

# FUNDAMENTALS OF THROWS

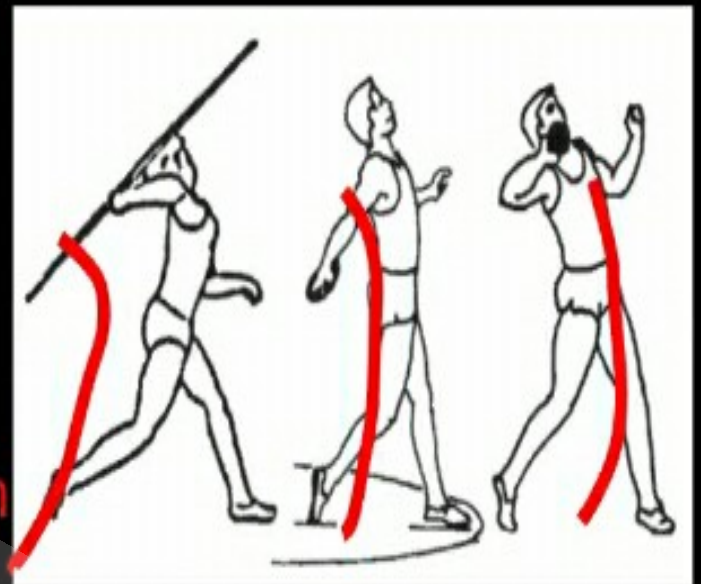


## Common elements

### “Arc” position

- Implement “hold back” contrary to the direction of the throw
- Straining the muscles of shoulder and trunk
- Dissolve “arc” position:
  - Transmission of force from legs & trunk to throwing arm
  - Acceleration of
    - throwing arm
    - throwing hand
    - throwing implement

