

**Facts. Do you know ...**

? ... which have been the most successful rowing nations over the last two decades? How have the performances of countries varied over the years? To answer these questions we analysed the number of points acquired by each country using the standard system 8, 6, 5, 4, 3, 2, 1 for the places from 1<sup>st</sup> to 7<sup>th</sup> respectively. Presumably, the main goal for all countries is medals, not the points. One gold medal is much more significant than two fourth places, although they both give the same eight points. However, the points system reflects quite well the overall performance of a country, allowing comparison between countries with very different levels of results (with and without medals) and can give smoother trend lines. Table 1 and Figure 1 show the distribution of points for 14 Olympic boat types over the last 17 years, and also the linear trend, which reflects variation in performance over the years.

In total, Germany scored about 40% more points than each of its nearest rivals, Australia and Great Britain. However, the trends are quite different: GBR exhibited continuous growth of performance (+5.6% per year). AUS maintained a very constant level (0.2%), but GER's performance decreased slightly (-2.5%), related mainly to the unsuccessful years of 2007-8.

Statistics reveal a slight decrease in the number of points for the next five successful countries: USA, Italy, Canada, France and Romania. However, in most cases, it does not really reflect any weakening in performance, but does reflect increasingly close competition, in which points are shared between more competitors. NZL is in ninth place, but displaying a real improvement in performance since 2003, reflected by a 10% growth in the trend. The next two (Denmark and Nederland) have displayed negative trends.

There are four rising powers at the start of the second ten which all displayed positive trends: Poland (12<sup>th</sup> place, 6%), Belarus (13<sup>th</sup>, 4.2%), China (14<sup>th</sup>, 5.5%) and Czech Republic (15<sup>th</sup>, 10%). However, the highest growth (24% per year) was by Greece (27<sup>th</sup> place) with a rapidly improved performance since the Athens Olympics. Quite good positive trends were displayed by Estonia (26<sup>th</sup> place, 12.7%), Finland (34<sup>th</sup>, 18.5%) and Cuba (36<sup>th</sup>, 10.4%).

? ... which country is the most successful in juniors? Table 2 displays the points for juniors calculated using the same method as above. The superpower here is the same: Germany, which gained nearly 2.5 times as many points as the second Italy and third Romania. The changes in performance are quite small, which is evidence for a stable system for junior rowing in these three countries. The next in

the ranking (Australia) displayed a moderate negative trend (-4.5%), then Great Britain, a very constant trend (-0.2%) and France (6<sup>th</sup>, -3.3%). Russia is still in seventh place, but it has displayed a strong negative trend (-7.4%) caused by a sharp fall in performance over the last five years. Russia could be overtaken soon by USA (8<sup>th</sup> place, +3%), Poland (9<sup>th</sup>, -0.2%), Belarus (10<sup>th</sup>, 1.1%) and Czech Republic (11<sup>th</sup>, 1.1%). The highest growth in juniors can be found in China (14<sup>th</sup> place, +14%), New Zealand (15<sup>th</sup>, 11.4%), Greece (21<sup>st</sup>, 9%), Bulgaria (22<sup>nd</sup>, 12%) and Lithuania (27<sup>th</sup>, 13.2%).

? ... how do performances by juniors and adults correlate with each other? We found a high positive correlation (0.85) between points scored in the open and junior categories in the 36 best countries. This is quite a trivial observation, because the countries with better development of rowing would probably perform better in both categories. The correlation between percentages of growth was smaller (0.36) but also positive and statistically significant ( $p < 0.05$ ). This means that the changes in performance in junior and adult categories are related. We have not analysed the U23 category here because the status of their World Championship was established only in 2001.

? ... what factors affect performance in the open and junior categories? Can we see an influence of one on the other? It is quite difficult to answer these questions statistically. Figure 2 shows comparisons of performance in both categories in various countries. In some countries (GER, DEN, RUS) we can see that changes of performance in juniors happened 3-4 years before they occurred in the open category, which could be related to the progression of a generation of athletes from juniors to adults. For other countries (ITA, ROU, NZL) peaks and troughs in performance occurred simultaneously in both categories. This could be explained by overall trends in rowing development in those countries: funding level, training methodology, coach education, etc. A third group of countries (GBR, USA, CAN) displayed quite independent trends of performance in juniors and adults. This probably reflects the separation in organisational structure for junior and elite rowing. Their elite rowing has been organised mainly on a professional basis, but the junior structure is based on clubs and school rowing.

