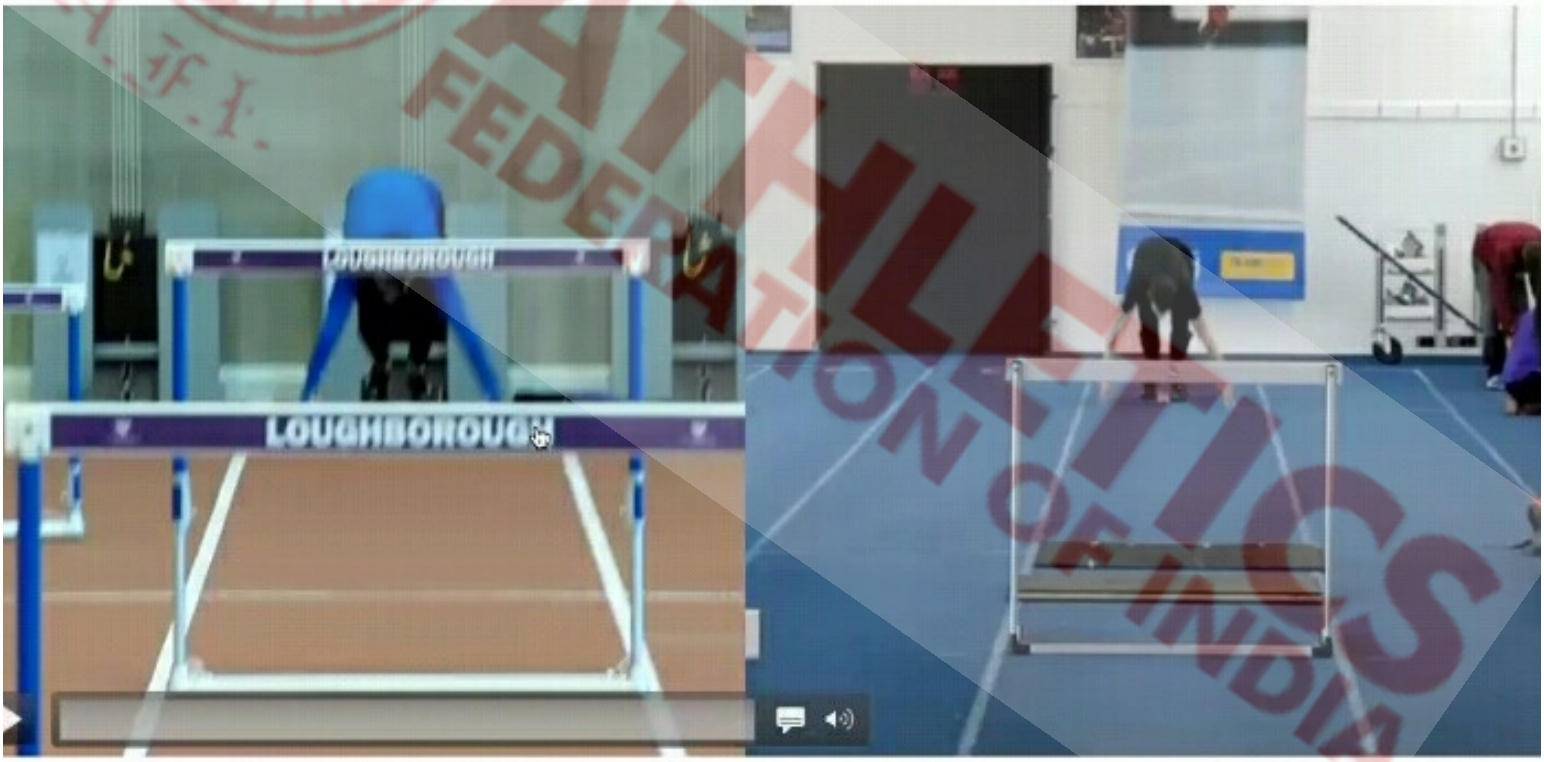

ERROR CORRECTION

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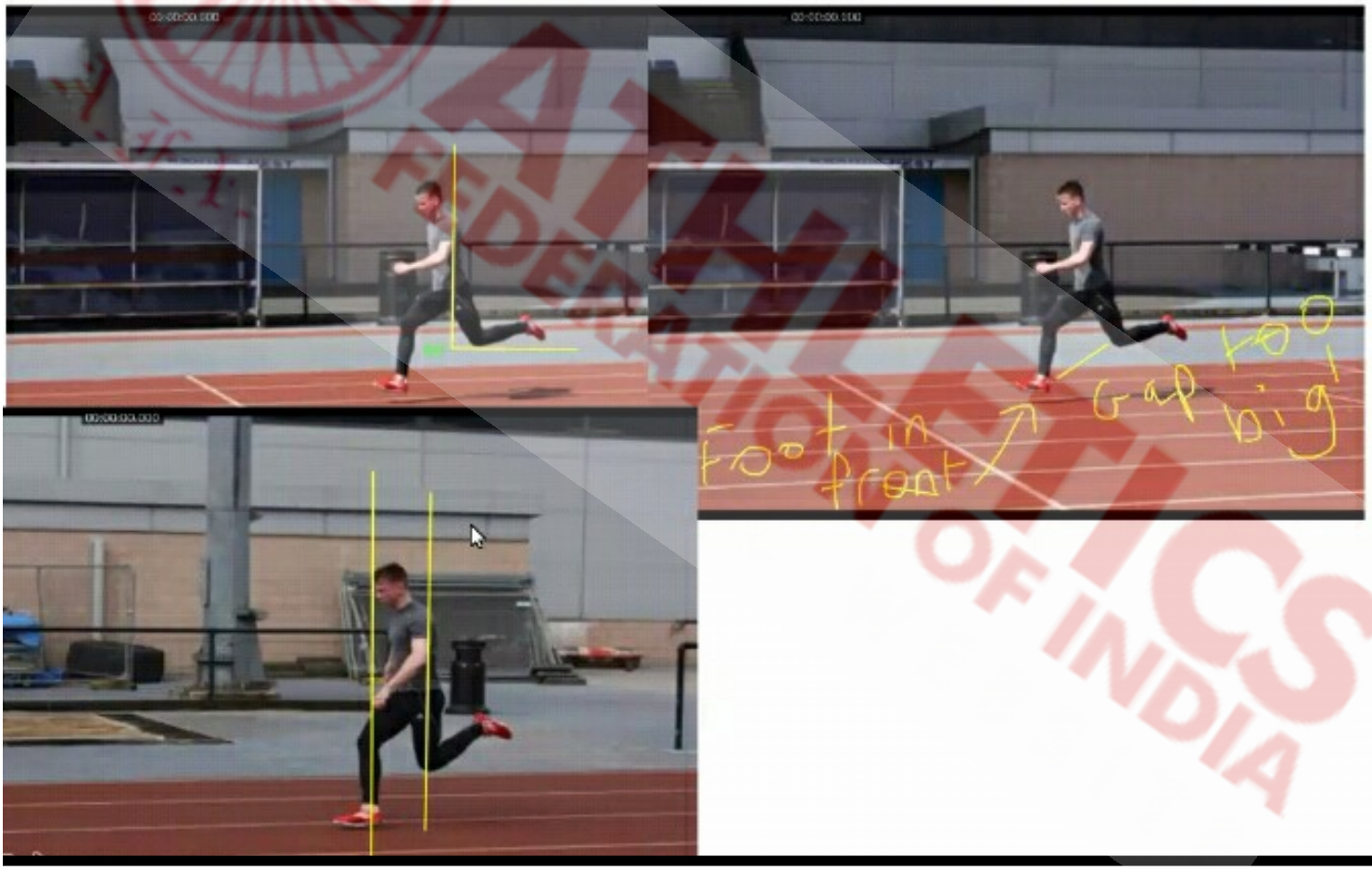


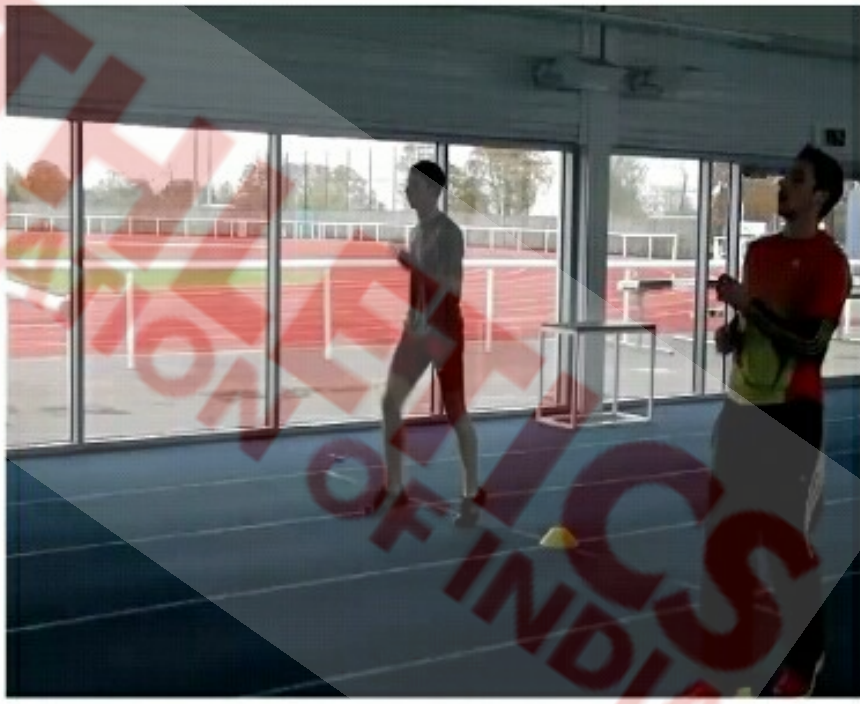
ERROR CORRECTION

TRAINING IDEAS AND CONCEPTS – STIFFNESS JUMPS

- Reactive strength
- Foot mechanics
- Speed (in disguise)
- Coordination

TRAINING IDEAS AND CONCEPTS – WHIP THROUGHS

- Free Leg coordination
- Functional strength & stability
- Lead leg initiation
- Coordination