Strüder H.K. et al: Leichtathletik 2016 p. 658



Javelin

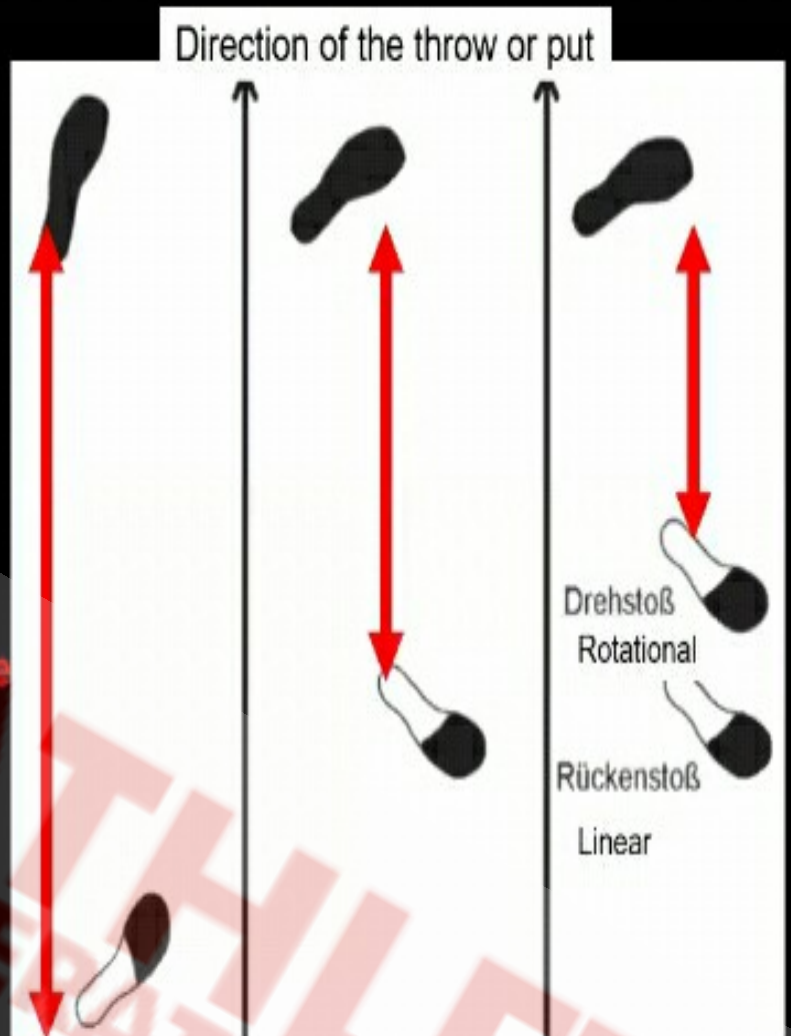
Discus

Shot Put

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# Common elements

- Comparable foot position
  - **Javelin:** at foot touchdown
  - **Discus / Shot:** at backward reclining position of delivery: "striking position" touchdown of the bracing leg