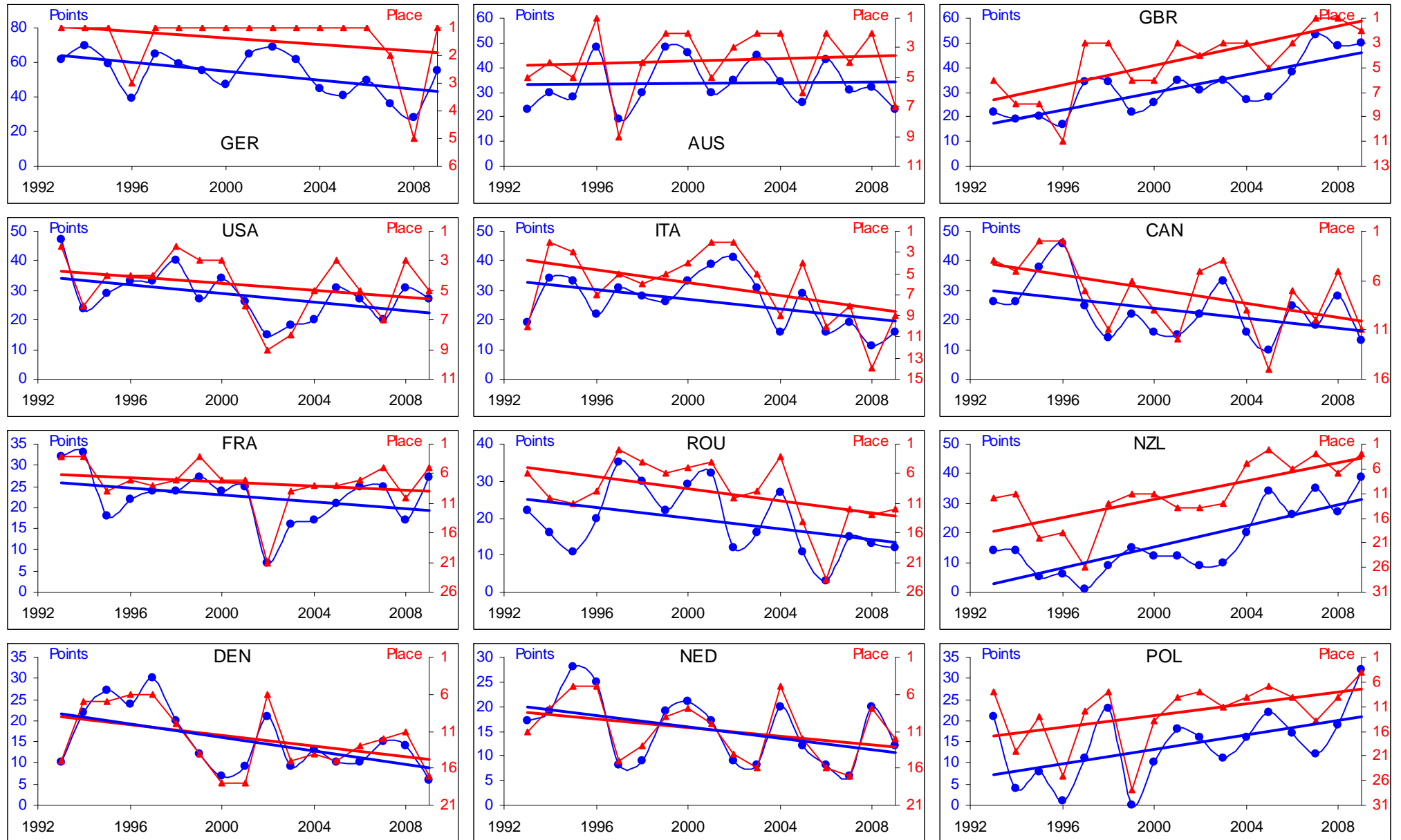
Concluding, **there is a relationship between performances in the junior and adult categories, but its nature varies significantly in different countries.** The information provided here could be useful for further studies of organisational and sociological factors in rowing development in various countries.