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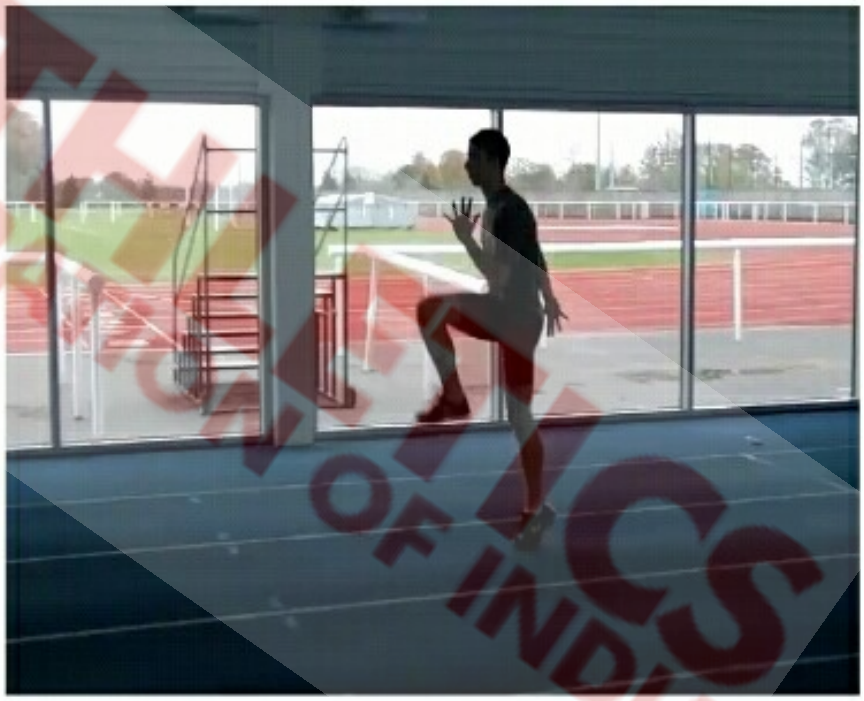

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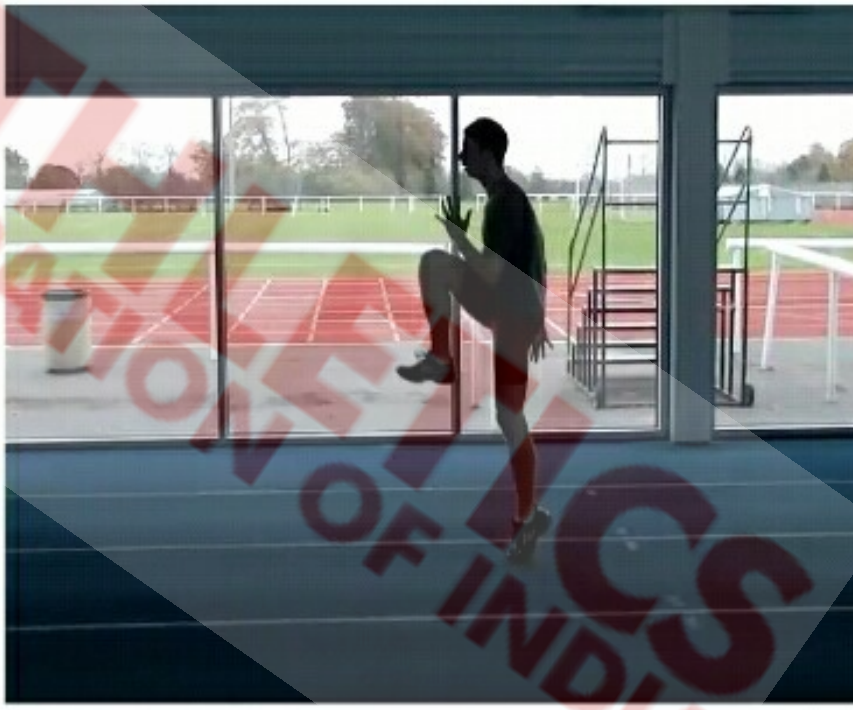