- Bracing leg is placed slightly to the left so that the hip on the side of the pressure can be brought forward





## Objective in the throwing events

« farther »



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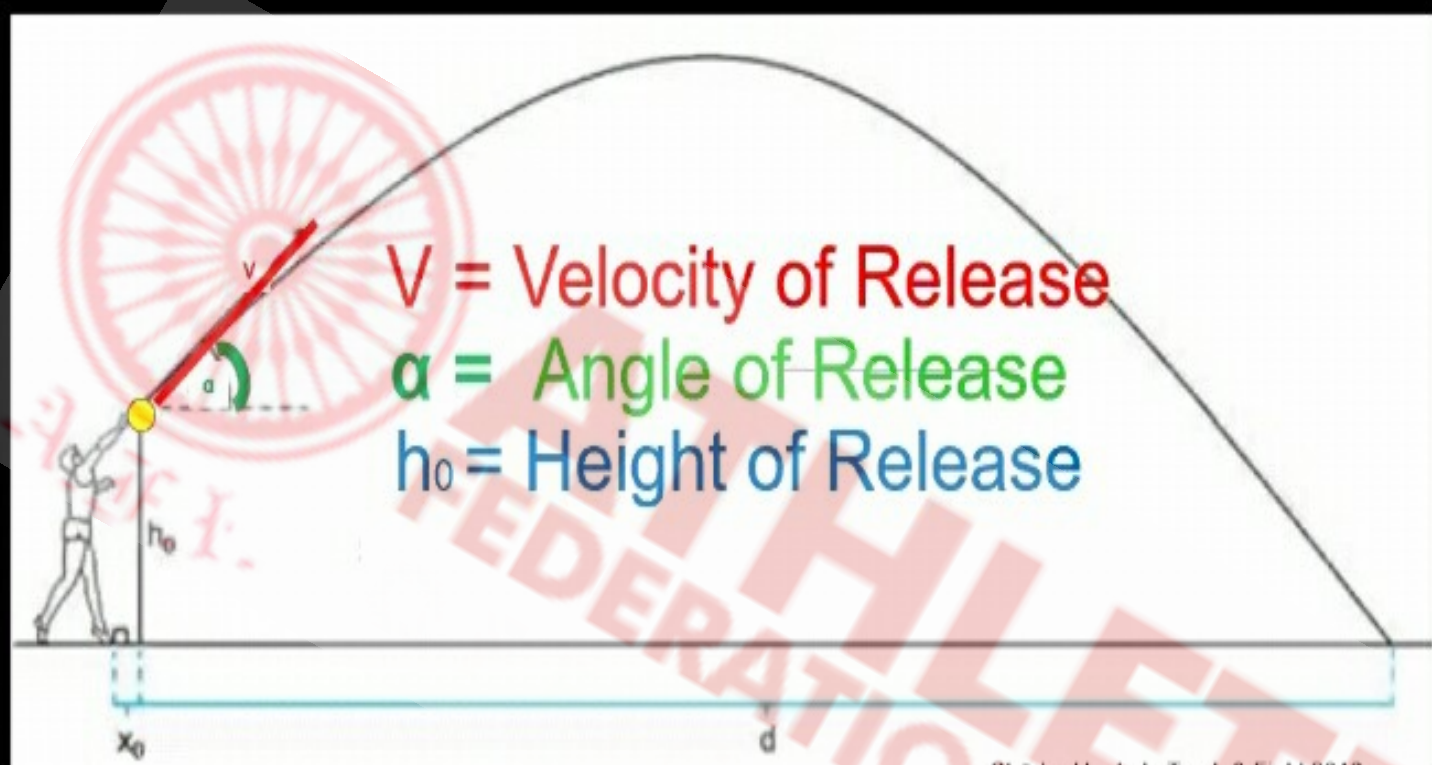
Objective in the throwing évents

