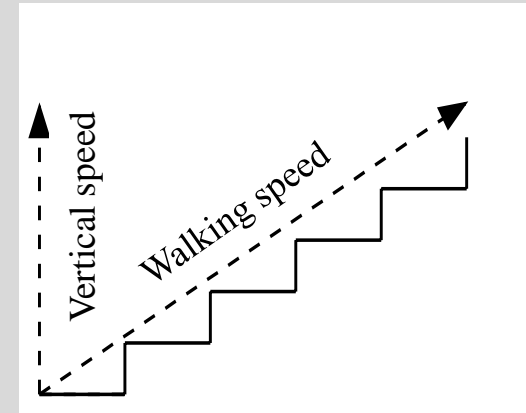


# Literature review

Speed [m/s]	General information	Source	Comments
0.67 0.64 0.63 0.59 0.51 0.49	Men younger than 30 years Women younger than 30 years Men between 30 and 50 years Women between 30 and 50 years Men over 50 years Women over 50 years	Fruin 1971	Walking speed. ■
0.52 0.47 0.44	Single person Group of people not affecting each other (low density) Group of people affecting each other (high density)	Kretz et al 2006	Walking speed. The stair had a slope of 35.1° and was 35.8 meters high. The speed was measured after 25 meters.
0.27 0.28 0.29 0.29 0.30 0.31 0.32	Elderly women (> 65 years) Elderly (> 65 years) Elderly men (> 65 years) Children (< 13 years) Adult women Adults Adult men	Yeo, S.K., and He, Y. 2009	Vertical speed. Several short stairs at different metro stations was studied. 643 commuters were studied. The slope of the stairs is not known.
0.75 0.55 0.53 0.42	Men floor 1-25 Men floor 26-50 Women floor 1-25 Women floor 26-50	Choi, et al. 2013	Walking speed. The building was 50 floor high. The study involved 30 men and 30 women in the age 20-28 years (average 24.6 years for the men and 22.2 for the women).



# Literature review

[m/s]

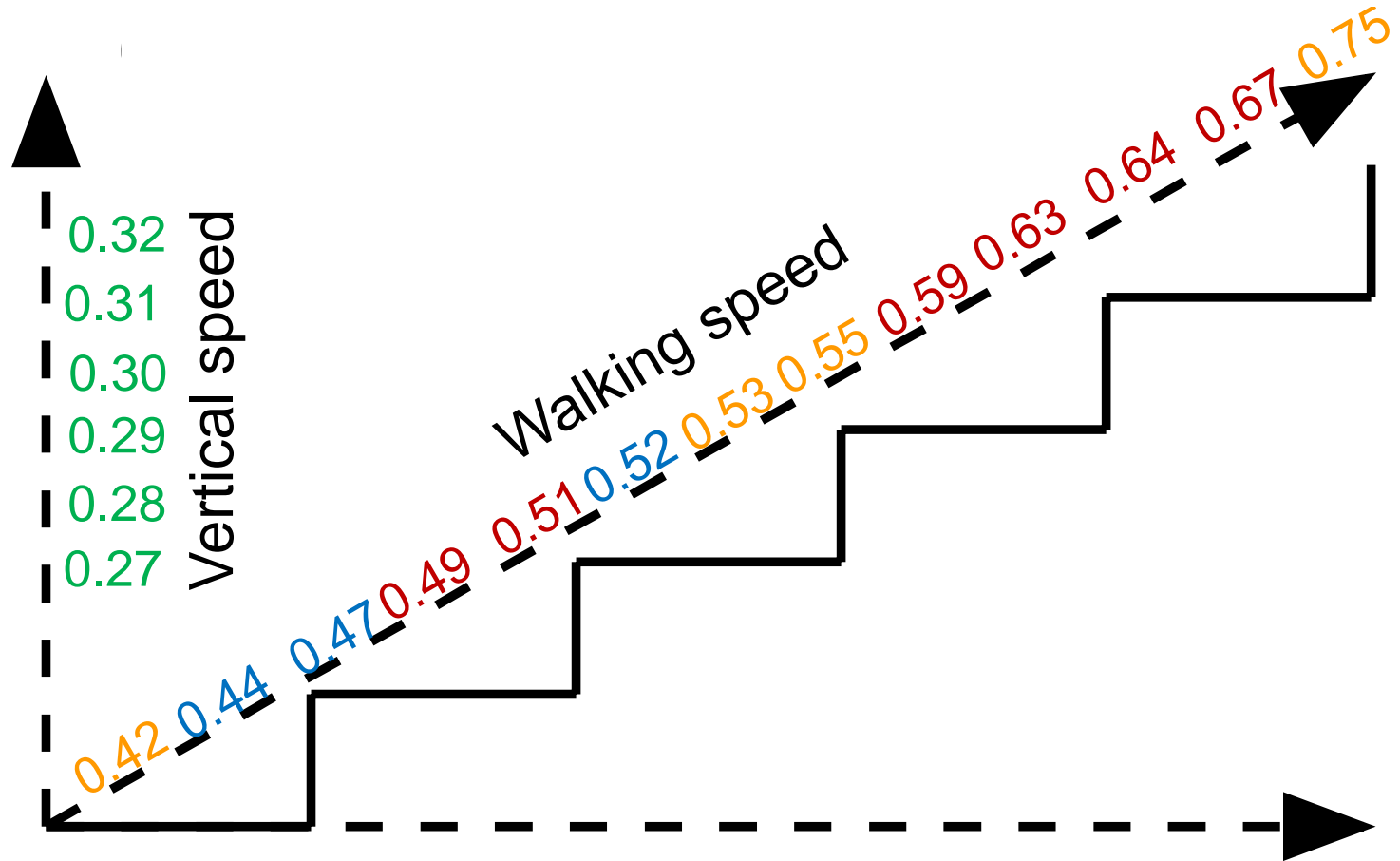
Speed [m/s]