**Contact Us:**

✉ ©2009: Dr. Valery Kleshnev,  
[kleva1@btinternet.com](mailto:kleva1@btinternet.com) , [www.biorow.com](http://www.biorow.com)



Figure 1. Charts of the number of points and the ranking of the 12 best countries during 1993-2009 in 14 Olympic boat types



**Table 2 Points in Junior World Championships**

	Country	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Total	Growth
1	GER	100	89	93	68	79	94	85	76	76	59		58	78	78	75	90	73	<b>1271</b>	-1.3%
2	ITA	40	21	32	26	19	20	26	38	30	61	55	37	49	28	24	26	21	<b>553</b>	0.7%
3	ROU	23	22	16	28	41	32	24	15	54	37	32	55	41	33	20	25	29	<b>527</b>	1.8%
4	AUS	33	26	27	30	44	31	27	21	16	27	23	31	3	17	3	26	25	<b>410</b>	-4.5%
5	GBR	17	25	20	19	20	20	27	18	21	10	22	12	19	25	18	20	23	<b>336</b>	-0.2%
6	FRA	14	30	30	20	21	19	20	27	26	31	13	10	12	19	12	12	20	<b>336</b>	-3.3%
7	RUS	20	12	13	33	28	27	16	15	27	14	30	16	9	9	0	3	2	<b>274</b>	-7.4%
8	USA	12	13	9	12	14	18	12	27	12	14	17	10	21	16	11	26	20	<b>264</b>	3.0%
9	POL	8	5	13	18	16	11	14	12	3	17	21	24	12	19	2	5	9	<b>209</b>	-0.2%
10	BLR	4		12	6	9	3	16	23	30	24	10	13	13	5	11	13	7	<b>199</b>	1.2%
11	CZE	12	11	6	6	10	3	6	21	15	27	14	19	12		6	3	12	<b>183</b>	1.1%
12	UKR	8	15	16	9	12	6	17	14	11	5	1	22	12	9	8	5	9	<b>179</b>	-2.4%
13	SLO	6	5	11	25	9	16	14	6	5	8	16	8	9	14	9	6	7	<b>174</b>	-1.7%
14	CHN		11		8	5	19	6	5		7			0		67		35	<b>163</b>	14.7%
15	NZL		7	6	6	2		2	2	4	4	10	6	19	17	20	20	14	<b>139</b>	11.4%
16	CRO	4	10	19	6	12	5	3	15	10	2	7	6	11	17	5	4	2	<b>138</b>	-2.8%
17	SRB			1	6	10	10	12	7	1	9	8	11	17	9	2	8	13	<b>124</b>	3.5%
18	DEN	10	14	23	14	5	13	13	13	0	0	6	0	1	8	0	1	0	<b>121</b>	-14.5%
19	NED	5		10	12	11	2	15	8	10	9	11	6	0	1	9	5	3	<b>117</b>	-5.1%
20	ESP	8	23	16	5	9	4	0	1	3	2	6	4		5		10	12	<b>108</b>	-4.2%
21	GRE	2	1		9	2	1	5	6	0	2	19	15	1	14	9	13	6	<b>105</b>	9.0%
22	BUL	2	2	0	3	5	0	2	9	17	4	1		4	12	14	23	5	<b>103</b>	12.0%
23	LAT	5		2	4		4		3	10	16	21	5	10	2	5	12	0	<b>99</b>	2.5%
24	CAN	1	13	4	8	8	4	3	4	5		6	12	7	10	9		2	<b>96</b>	1.3%
25	SUI	12	18	8	10	6	9	3	0	5		0	4	3	12		4	1	<b>95</b>	-9.1%
26	AUT	6	8	6	6	4	9	3		1		3	0		11	11	9	2	<b>79</b>	0.4%
27	LTU	0		0	0	0	0		6	3	10	12	4	2	8	8	6	9	<b>68</b>	13.2%
28	NOR	20	7		4	1		8	6	0	0	0			3	7	6	0	<b>62</b>	-10.3%
29	EST		0	0	0		8	8		0	6	6	4	6	8	6	0	0	<b>52</b>	3.6%
30	SWE	11	0	11	6	1	3	1		0		0			3	1	2	0	<b>39</b>	-12.6%
31	BEL	7	3	4	2	0	2	5		1	1	3			4	1	4	1	<b>38</b>	-4.1%
32	RSA	1	0			0	3	0	6	0	0	5	4	2	4	0	6	3	<b>34</b>	8.9%
33	ARG	0	4	2			8	2	2	2	0		4	0			6	2	<b>32</b>	1.3%
34	HUN	5	3	1	0	0	0	0		4		10	4	1	2		0	1	<b>31</b>	0.0%
35	POR			0		0	1	8	0		3	0			4	3	0	0	<b>19</b>	-0.1%
36	IRL	3	4	3		3				0		0		0				4	<b>17</b>	-5.4%
37	SVK	0	2		1		0				0	8	0				0	0	<b>11</b>	-0.2%
38	TUR											1					8	1	<b>10</b>	13.5%
39	AZE																8	0	<b>8</b>	
40	CUB													2				4	<b>6</b>	

Figure 2. Correlation of the points in the open (adult) and juniors categories