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HURDLE TECHNIQUE – RUN OFF

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TRAINING IDEAS AND CONCEPTS - HURDLE RHYTHM

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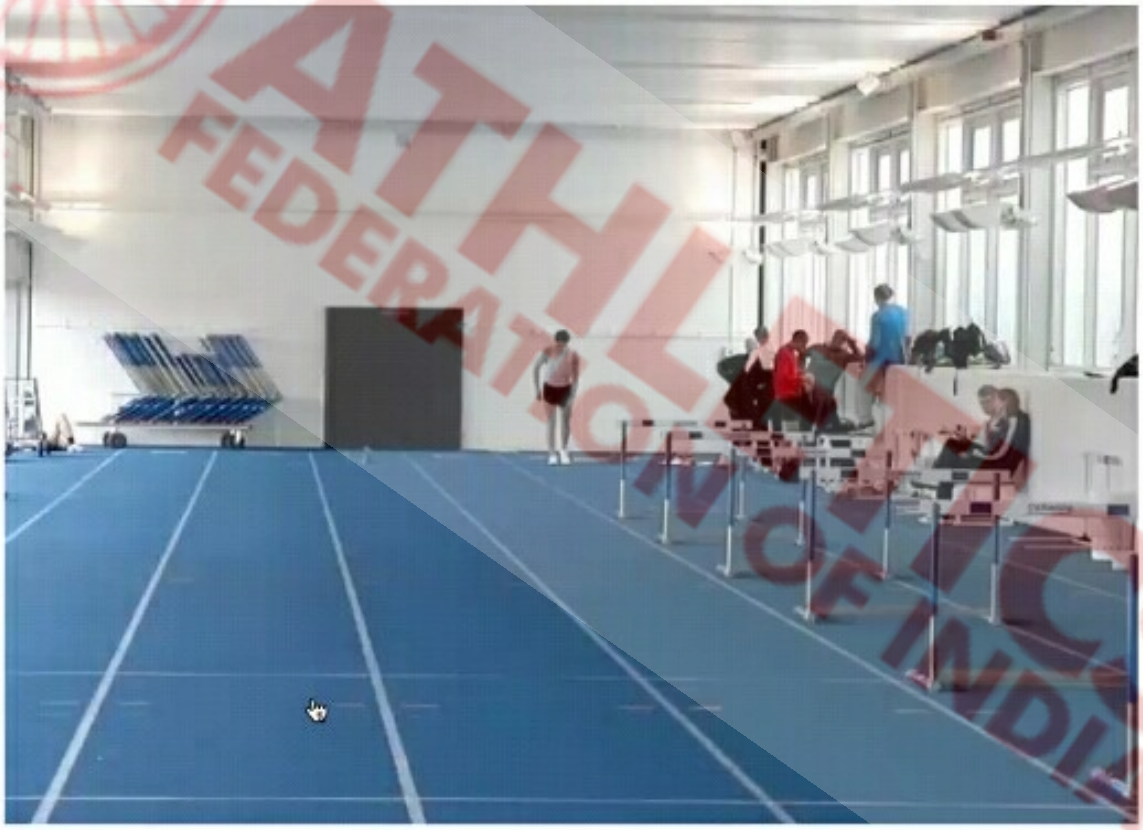
TRAINING IDEAS AND CONCEPTS – 1 STRIDE DRILLS



TRAINING IDEAS AND CONCEPTS – COMPETITION PREPARATION

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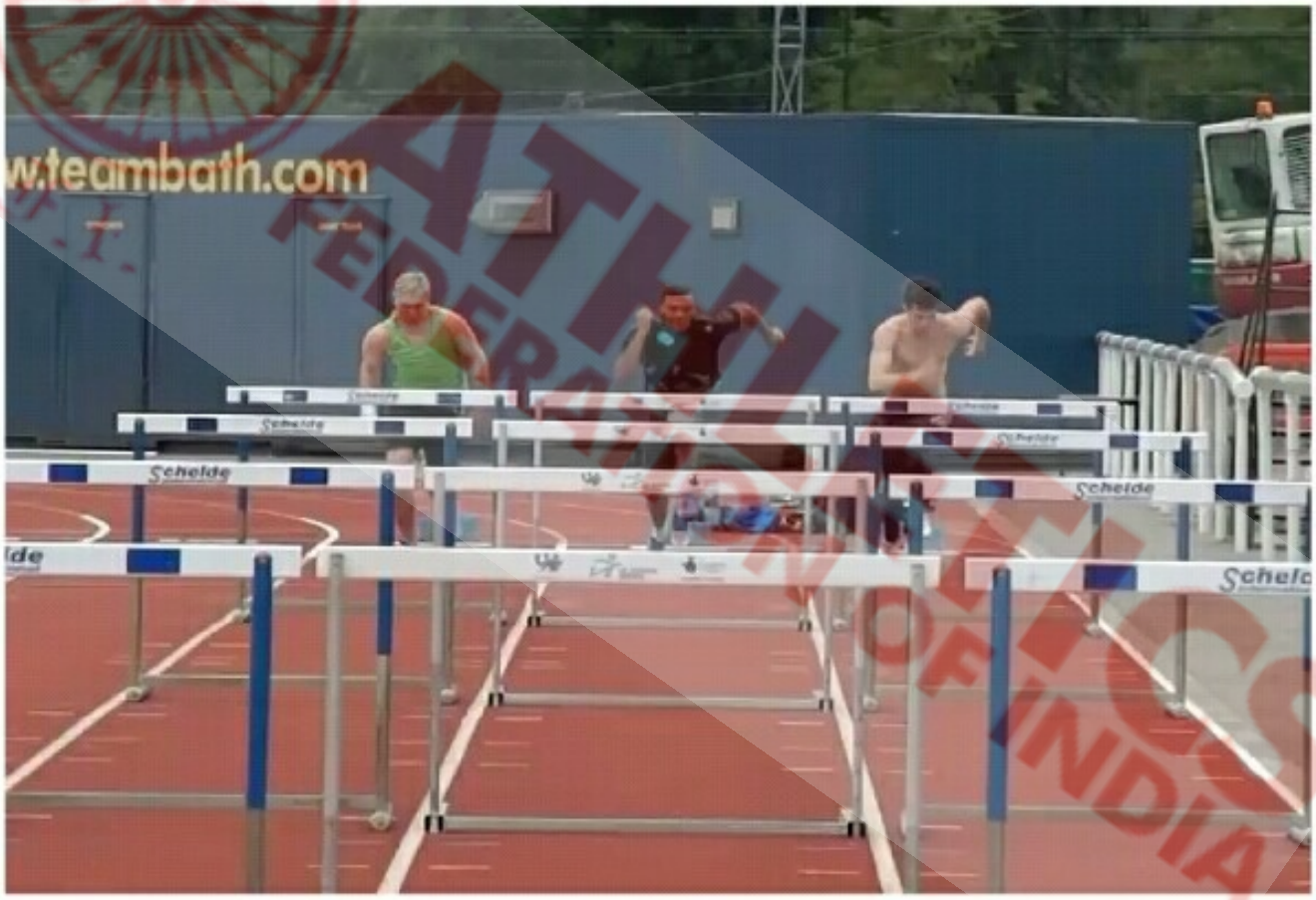