0.67  
0.64  
0.63  
0.59  
0.51  
0.49

0.52  
0.47  
0.44

0.27  
0.28  
0.29  
0.29  
0.30  
0.31  
0.32

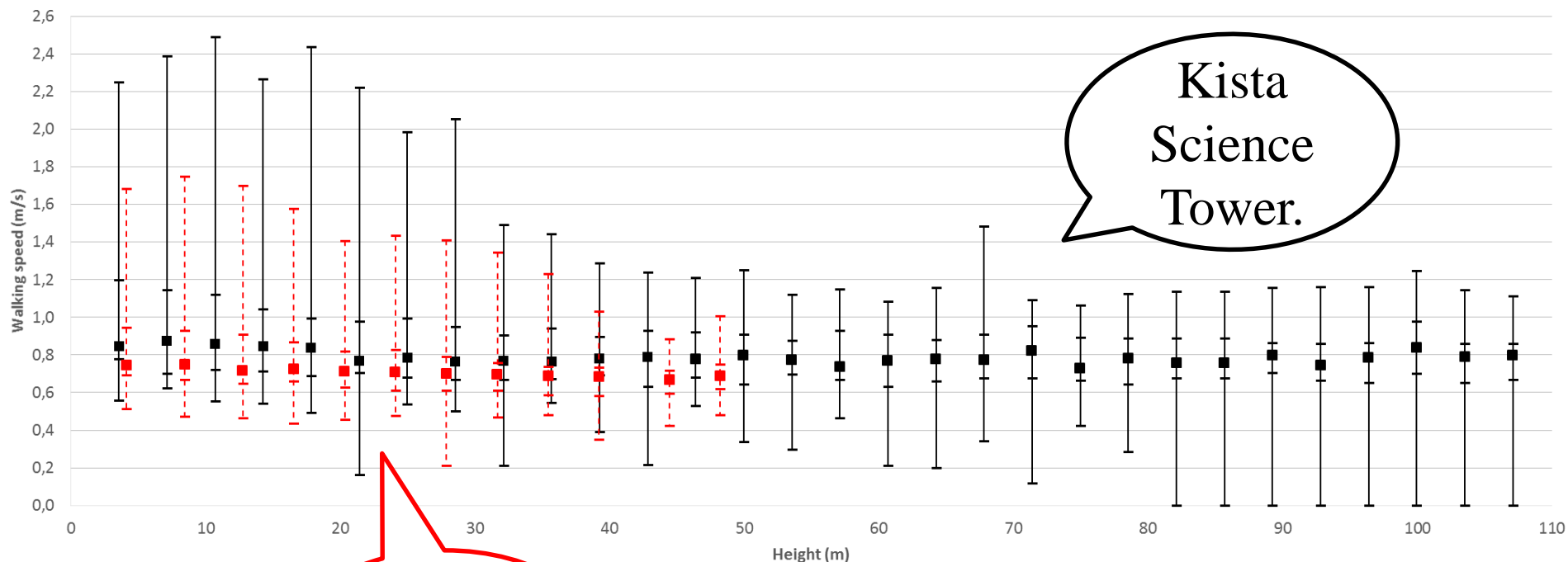
0.75  
0.55  
0.53  
0.42



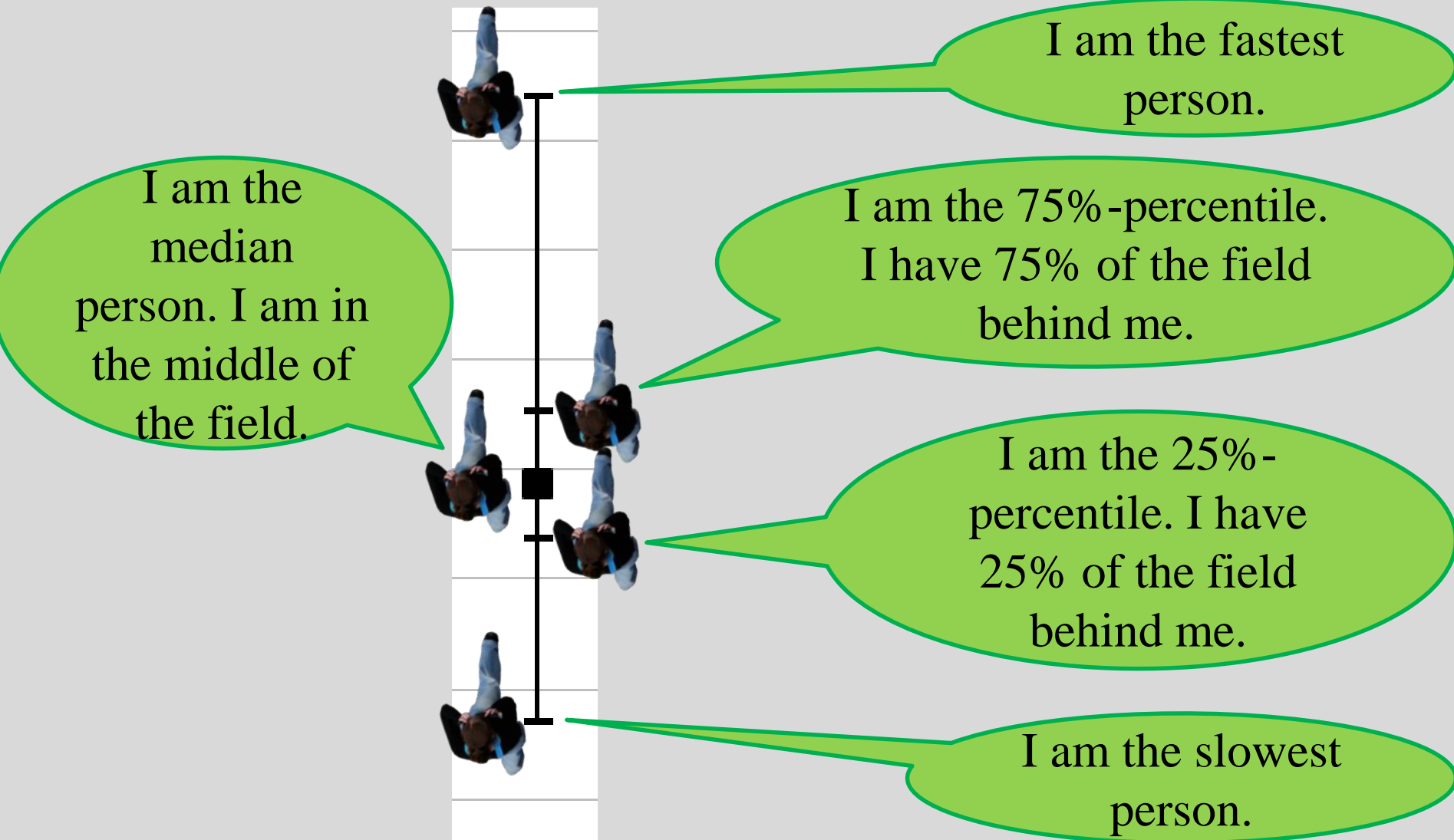
# Results – Walking speed, Individual

Walking Speed - Ideon Gateway (47 persons) & Kista Science Tower (29 persons) - Individual

