

Application of the Raven's Colored Progressive Matrices in Older Preschool Children: Gender differences according to the preference for elective physical activity



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Introduction



- This study deals with the identification of the development level of intelligence in older pre-school children.
- The study design has a theoretical, and a research part. First, has to define the term intelligence, its type and state of development and alternative theories of intelligence, as well as possibilities of measuring intelligence, especially in children.

Problem



- The main objective of the research part is the analysis of the achieved level of intelligence of pre-school children, along with a general overview of the possible gender differences,
- as well as between groups differences, when is taking into account practicing optional selected physical activities.
- The primary objective is to determine whether the optional physical activity can produce a significant difference in the level of intelligence in older preschool children of both sexes.

Methods



- The **sample** of children in total includes 51 respondents, divided into two sub-samples: boys (N=25), and girls (N=25). Within each sub-samples are defined special groups, according to the orientation toward elective sport activities, as was in **Boys:** Sports school, football, combat, and the Control group (of children who not additionally included in the physical activities).
- **In Girls:** Sports school, Rhythmic Gymnastics, Swimming, and the Control group.

Methods



- The research section focuses on testing pre-school children of older age - preparatory group up 6+ to 7 years of age, using the test of Raven's colored progressive matrices.

Results

Table 1. Basic statistics parameters – Raven progressive colored matrices - Total sample (N=51)

Sub-sample (N=22)	Variables	Average	Min - Max	Interval
Boys (2014)	Age	6,89	6.6 - 7.3	0.7
	A	9,31	7 - 11	4
	Ab	8,12	3 - 12	9
	B	6,16	2 - 10	8
	Sum	23,48	14 - 31	17
	IQ	104,0	89 - 121	32
	Perc-IQ	60,92	10 - 90	80
Sub-sample (N=29)	Variables	Average	Min-Max	Interval
Girls (2014)	Age	6.88	6.6 - 7.5	0.9
	A	9,44	7 - 12	5
	Ab	8,84	4 - 12	8
	B	6,92	3 - 12	9
	Sum	25,18	16 - 35	19
	IQ	109,46	87 - 135	48
	Perc-IQ	71,72	25 - 95	70

Results

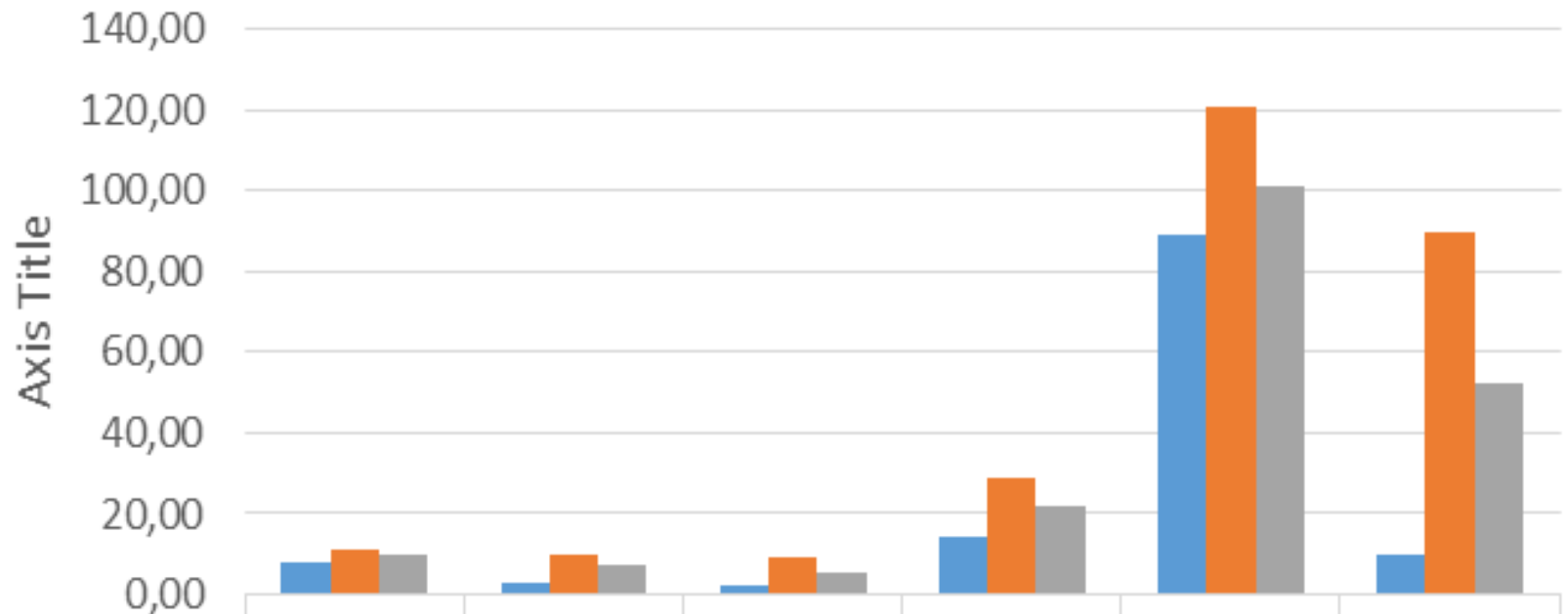
Table 2. Basic statistics parameters – *Raven progressive colored matrices* - Preferred activity (Boys)