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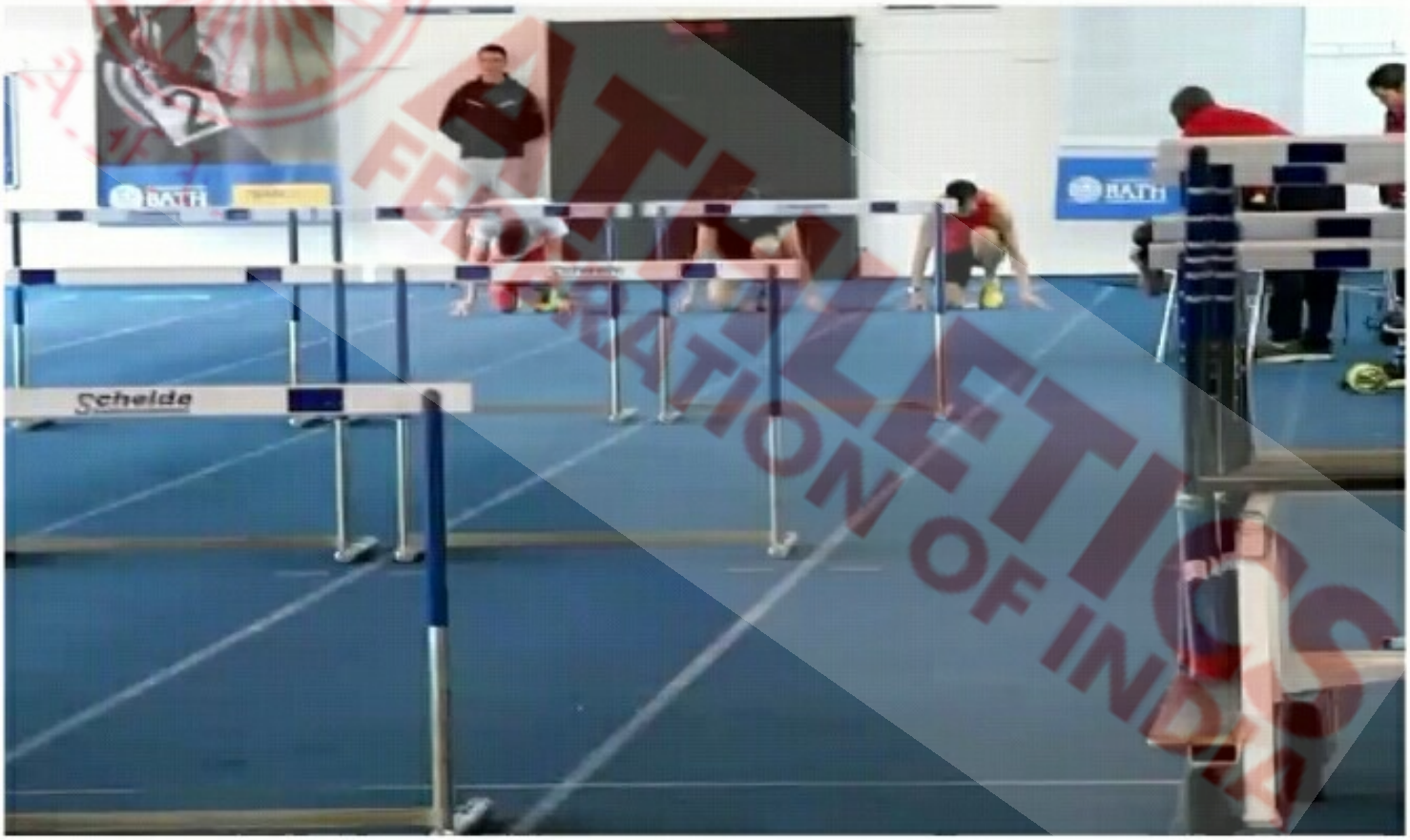