percentiles  
min 25 50 75 max



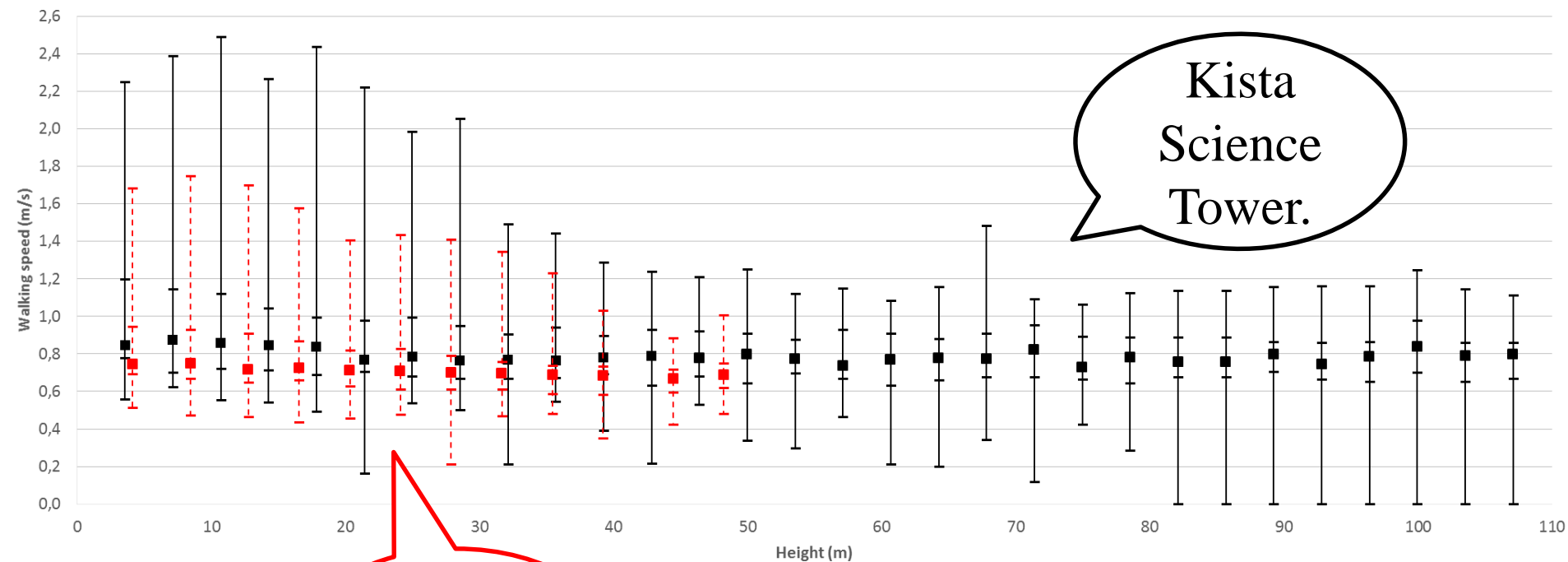
# Results – Walking speed, Individual



# Results – Walking speed, Individual

Walking Speed - Ideon Gateway (47 persons) & Kista Science Tower (29 persons) - Individual

percentiles  
min 25 50 75 max

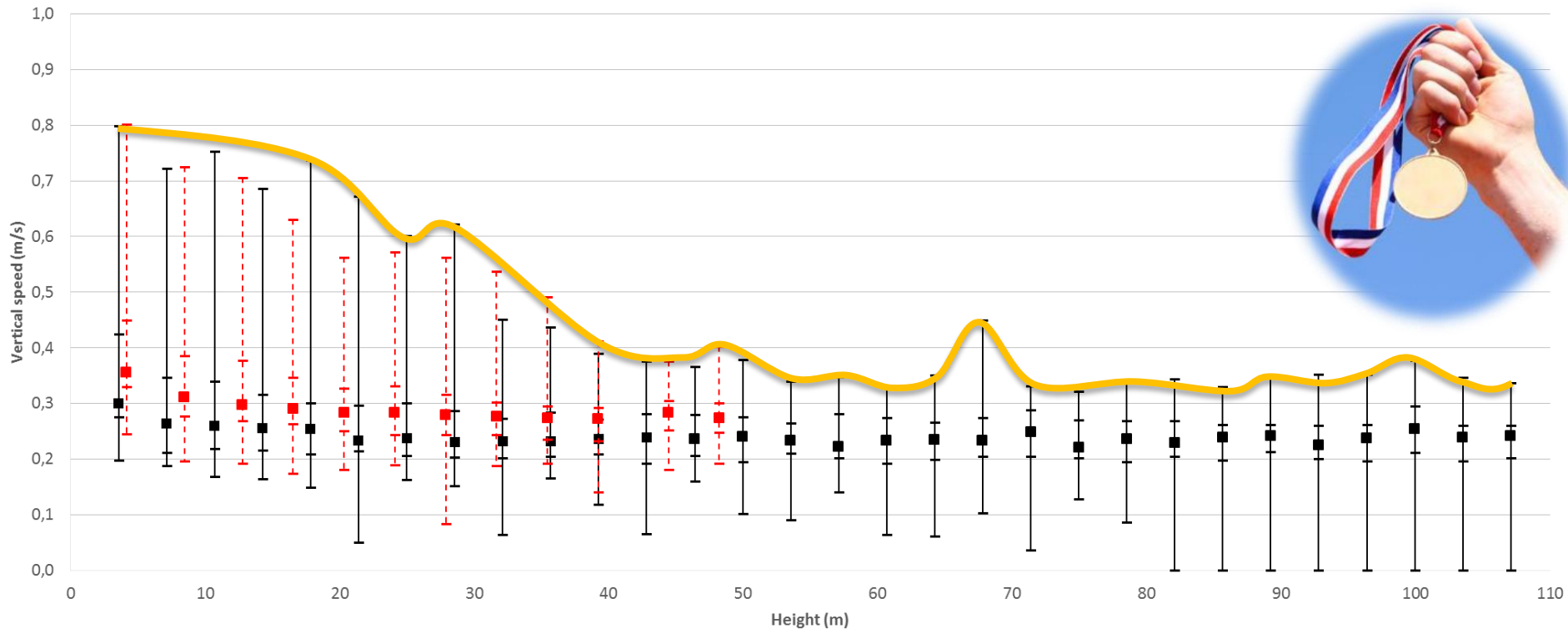


Ideon  
Gateway

Kista  
Science  
Tower.