Activity	Variables	Average	Min - Max	Interval
Football	Age (year)	6,97	6.6 - 7.2	0.6
	A	9,67	8 - 11	3
	Ab	7,0	3 - 10	7
	B	5,33	2 - 9	7
	Sum	22,0	14 - 29	15
	IQ	101,0	89 - 121	32
	Perc-IQ	52,5	10 - 90	80
Activity	Variables	Average	Min - Max	Interval
Judo	Age (year)	6,94	6.6 - 7.3	0.7
	A	10	10 - 10	0
	Ab	8,75	7 - 11	4
	B	7,75	6 - 10	4
	Sum	26,50	23 - 31	8
	IQ	107,75	96 - 117	21
	Perc-IQ	70	50 - 90	40
Activity	Variables	Average	Min - Max	Interval
General fitness	Age (year)	6.83	6.6 - 7.2	0.6
	A	9	8 - 10	2
	Ab	8,67	6 - 12	6
	B	6,33	3 - 9	6
	Sum	24	17 - 28	11
	IQ	105,33	90 - 119	29
	Perc-IQ	63,33	25 - 90	65
Activity	Variables	Average	Min - Max	Interval
Control	Age (year)	6.77	6.6 - 7.0	0.4
	A	8,33	7 - 10	3
	Ab	8,50	5 - 11	6
	B	5,33	3 - 7	4
	Sum	22,17	18 - 28	10
	IQ	102,17	91 - 119	28
	Perc-IQ	63,33	25 - 90	65