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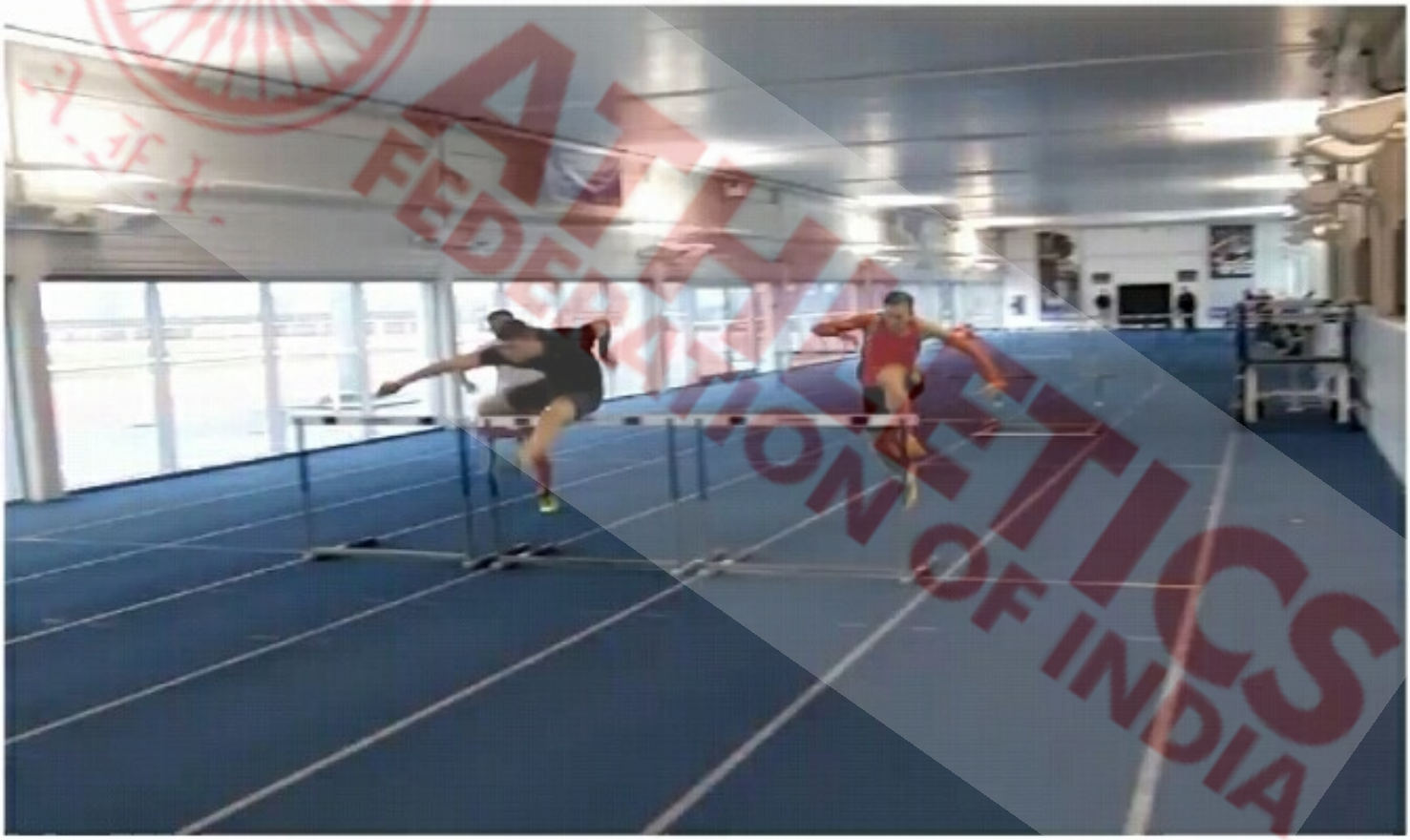
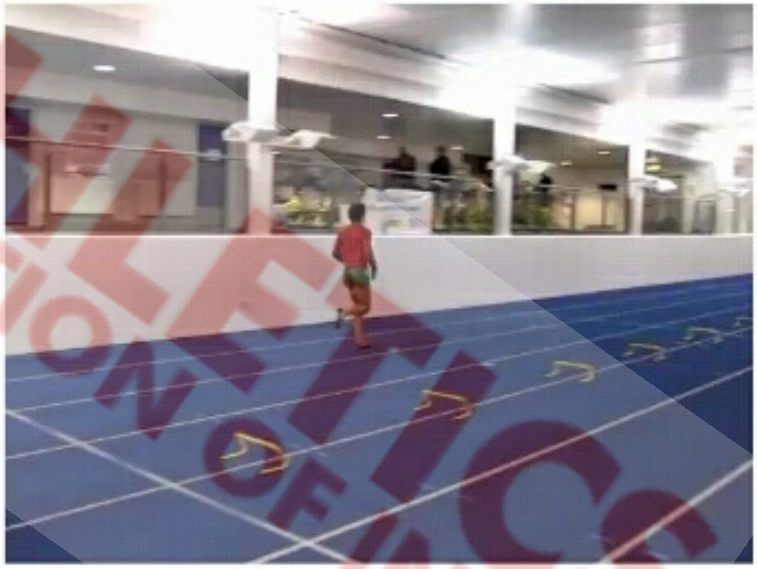