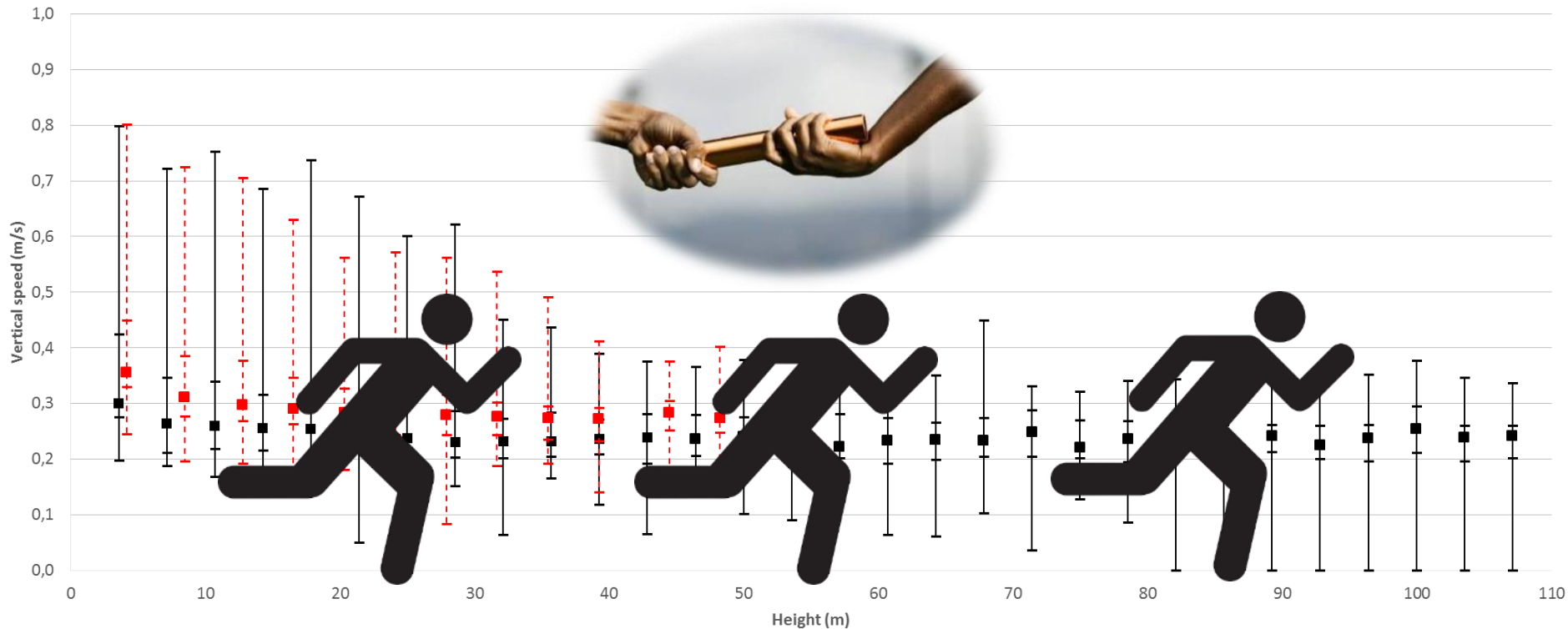
# Results – Who is that fast one?

Vertical speed - Ideon Gateway (47 persons) & Kista Science Tower (29 persons) - Individual percentiles  
min 25 50 75 max



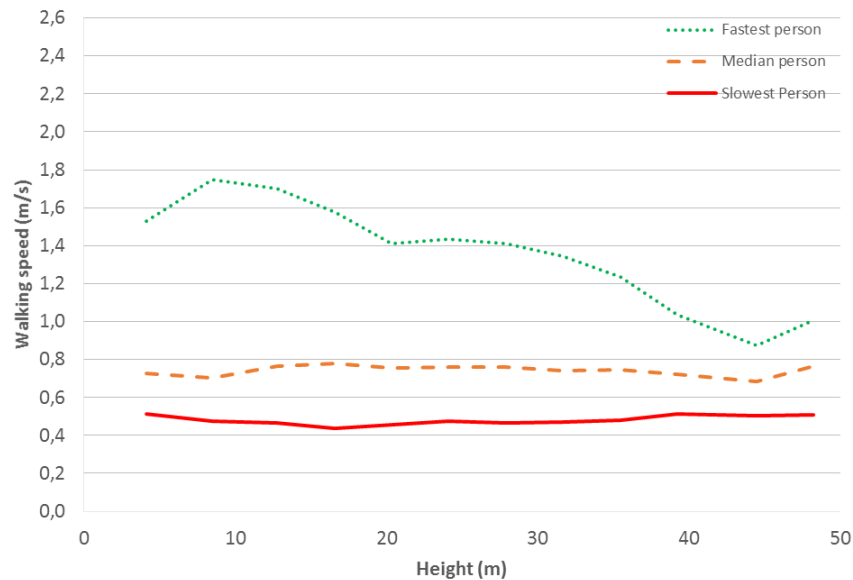
# Results – Who is that fast one?