Results

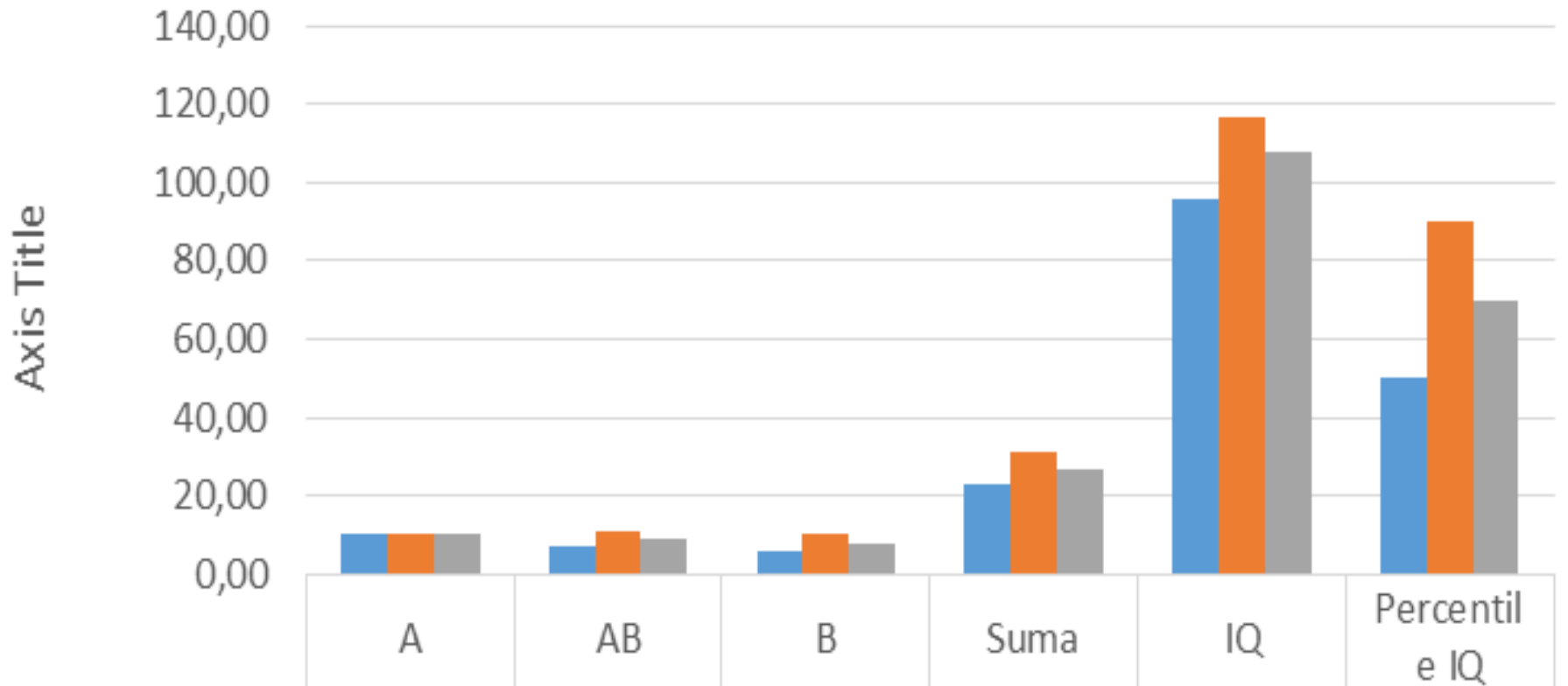
Fudbal-Raven



	A	AB	B	Suma	IQ	Percentile IQ
■ Fudbal Min	8,00	3,00	2,00	14,00	89,00	10,00
■ Fudbal Max	11,00	10,00	9,00	29,00	121,00	90,00
■ Fudbal Average	9,67	7,00	5,33	22,00	101,00	52,50