Sprinting Between the Hurdles – The Shuffle

- Low Knee lift on middle stride
- Modified arm action
- Stiffness through feet and ankles
- Rhythm
- Taller athletes often have to compromise stride length more



Sprinting Between the Hurdles – Overspeed

- Combination work
- Forces the shuffle
- Forces more powerful penultimate and take off
- Be CREATIVE

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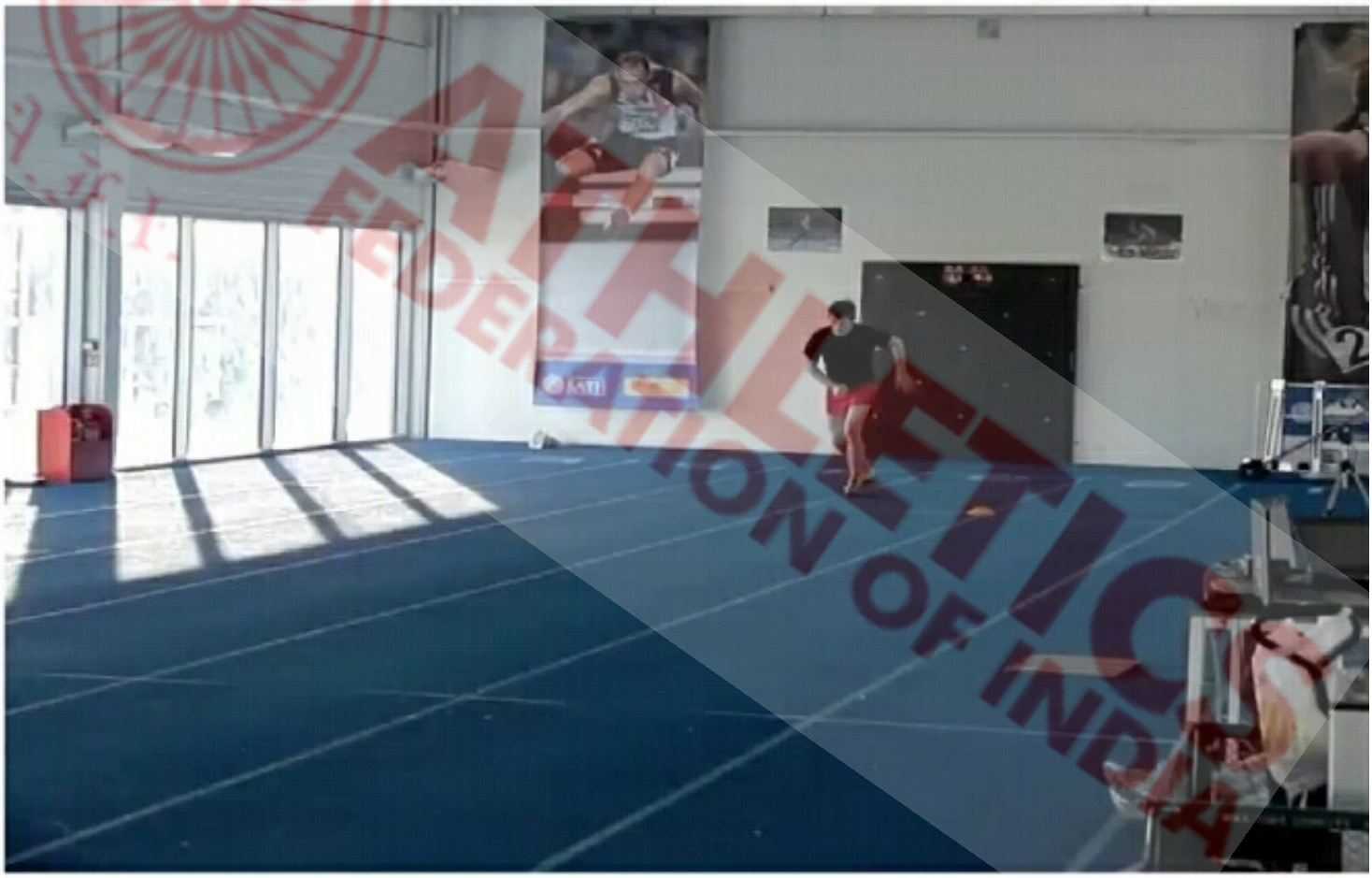
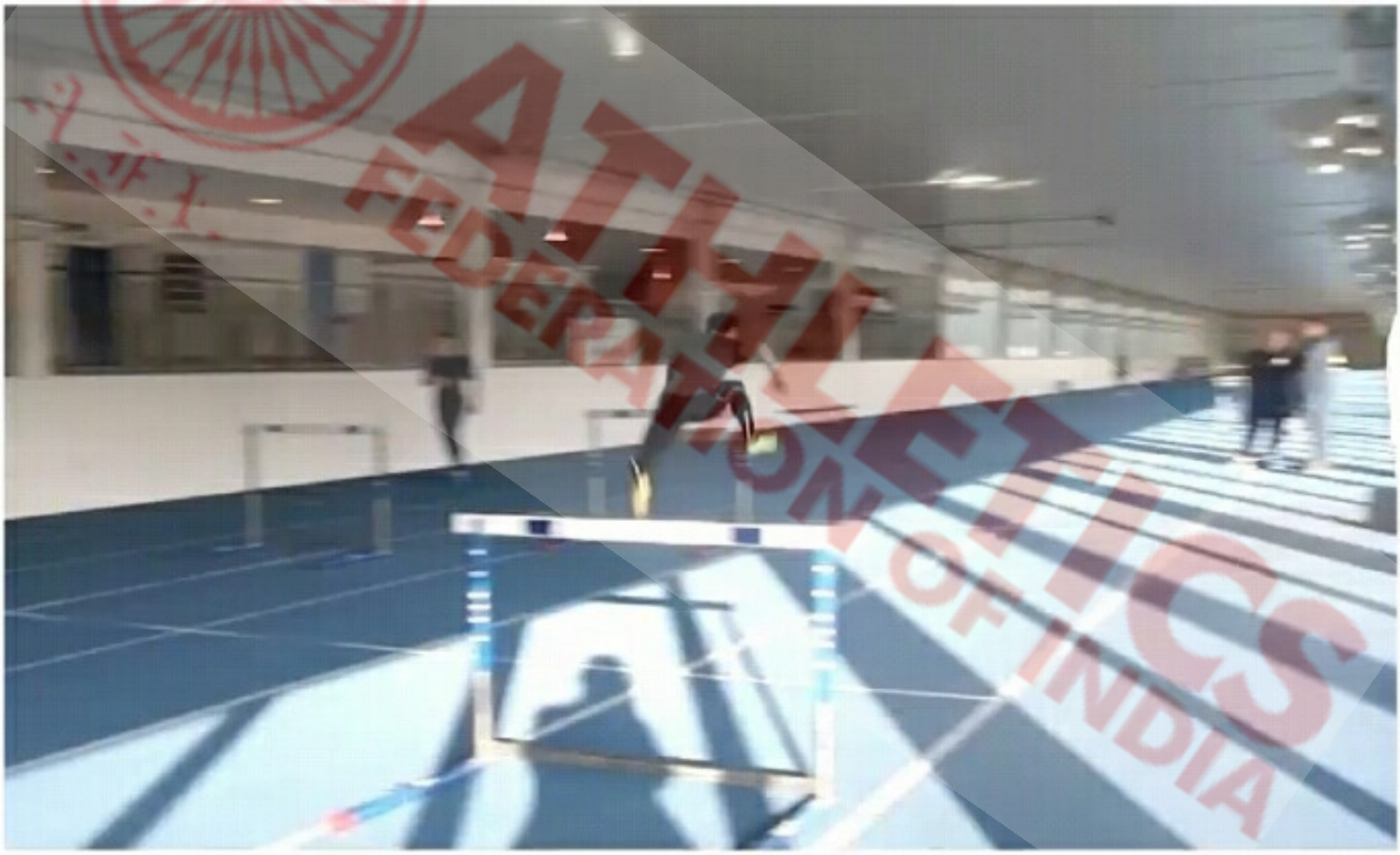
TRAINING IDEAS AND CONCEPTS - ISOLATION DRILLS (LEAD)