Vertical speed - Ideon Gateway (47 persons) & Kista Science Tower (29 persons) - Individual percentiles  
min 25 50 75 max

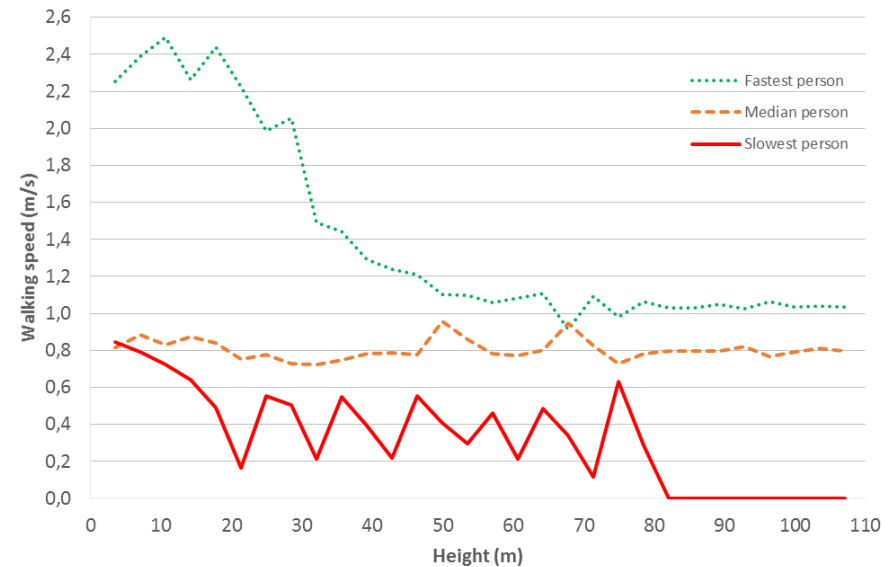


# Results – Walking speed, Individual

Walking speed - Ideon Gateway - Individual  
(47 persons)



Walking speed - Kista Science Tower - Individual  
(29 persons)

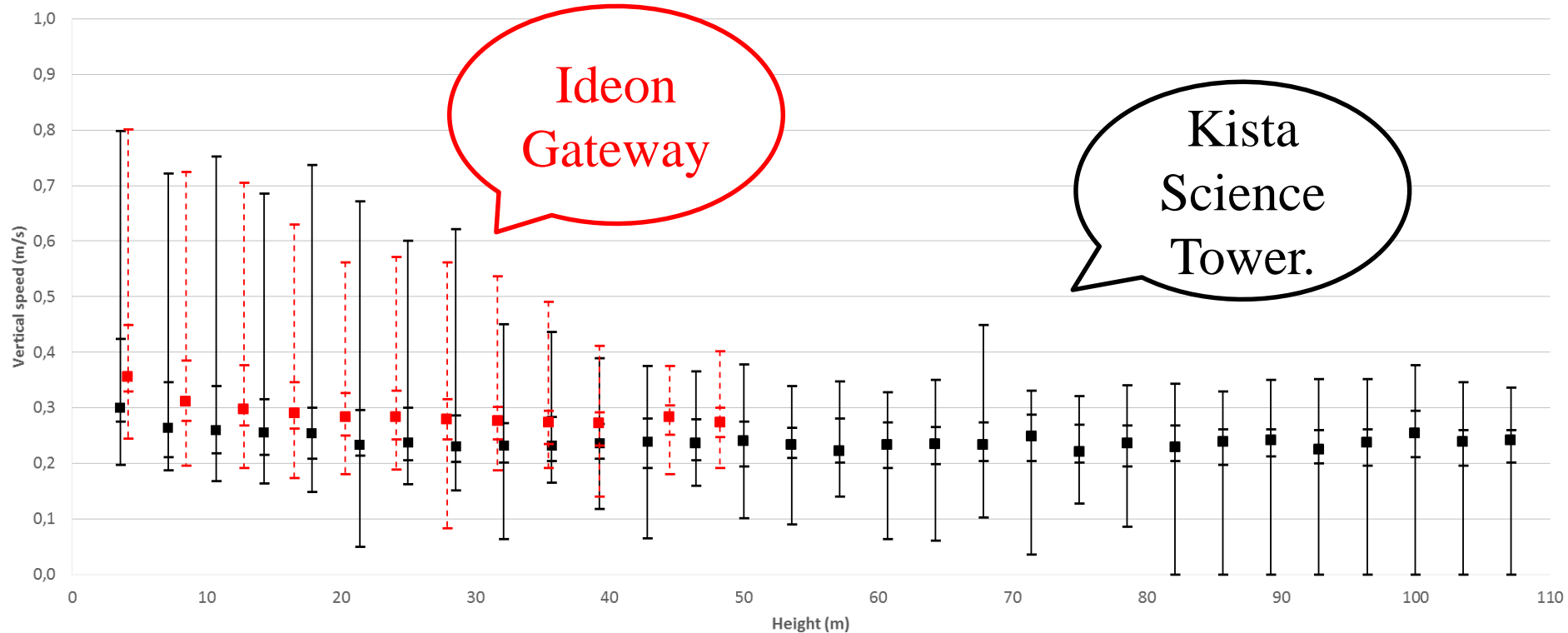




# Results – Vertical speed, Individual

Vertical speed - Ideon Gateway (47 persons) & Kista Science Tower (29 persons) - Individual