Results

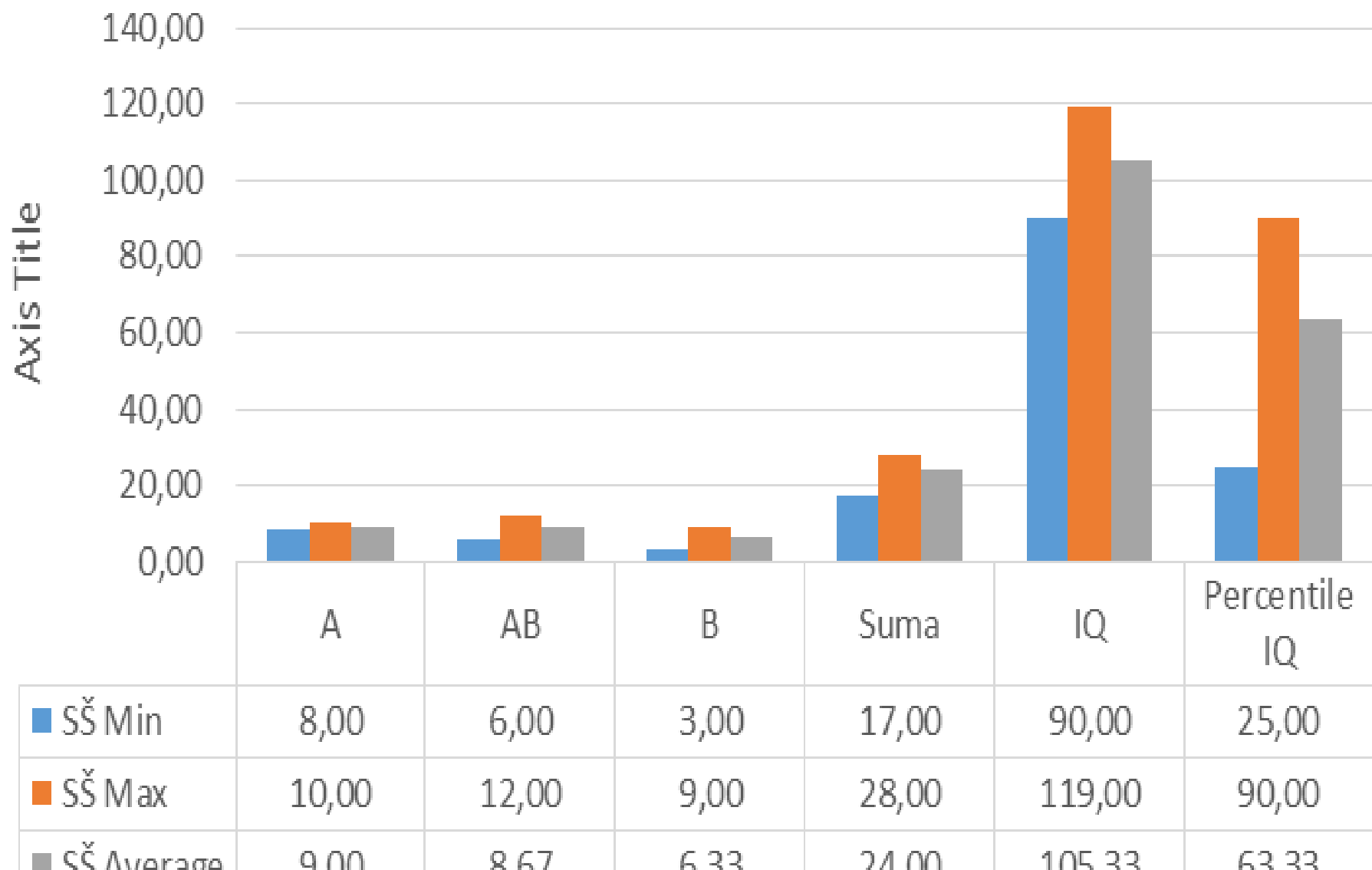
Judo-Raven



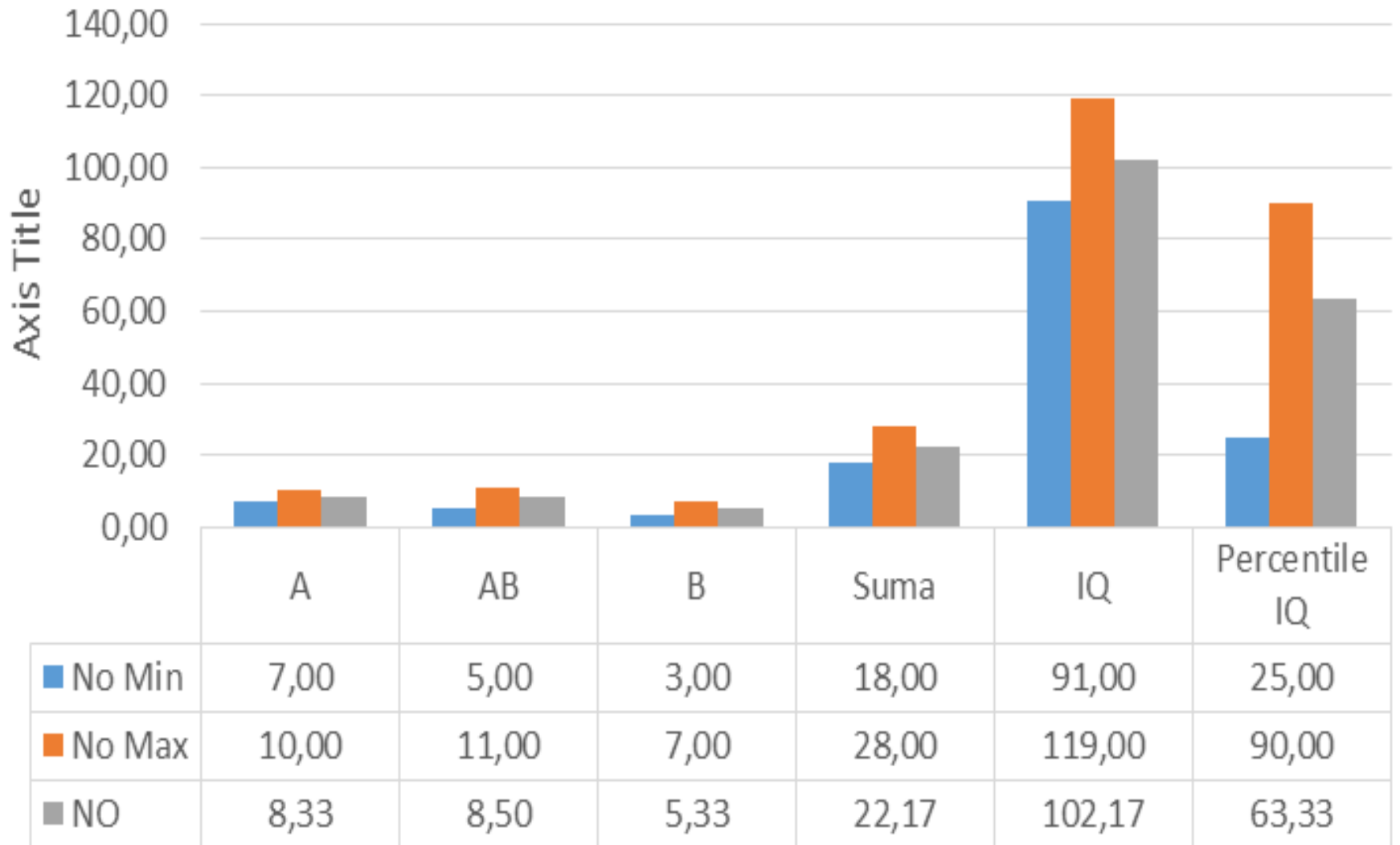
Judo Min	10,00	7,00	6,00	23,00	96,00	50,00
Judo Max	10,00	11,00	10,00	31,00	117,00	90,00
Judo Average	10,00	8,75	7,75	26,50	107,75	70,00

