

Vertical Jump Reference Chart

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Sports Science Testing Equipment

Published jump heights, each shown with the test that produced it

Read this first. A Vertec measures reach differential: standing reach subtracted from the highest vane touched, usually with an arm swing. A force plate or jump mat measures a countermovement jump, usually with the hands kept on the hips. The same athlete scores far higher on the first. Compare a result only with figures from the same test.

1. Countermovement jump, force plate or mat

Group	Level and country	Jump height (cm)	n	Method
Basketball				
Men	Professional, Liga ACB, Spain	39.2 (37.3 to 41.1)	39	Force plate, hands on hips ¹
Men	Semi professional, Liga EBA, Spain	36.0 (34.0 to 37.9)	39	Force plate, hands on hips ¹
Football				
Men	EFL League Two, England	39 ± 6	20	Force plate, hands on hips ²
Men	National League, England	39 ± 5	34	Force plate, hands on hips ²
Men	National League North, England	37 ± 4	23	Force plate, hands on hips ²
Men	National team, Mexico	40.7 median (39.8 to 43.9)	36	Force plate, hands on hips ³
Women	National team selected, Finland	30.9 to 33.0 by position	85	Infrared mat, flight time ⁴
Women	National league, Finland	29.5 to 32.1 by position	101	Infrared mat, flight time ⁴
Rugby league				
Men, backs	Super League and Championship, England	36.4 ± 4.5	55	Force plate, hands on hips ⁵
Men, forwards	Super League and Championship, England	34.1 ± 4.2	66	Force plate, hands on hips ⁵
Women	Women's Super League, England	24.8 ± 4.9	166	Force plate, hands on hips ⁶
Women	England international	29.1 ± 4.7	25	Force plate, hands on hips ⁶
Volleyball				
Men	Serie C, Italy. Middle blockers	47.4 ± 2.2	10	Inertial sensor, arms free ⁷
Men	Serie C, Italy. Outside hitters	41.1 ± 1.2	10	Inertial sensor, arms free ⁷
Men	Serie C, Italy. Setters	33.9 ± 2.4	10	Inertial sensor, arms free ⁷
Women	NCAA Division I, USA. Middle blockers	36.1 ± 6.4	12	Force plates ⁸
Women	NCAA Division I, USA. Setters	27.4 ± 2.8	12	Force plates ⁸
Track and field				
Women, 100m	Olympic qualified national team	47.8 ± 5.3	8	Force plate, hands on hips ⁹
Women, 400m	Olympic qualified national team	41.4 ± 2.0	6	Force plate, hands on hips ⁹
Men, sprinters	National level, Italy	44.4 ± 7.6	11	Inertial sensor, hands on hips ¹⁰
Women, sprinters	National level, Italy	29.5 ± 9.2	12	Inertial sensor, hands on hips ¹⁰

Values are means with standard deviation, except the basketball rows (estimated marginal means with 95% confidence interval) and the Mexico row (median with interquartile range). Flight time methods, which include mats and inertial sensors, read higher than force plate take off velocity for the same jump. The two NCAA rows come from one squad of 12 players across all positions; the paper does not give the number in each position.

Reach differential numbers, and where a single jump sits in a measured population

2. Reach differential, Vertec style, with arm swing

Group	Level and country	Jump height (cm)	Range	Method
Men, standing	NBA Draft Combine, ten highest drafted each year, 2011 to 2021	77.4 ± 7.7	62.2 to 96.5	Reach differential, arm swing ¹¹
Men, running	NBA Draft Combine, ten highest drafted each year, 2011 to 2021	92.4 ± 7.9	74.9 to 110.5	Reach differential, run up ¹¹

These are the highest published jump figures in general circulation, and they are not countermovement jumps. A running jump adds an approach, so it is a third test again. Numbers of this size quoted for club or school athletes almost always come from a Vertec with an arm swing.

3. Youth players aged 10 to 18, countermovement jump without arm swing

Age	10th	25th	50th	75th	90th	Percentile, jump height in cm
Boys						
10	15.1	17.3	19.8	22.3	24.6	3,337 boys and girls at Serbian volleyball clubs and camps, measured on photoelectric cells with the hands on the hips throughout ¹²
12	16.8	19.9	23.3	26.7	29.8	
14	24.5	28.6	33.2	37.7	41.8	
16	28.9	32.6	36.7	40.8	44.5	
18	30.2	35.0	40.3	45.6	50.3	
Girls						
10	14.5	17.3	20.5	23.6	26.4	Boys keep improving through the whole range. The girls' median moves very little after about 14 ¹²
12	16.7	19.8	23.2	26.7	29.7	
14	18.8	21.9	25.3	28.6	31.7	
16	20.3	23.1	26.2	29.3	32.1	
18	21.1	23.7	26.7	29.6	32.3	

4. Elite female footballers, England, jump mat with hands on hips

Age	2nd	9th	25th	50th	75th	91st	98th
13	20.1	22.4	24.8	27.3	29.9	32.7	35.9
15	21.2	23.7	26.1	28.7	31.4	34.2	37.4
17	22.0	24.5	27.0	29.7	32.4	35.3	38.4
19	23.2	25.8	28.2	30.9	33.6	36.3	39.4
21	24.9	27.4	29.8	32.3	34.9	37.5	40.4
23	26.7	29.2	31.6	34.1	36.6	39.2	42.0
25	27.8	30.4	32.8	35.3	37.9	40.5	43.3
27	27.1	29.7	32.2	34.7	37.3	39.9	42.7
29	25.7	28.4	30.8	33.4	36.0	38.7	41.5

Players in the English Football Association national development programme across four seasons; the centiles rest on 471 players and 1,629 jumps. The published table notes sparse data above 25 years.¹³

Adults outside sport, and where every figure on this sheet came from

5. Adults outside sport, force plate, arm use not stated

Group	5th	10th	25th	50th	75th	90th	95th
Canadian adults, national health survey, 2016 to 2019 ¹⁵							
Men 20 to 39	31.9	36.3	40.5	46.0	52.1	56.0	59.7
Men 40 to 59	26.8	28.9	33.2	38.0	43.6	46.6	50.4
Men 60 to 79	18.7	20.5	24.2	29.0	32.7	37.4	39.5
Women 20 to 39	22.0	24.5	28.0	32.2	36.0	39.2	41.7
Women 40 to 59	18.7	20.0	23.7	27.9	31.3	35.0	36.0
Women 60 to 79	13.7	15.5	17.7	21.2	24.5	28.8	29.8
US Marine Corps women, 18 to 56 years, n = 736 ¹⁴							
Women 18 to 56	12.5	14.5	17.4	21.6	26.0	31.8	35.6

Jump height in cm. Canadian survey: force plate, shoes removed, highest of up to three valid jumps; the instruction says nothing about the arms, and the young men's median is above every professional men's squad in section 1, so many people probably swung them. Marine Corps: force plate, in socks, three jumps with 15 seconds rest, height from flight time, mean 22.4 ± 7.1; a physically screened military population.

6. University students aged 20 to 29, jump and reach with arm swing

Group	5th	10th	25th	50th	75th	90th	95th
Men, n = 422	28	37	46	53	60	67	75
Women, n = 538	18	26	30	36	42	47	56

Jump height in cm. Kinesiology students at one Canadian university, Sargent jump and reach against a wall scale, standing reach in shoes, best of three. The nearest published comparison for a Vertec result outside professional sport.¹⁶

There is still no hands on hips percentile table for the general adult population. Rating charts that grade everyday adults from poor to excellent circulate widely, but the figures are not traceable to a measured sample. Anything on this sheet can be traced to the study named beside it.

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