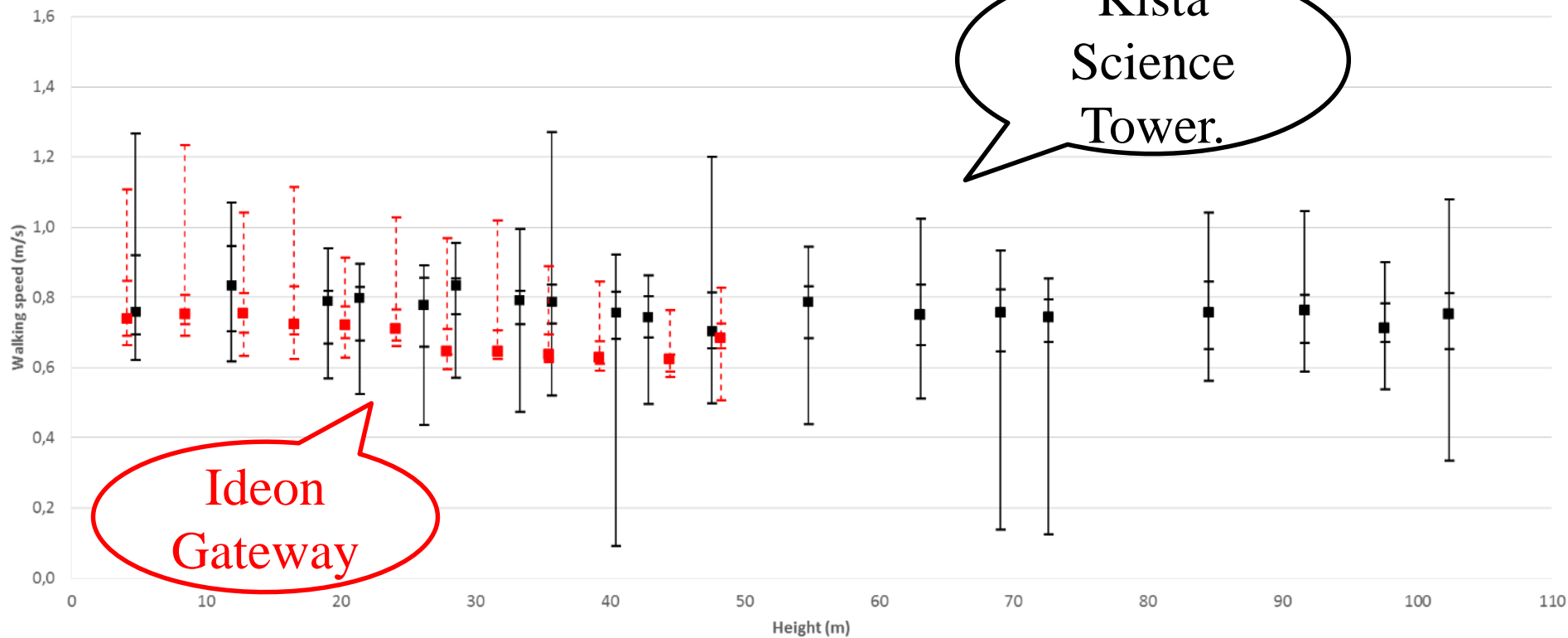
percentiles  
min 25 50 75 max



# Results – Walking speed, Group

Walking speed - Ideon Gateway (15 persons) & Kista Science Tower (26 persons) - Group

percentiles  
min 25 50 75 max

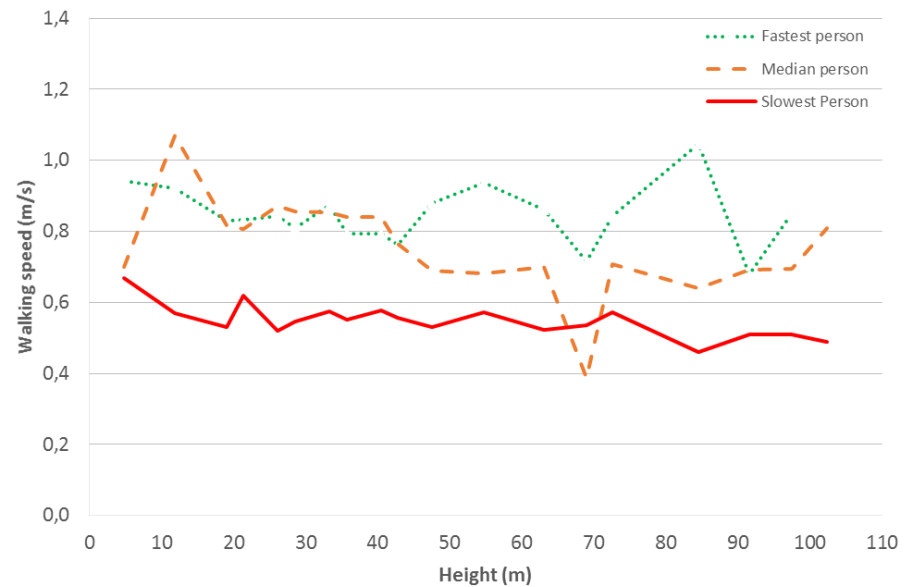


# Results – Walking speed, Group

Walking speed - Ideon Gateway - Group  
(15 persons)



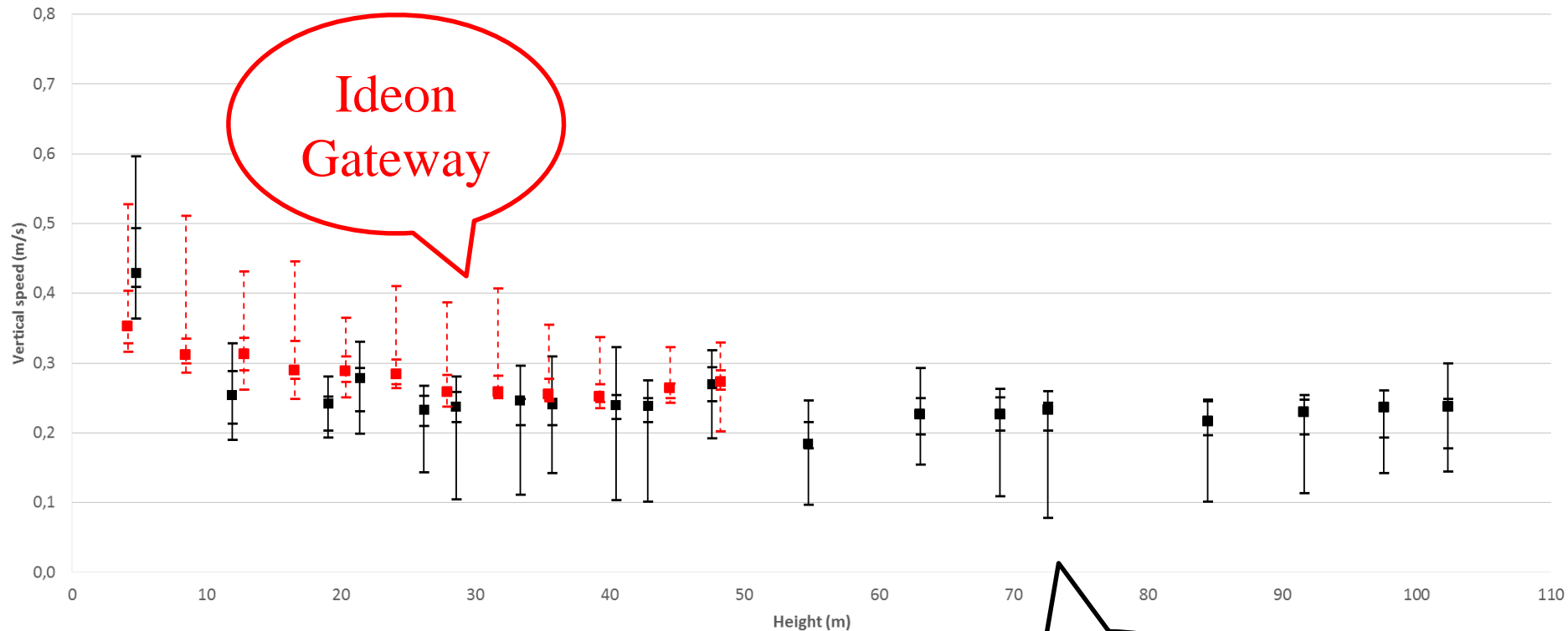
Walking speed - Kista Science Tower - Group  
(26 persons)



