



### Facts. Did You Know That...

✓ ...more than 400 biomechanical sessions were done at the AIS during the last 3.5 years. All measured and valid data is stored in a database, which consists of more than 1800 boat-samples and 6000 rower-samples. Here is some analysis of the data.

✓ ...this table allows you to assess the **catch angle**:

Catch Angle (deg)	Very Low (Less Than)	Low (Less Than)	Average	High (More Than)	Very High (More Than)
Men Scull	-60.0	-63.3	-66.5	-69.8	-73.1
M.Light Scull	-57.4	-60.9	-64.5	-68.0	-71.6
Men Sweep	-49.5	-53.1	-56.8	-60.4	-64.0
M.Light Sweep	-48.6	-51.4	-54.3	-57.2	-60.0
Women Scull	-55.3	-58.8	-62.2	-65.7	-69.1
W.Light Scull	-55.2	-58.3	-61.3	-64.4	-67.4
Women Sweep	-46.5	-50.0	-53.5	-57.0	-60.5

✓ ...**release angle** can be evaluated using the table:

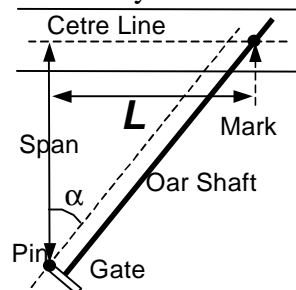
Release Angle (deg)	Very Low (Less Than)	Low (Less Than)	Average	High (More Than)	Very High (More Than)
Men Scull	36.5	40.1	43.8	47.5	51.1
M.Light Scull	37.7	40.2	42.6	45.0	47.5
Men Sweep	30.4	32.4	34.3	36.3	38.2
M.Light Sweep	30.0	31.8	33.6	35.5	37.3
Women Scull	37.4	40.2	43.0	45.8	48.7
W.Light Scull	36.4	39.6	42.8	46.1	49.3
Women Sweep	28.1	30.7	33.4	36.0	38.6

✓ ...**total angle** can be assessed with the table:

Total Angle (deg)	Very Low (Less Than)	Low (Less Than)	Average	High (More Than)	Very High (More Than)
Men Scull	102.8	106.6	110.4	114.2	118.0
M.Light Scull	99.5	103.3	107.1	110.9	114.8
Men Sweep	84.4	87.8	91.2	94.6	98.0
M.Light Sweep	81.0	84.5	87.9	91.4	94.9
Women Scull	96.7	101.0	105.2	109.4	113.7
W.Light Scull	95.2	99.7	104.2	108.7	113.2
Women Sweep	80.0	83.5	86.9	90.4	93.8

### Ideas. What if...

? ...you set markers on the boat to check catch and release angles? All you need to know is the span (distance between pin and centre line of the boat). Then take the L value corresponding to the span and desired angle from the following tables. Put the mark on the center line of the boat at L cm from the pin projection. Stretch a rope between the mark and the center of the gate (approx. 4 cm. from the pin).



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Finally, put the oar shaft along the rope and set markers somehow.

#### Position of the mark L(cm) for the catch angle.

Catch Angle	Span (cm)									
	78	79	80	81	82	83	84	85	86	87
-48	89.3	90.4	91.5	92.6	93.7	94.9	96.0	97.1	98.2	99.3
-50	95.5	96.7	97.9	99.1	100.3	101.5	102.7	103.9	105.1	106.3
-52	102.3	103.6	104.9	106.1	107.4	108.7	110.0	111.3	112.5	113.8
-54	109.7	111.1	112.5	113.8	115.2	116.6	118.0	119.3	120.7	122.1
-56	117.9	119.4	120.8	122.3	123.8	125.3	126.8	128.3	129.7	131.2
-58	126.9	128.5	130.1	131.7	133.3	134.9	136.5	138.1	139.7	141.3
-60	137.1	138.8	140.6	142.3	144.0	145.8	147.5	149.2	151.0	152.7
-62	148.6	150.5	152.3	154.2	156.1	158.0	159.9	161.7	163.6	165.5
-64	161.7	163.7	165.8	167.8	169.9	171.9	174.0	176.0	178.1	180.1
-66	176.8	179.1	181.3	183.6	185.8	188.0	190.3	192.5	194.8	197.0
-68	194.6	197.0	199.5	202.0	204.5	206.9	209.4	211.9	214.4	216.8
-70	215.7	218.4	221.2	223.9	226.7	229.4	232.2	234.9	237.7	240.4
-72	241.3	244.4	247.5	250.5	253.6	256.7	259.8	262.8	265.9	269.0

#### Position of the mark L (cm) for the release angle.

Rel. Angle	Span (cm)									
	78	79	80	81	82	83	84	85	86	87
28	37.9	38.5	39.0	39.5	40.1	40.6	41.1	41.7	42.2	42.7
30	41.6	42.1	42.7	43.3	43.9	44.5	45.0	45.6	46.2	46.8
32	45.3	46.0	46.6	47.2	47.8	48.5	49.1	49.7	50.3	51.0
34	49.3	50.0	50.6	51.3	52.0	52.7	53.3	54.0	54.7	55.4
36	53.4	54.2	54.9	55.6	56.3	57.1	57.8	58.5	59.2	60.0
38	57.8	58.6	59.4	60.1	60.9	61.7	62.5	63.3	64.0	64.8
40	62.4	63.2	64.1	64.9	65.7	66.6	67.4	68.3	69.1	69.9
42	67.3	68.2	69.1	70.0	70.9	71.8	72.7	73.6	74.5	75.4
44	72.4	73.4	74.4	75.3	76.3	77.3	78.2	79.2	80.2	81.1
46	78.0	79.0	80.1	81.1	82.1	83.2	84.2	85.2	86.3	87.3
48	84.0	85.1	86.2	87.3	88.4	89.5	90.6	91.7	92.8	93.9
50	90.4	91.6	92.8	94.0	95.2	96.3	97.5	98.7	99.9	101.1

? ...you set the angle markers using pieces of 2-3 mm metal wire attached to the rigger? Bend them at desired angle. Our experience shows that touching of the wire at each stroke is a more efficient way of the angle stabilizing than watching the mark.



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