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2D and 3D Motion Analysis

Measurement of the first concerns of a basketball player jump. As a known distance I gave a basketball rim height above the ground.



distance		
	x	y
Point1	1050	486
Point2	1050	581
d=	95,0 pixel	66,15 cm
	1 pixel	0,696345 cm

calibration		
	x	y
Point1	1014	143
Point2	1015	581
d=	438,0 pixlu	305 cm

Another measure concerns the player's speed for a distance of 358cm. As a known distance was given a basketball rim height above the ground.

distance		
	x	y
Point1	724	200
Point2	885	200
d=	161,0 pixel	358,43 cm
	1 pixel	2,226277 cm

calibration		
	x	y
Point1	919	55
Point2	919	192
d=	137,0 pixel	305 cm

time, speed		
number of frames	14	.1/25
v=s/t	0,04	<u>0,38</u> s
		speed <u>9,43</u>

Video player interface showing a basketball player on a court. The player is in a starting position. The video player controls show Frame: 31 / 544, Time: 00:00:02.184 / 00:00:38.328, and Frame Type: P (05).

Video player interface showing the same basketball player on a court, but now jumping. A red horizontal line is drawn across the court floor, and a yellow vertical line is drawn at the basketball rim height. The video player controls show Frame: 45 / 544, Time: 00:00:03.170 / 00:00:38.328, and Frame Type: P (05).

The third relates to the angle of measurement. Measured the angle of the legs in a standing position player.



Point 1

x1 465
y1 487

Point 2

x2 458
y2 586

size 99,2471662

cos 2 = 0,141
2 = 81,87

Point 3

x1 500
y1 583

Point 2

x2 458
y2 586

size 42,1070065

cos 1 = 0,913
1 = 24,08

Point 1

x1 465
y1 487

Point 3

x2 500
y2 583

size 102,18121

cos 3 = 0,275
3 = 74,05