# Results – Vertical speed, Group

Vertical speed - Ideon Gateway (15 persons) & Kista Science Tower (26 persons) - Group

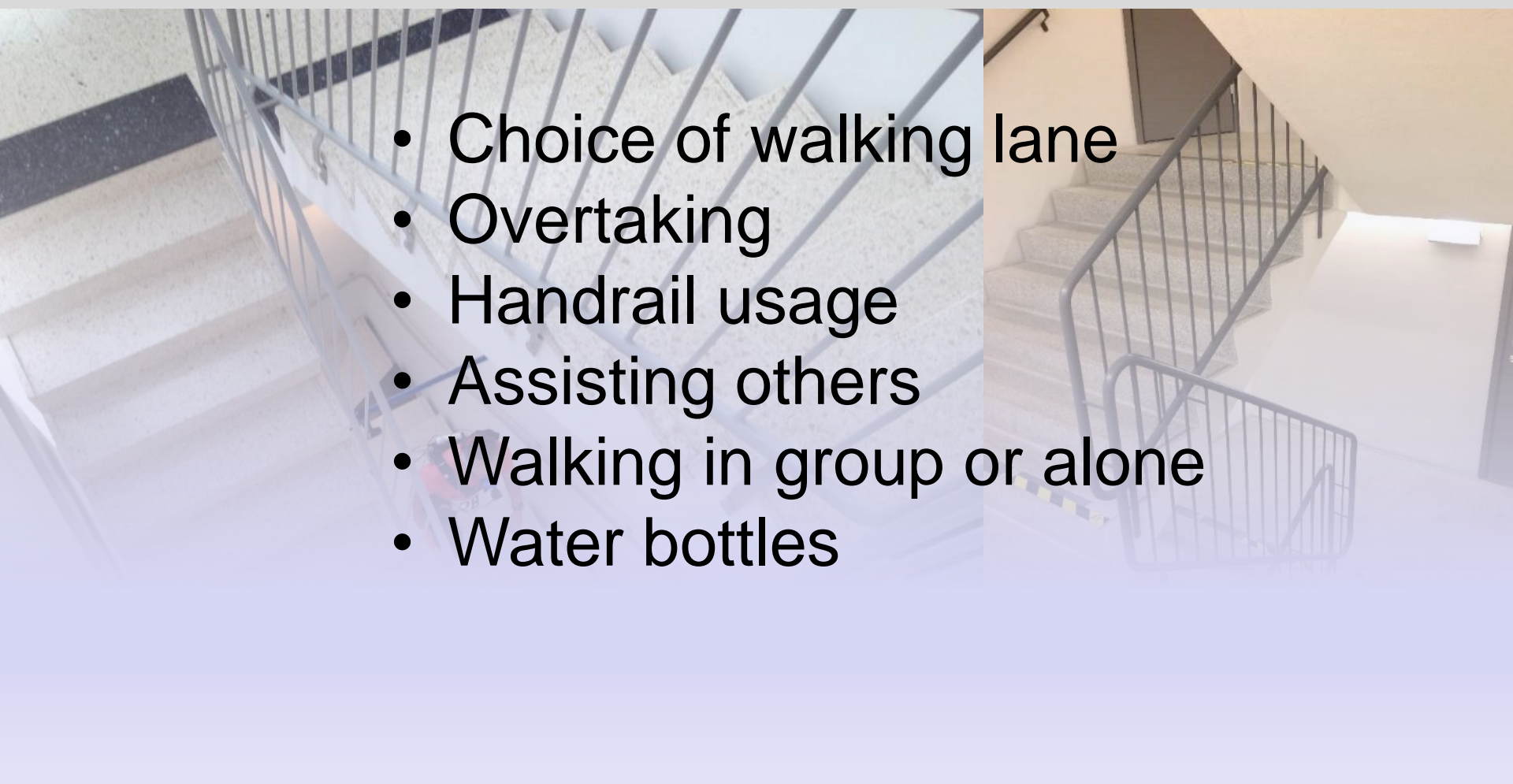
percentiles  
min 25 50 75 max



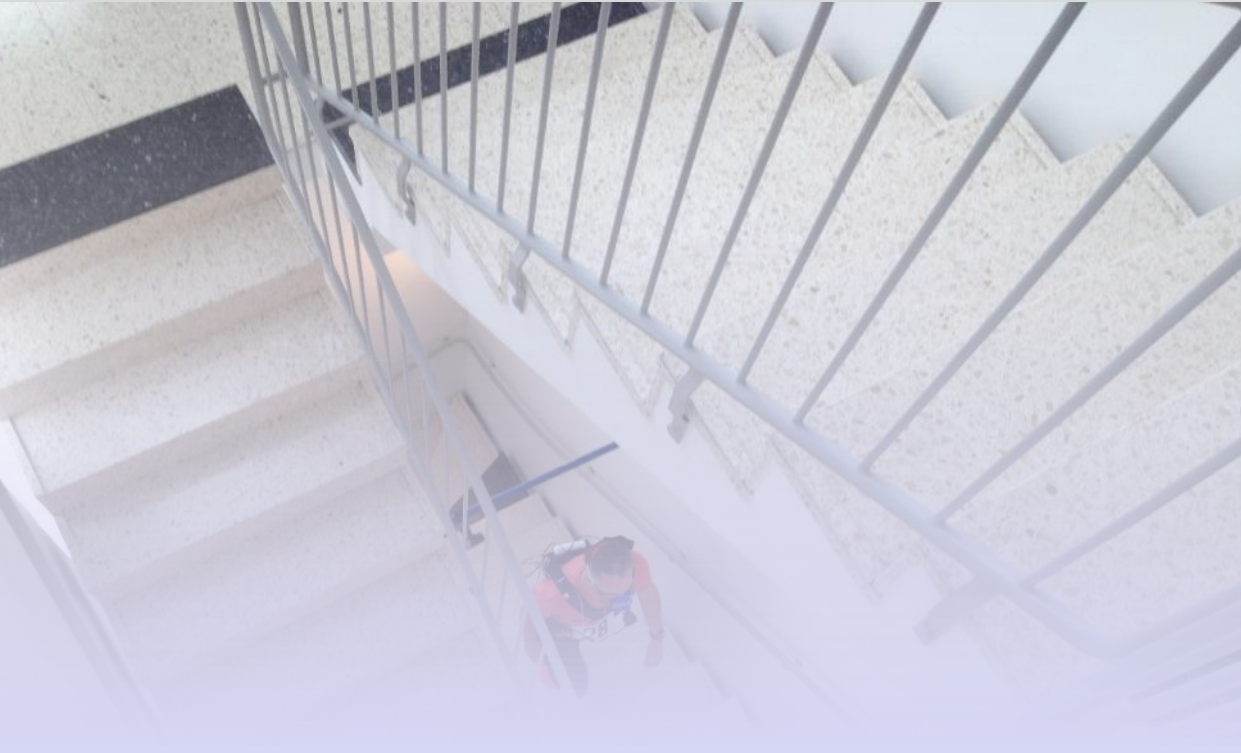
Ideon  
Gateway

Kista  
Science  
Tower.

# Human behaviour

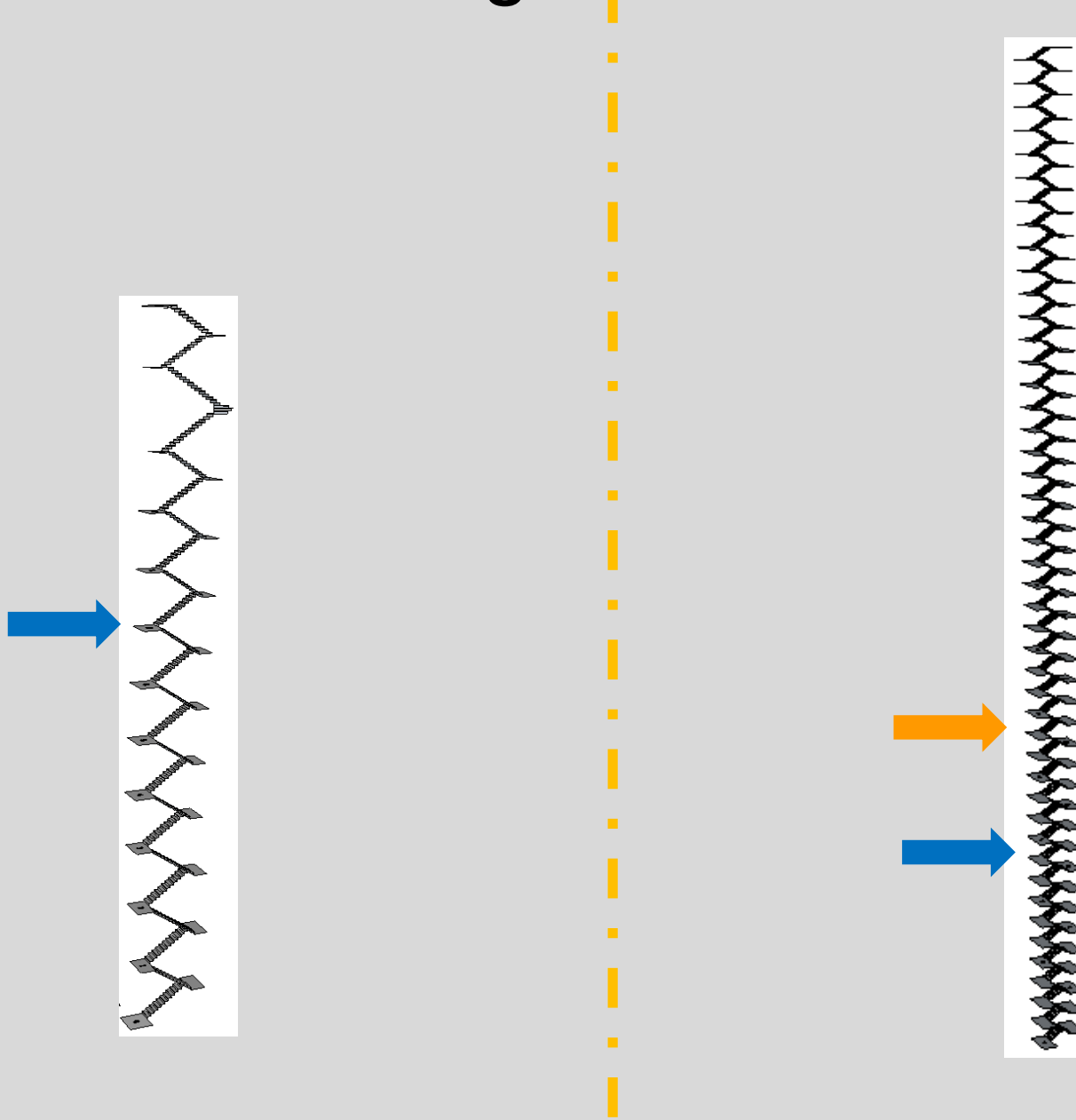
- 
- Choice of walking lane
  - Overtaking
  - Handrail usage
  - Assisting others
  - Walking in group or alone
  - Water bottles

# Vertical – Horizontal



$\frac{\Delta z}{\Delta x}$	<u>vertical movement</u>	<u>treads</u>	<u>work</u>
	horizontal movement	treads + landings	micropause

# Resting in stairwell





# Resting in stairwell