« farther »



## Biomechanic aspects

- Similar to jumping events (body) the parabolic throwing path of the implement (●) is determined by

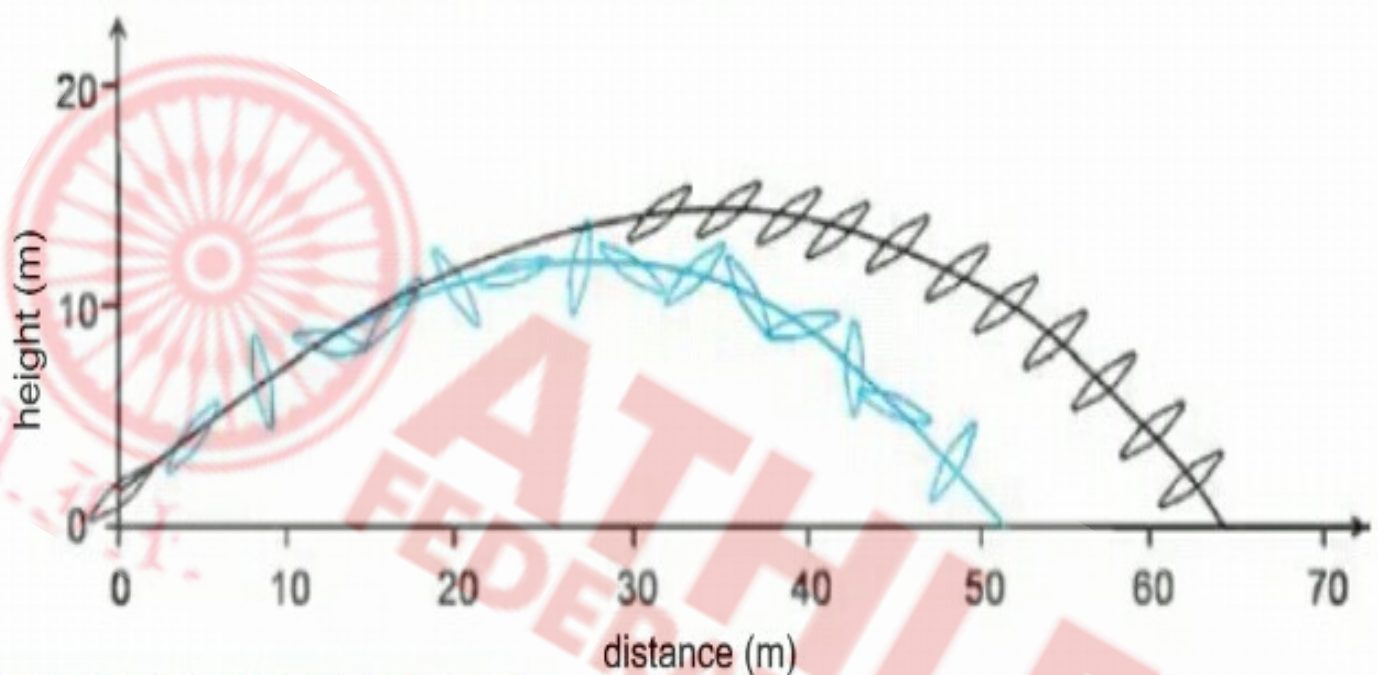


Standard II, Athletics Track & Field 2018



## Biomechanic aspects

- The parabolic throwing path is also determined by:
  - Frontal drag of the implement
  - Possible lift (e.g. headwind)