TRAINING IDEAS AND CONCEPTS - ISOLATION DRILLS (TRAIL)



HURDLE EXERCISES

SPECIFIC HURDLE EXERCISES		
Objective	Exercise	Description
Shorten Ground Contact Time	One-between hurdling	place hurdles 14 pigeon steps apart
Optimise Take Off Strength		
Concentration 'endurance'		
Improve Penultimate Step	Mat Work	First mat 6-7 cm for penultimate
		Second mat 10 - 12 cm for take off
Improve Speed Between Hurdles	Over speed hurdling	e.g. 3,3,5,5,3 session
Improving Hurdle Clearance Time	3-stride rhythm	Reduce spacing by up to 4 pigeon steps
Improving Speed at the end of Races	H12 run	Put H8 at 12.5m for a 5 stride approach
Improving Acceleration Shape	Progressive Spacing	Each hurdle progressively further apart
Improving Stride Frequency	Reducing Distances	Each hurdle progressively closer
Improving Concentration		
Improvement at Takeoff	Increasing Hurdle Height	Progressively Higher Hurdles
Improving Projection over the hurdle	Double Hurdle	Have the athlete Clear two hurdles
Hurdle Clearance Stride		backed up against each other
Hurdle Specific Endurance With	Hurdle Z	10 Hurdles one-between
Technical / Coordination Component		Walk back
		5 Hurdles @ 8.75m
		Walk Back
		5 Hurdles @ 12.5m
Lead Leg / Trail Leg	Isolation Drills	Athlete Hurdle over the side
Improving Hurdle Power	Weighted Jacket	Hurdling with overload
Specific Hurdle endurance	Runs over 10 - 12 Hurdles	Progress the distances / reps

'THE DEVELOPMENT OF GENERAL AND SPORT SPECIFIC FITNESS IS A PROCESS THAT IS EXPERIENCED BY THE ATHLETE'S ENTIRE PERSONALITY AND THAT MUST BE MASTERED'.

(Scholich, 1996)