

The Basics: From the Ball Throw

to the Javelin Throw



by

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AFI ZOOM Video meeting

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throwing movements

overhead throws

**basic movement patter of overhead throws
we can find in different sport**

**cricket, baseball
volleyball
badminton
tennis
handball
soccer (throw-in)**

javelin throw



golf ball 46g
 tennis ball 56-59g
 baseball 142-149g
 throwing balls 150-200g
cricket ball 160g
 softball 178-190g
 „Schlagball“ 80g
 Wurfball 150g



Vortex (Nerf)



Vortex rocket 130, 240g

Turbo jav 300g, 400g (65-70cm), 500g (115cm),
 600, 700g (180cm)



turbo jav



Finnflier
 450g
 1.78m



bamboo-sticks

Steps of development

we can see children throw ball first with both arms (age 2)
and later with one arm



from:
Meinel, K. (1960).
Bewegungslehre,
Sportverlag
Berlin

with the age 4-5 overhead throw of small ball, stones

throwing a ball overhead is the first step towards the javelin throw

important:

as early as possible to understand by teacher/coach and student/young athlete the differences between the movements

- by bowling a ball in cricket and
- by throwing a ball overhead for distance or targets



from DLV (eds.) 2011 Jugend-Leichtathletik. Philippika Sportverlag, Muenster.



throw of the vortex rocket (about 12 years old)

basic patter of the throw developed already at an acceptable level for this age
- further improvements are required
(leg work, arm movement)

by changing to the javelin, the main focused has to become
the control of the implement



DR U12 **56,15 m** Tom Teršek létnica rojstva 2007 ŽALEC 2017
10 years old

*video: R. Teršek
 layout K.Bartonietz*



index finger grip
“American grip”



fork grip



“Finnish grip”



how to hold the javelin

main parameter, influencing the distance thrown with ball and javelin

release velocity by magnitude and direction:

release velocity: has to be developed with training,
of **optimal** magnitude because of direction (release angle)

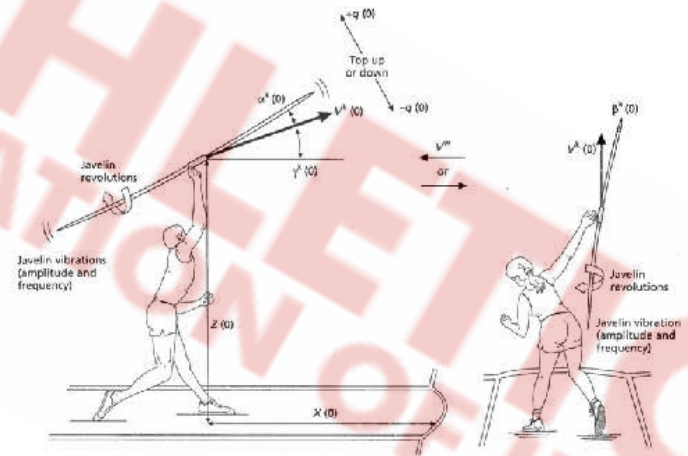
release direction:

ball: release angle - **optimal, about 35-40°**
depending on implement
and conditions like wind

javelin: release angle **32-40°**
depending on implement
and conditions like wind

attack angle
(as seen from side)
as small as possible by conditions

yaw angle
(as seen from behind)
as small as possible

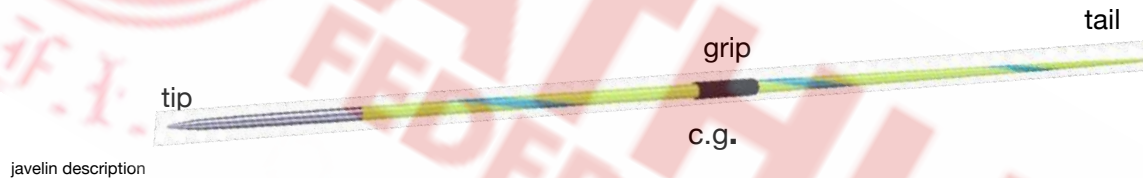


from Bartonietz, 2000

height of release: an factor, but has only limited influence on distance thrown

javelin throw - getting used to the implement

javelin gymnastic (FinnFlyer, broom sticks, rubber bands)



first throw - preparation (right handed throw):

- **stance:** left foot in front of left hip
(toes of left foot in line with the heel of right foot)
- **right arm:** hand high over head, slightly bent and relaxed
- **(elbow at ear level)**
left arm: bent about $90-100^\circ$ in front of body at shoulder level
Upper arm shows in throwing direction
- **javelin:** tip slightly down, eye contact with tip

first throw - execution

- 1-2 shoulder pre-stretches, throw



first throws with the javelin
Initial stance - arm and javelin position

first throw - execution

- 1-2 shoulder pre-stretches, throw

- throw in sideways position
elbow slightly above shoulder axis,
“roll-in”, body pre-stretch /“bow position”
View is always in throwing direction/
follow the throw(javelin with your eyes)



Thomas Roehler

throw close to head, bent elbow
so it is easier to hit into
the javelin's long axis
(reduced momentum for shoulder joint)
but also increase the possibility to hit the
javelin with better angles to improve
flight quality



still from TV recording,
source:

<https://m.youtube.com/watch?v=x3e6XreLJ9U>

from: mid-day.com



from: Cricket coaching Fast Bowling Tips

Cricket as an national sport has similarities with javelin but also big differences to javelin throwing (whip effect - bowling), direction, straight arm and function of left shoulder and hip.





final forearm-hand whip - “hit” to increase the release velocity



ball throw from standing position

stills from video recordings at Javelin Conference , Kuortane/FIN, November 24 2012



1-2 rotating on the ball of the right foot
to push from foot horizontal into the knee

2-3 bringing the hip forward to built-up
the body pre-tension ("bow")

1-2-3 left leg+hip maximum stable = block

Jan Zelezny:

demonstrating the final work of the right leg against the stable front leg

Left arm and shoulder remain close / right side works against stable left side



Jan Zelezny WR 98.48m



stills from video recording of IAT Leipzig, May 25 1996

layout bartonietz



Training throw of Thomas Roeher/GER -Olympic Champion 2016, PB 93.90m (2017)



Thomas Röhler, **93.90m** DL Doha, May 5 2017

stills from TV recording, source: <https://m.youtube.com/watch?v=x3e6XreLJ9U>



ball throw 16-yr old girl



March 17 2019, full approach, 46.57m

Krishma Sanil - Karnataka (born 2000), PB 2019 47.27m



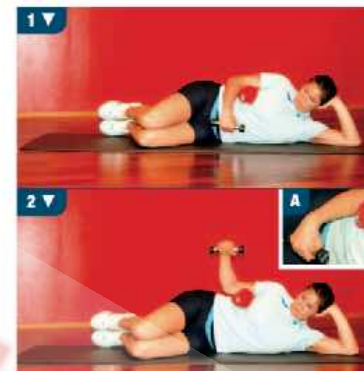
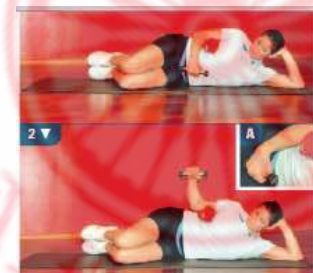
angle of release 38°
angle of attack 0°



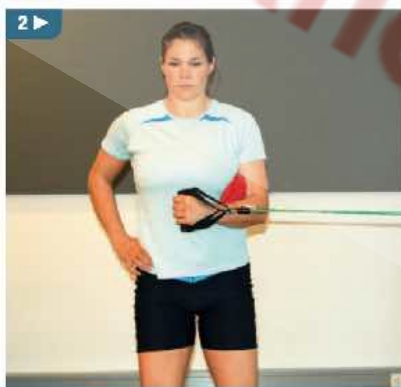
Anjali Kumari Bihar
(born 2000)

PB 2018 45.26m, 2019: 44.84m

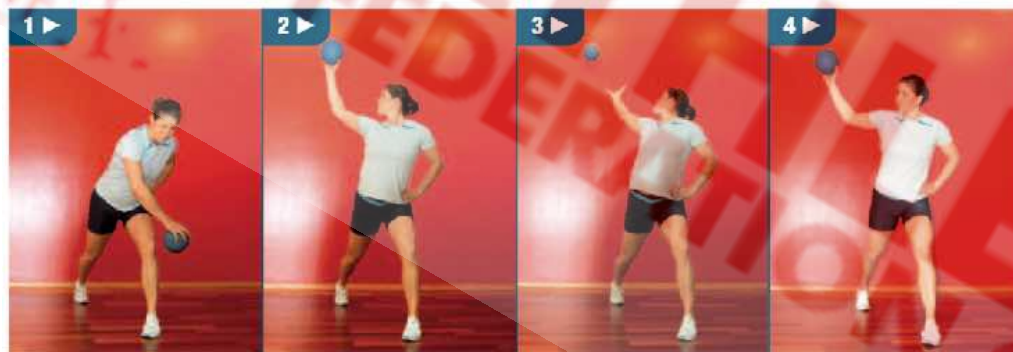
October 16 2019, short approach



Exercises to strengthen the SHOULDERS



from: Zandt, J. (2012) leichtathletiktraining, 4.



from: Zandt, J. (2012) leichtathletiktraining, 4.

**Stretching the
shoulders
are very important
for Javelin throwers
Here two different
kind of
“sleepers stretch”
You should introduce
this one to your
weekly
stretching routine**



from: Zandt, J. (2012)
leichtathletiktraining, 4.

**That's a other
variation for a
shoulder stretch
to improve
the external rotation**



from: Zandt, J. (2012)
leichtathletiktraining, 4, 5.

Different ways of stretching shoulders Using a towel or band



from: Zandt, J. (2012) leichtathletiktraining, 4+5

Basic fitness level of to a young athlete (age 10-14) to become a javelin thrower

good endurance: swimming, biking, running

**well coordinated: different games such as volleyball, basket ball,
head stand, hand stand, cart wheel/ if possible other gymnastic exercises**

experiences in different throwing events: shot put, discus throw

many different kind of medicine ball throws

any kind of sprints, jumps (HJ, LJ), hurdles (running, jumping)

Javelin throwers should be versatile as a multi event athlete

- handling the own body weight by different exercises,**
- girls at least 50% of the boys' performances, examples are:**
 - chin ups (minimum 6-10 times)**
 - push ups (minimum 20)**