Flight path of two discs with identical velocity of departure, but one of them rotating about the axis of symmetry and with a stable flying position, and the other flying without stable rotation (modified on the basis of Soong, 1982, quoted from Wank, 2006, p. 134)

# Movement Structure

All throwing events can be broken down into 4 phases:

Preparation

Momentum Building

Delivery

Recovery





# Preparation

- Gripping the implement
- Assuming a perfect balanced position
- Concentration



# The Momentum Building

The aim is

- to increase the possible release velocity



## Power Position aka « Striking position »

Link between « the **momentum building** phase » and « the **delivery** phase » is the **POWER POSITION** aka “Striking position”.

- Muscular tension throughout the body.
- A balanced stance with both feet on the ground.
- Body weight over the right foot, right heel lifted.
- Right heel and left toe lined up.

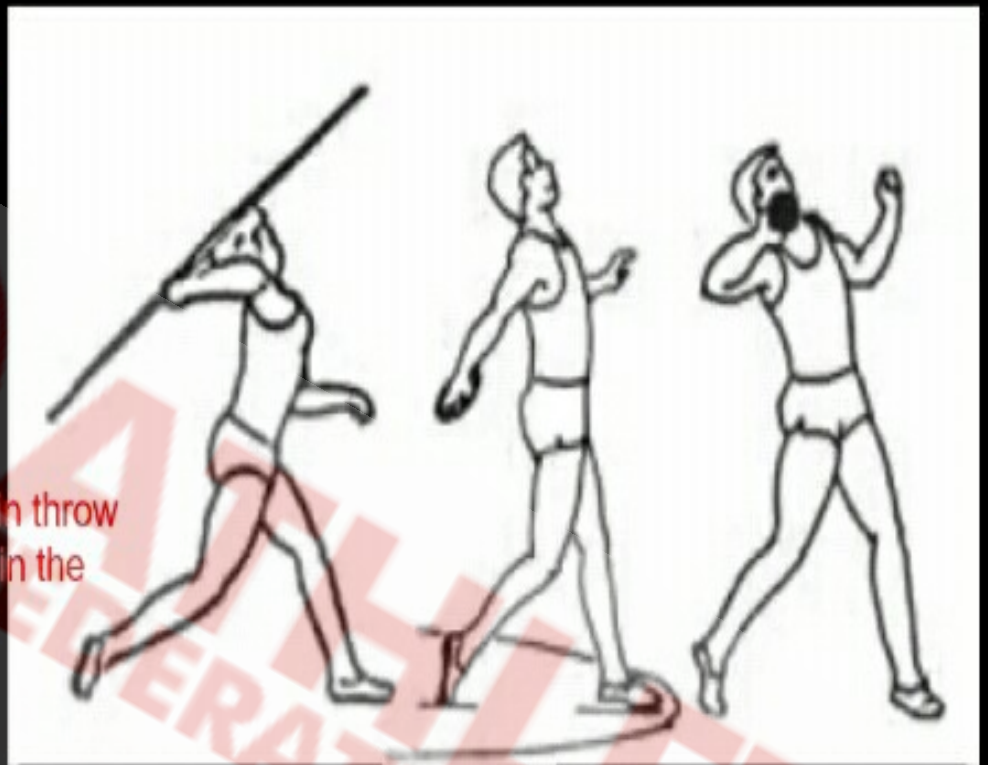




# The Delivery Phase

- blocking action of the left side

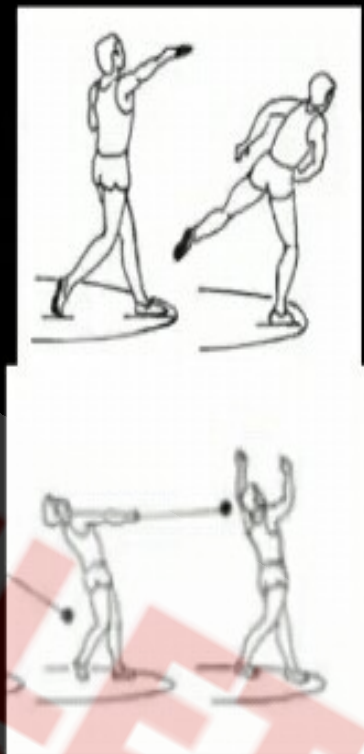
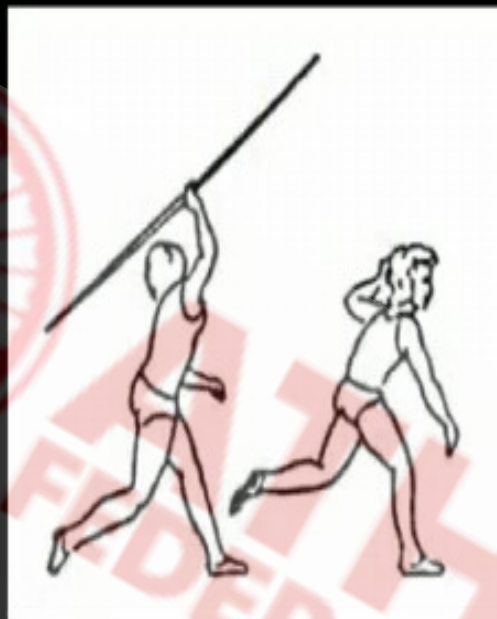
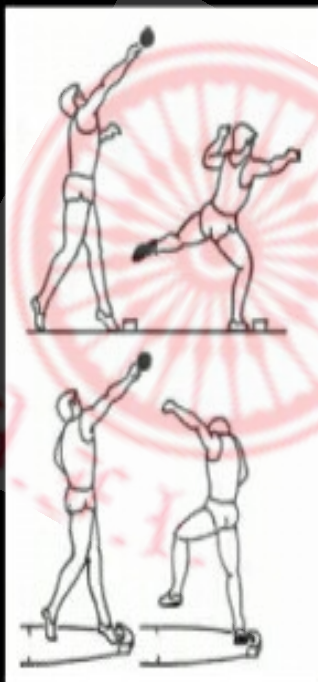
- twisted position



"Arc position" in the javelin throw  
and comparable positions in the  
discus throw and shot put

# Recovery

- Discharge the remaining kinetic energy of the thrower
  - athlète needs to avoid fouling



# Recovery

- Discharge the remaining kinetic energy of the thrower
  - athlete often has personal solutions.





# Teaching Throwing Technique

- “Chaining method”
- Teaching progressions:
  - Intro to the implement (safety and grip)
  - Delivery (using front throws)
  - Power Position
  - (Recovery)
  - Momentum Building
  - Preparation Phase

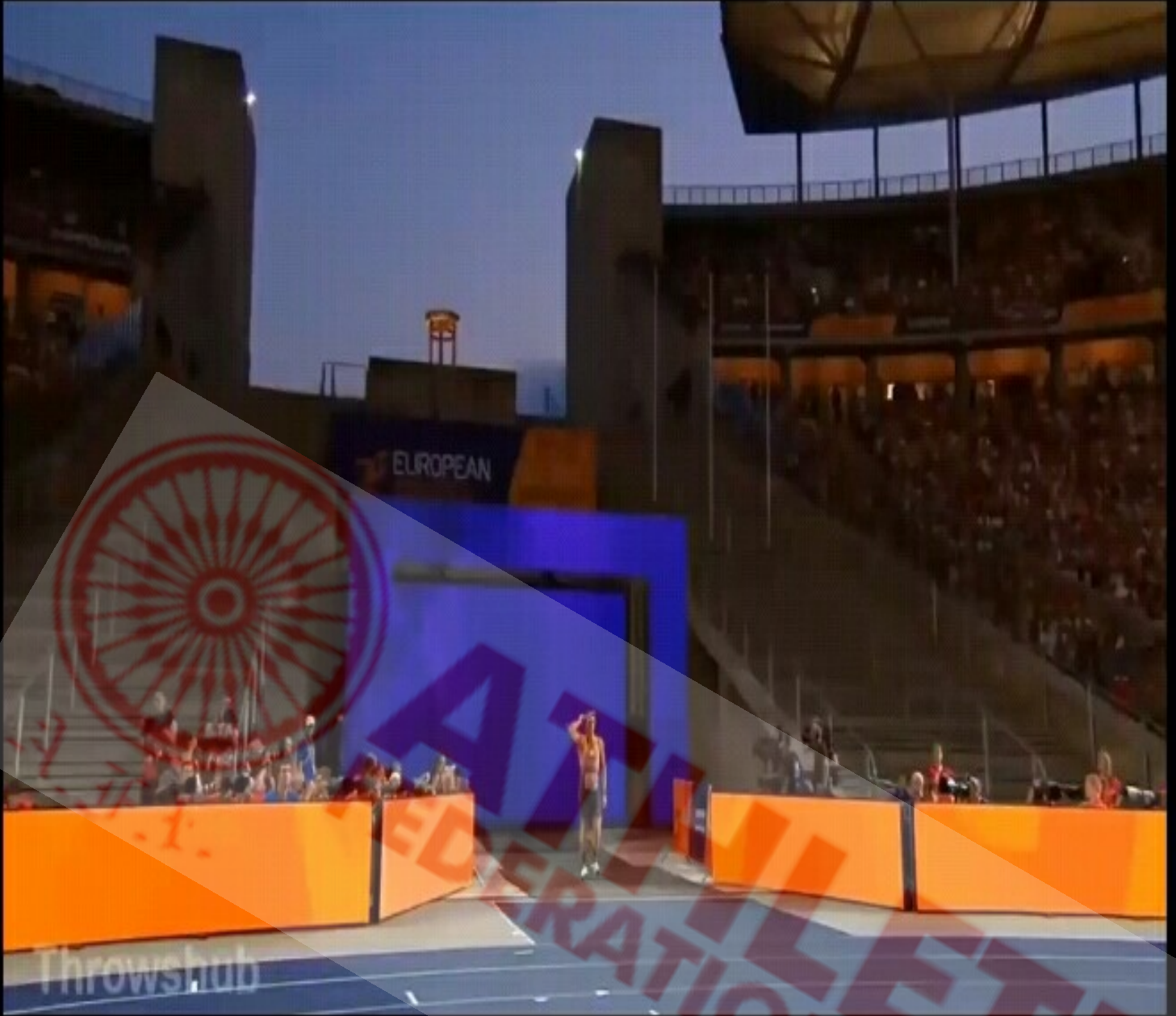
## Points to Emphasise

- Optimum velocity in the momentum building phase.
- Increasing velocity in the Power Position and Delivery.
- A correct Power Position.
- Successive activity of the joints involved in the final movement peaking with the maximum velocity transferred to the implement.
- Complete extension of the body in the Delivery.
- Developing technique with implements slightly lighter than competition weight.
- A wide variety of exercises, implements, throwing movements and situations.

## Points to Avoid

- Introduction of competition technique to young athletes who have not reached the appropriate physical prerequisites.
- Implements of inappropriate size, weight or aerodynamic qualities.
- Introduction of new technique elements before satisfactory performance of those already introduced.
- Excessive throwing movements for athletes who have not gained the appropriate strength levels in the abdominal and leg muscles.









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