Results

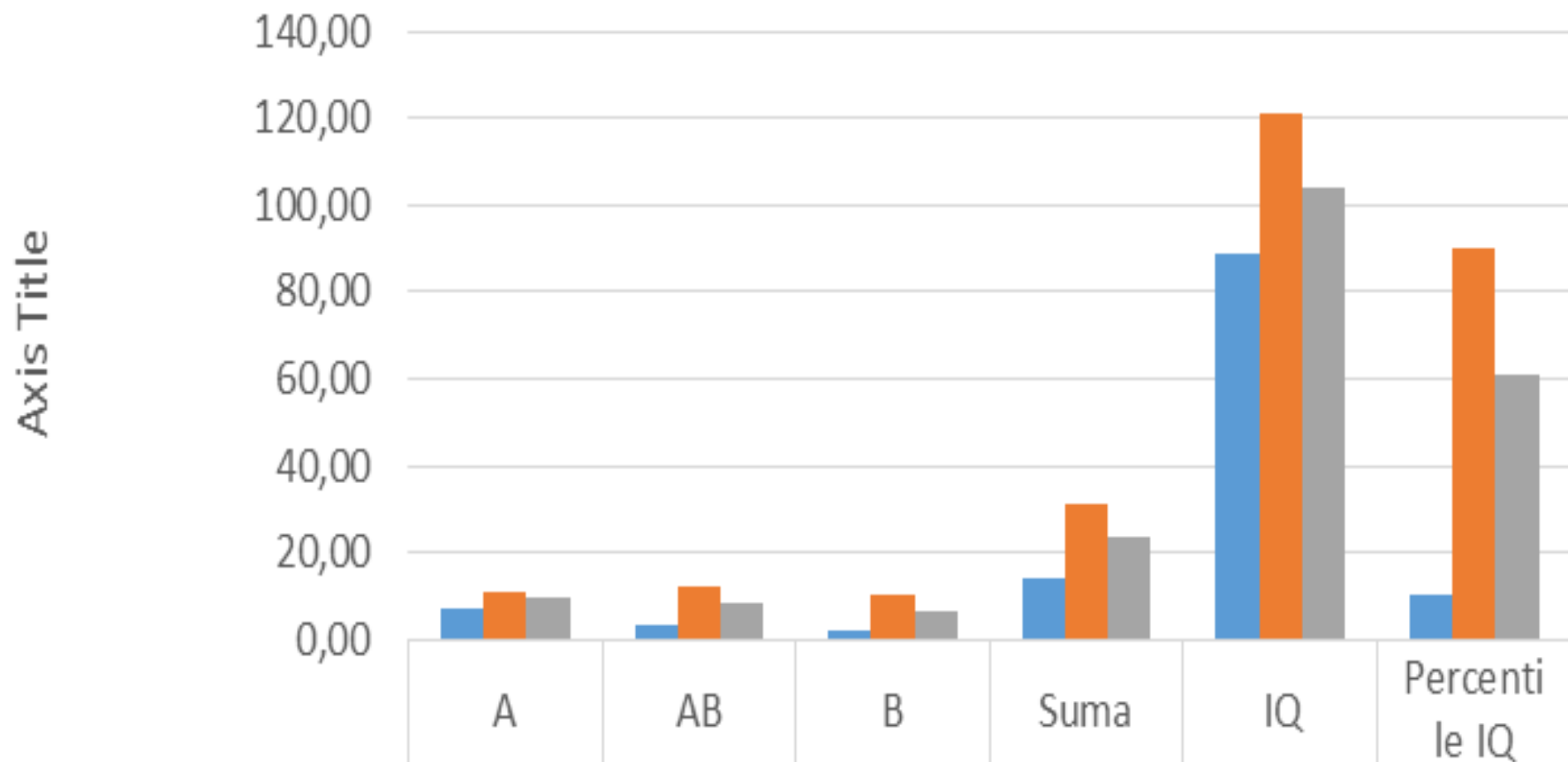
Sports School- Raven



No Activity- Control Group- Raven



Boys Total- Raven

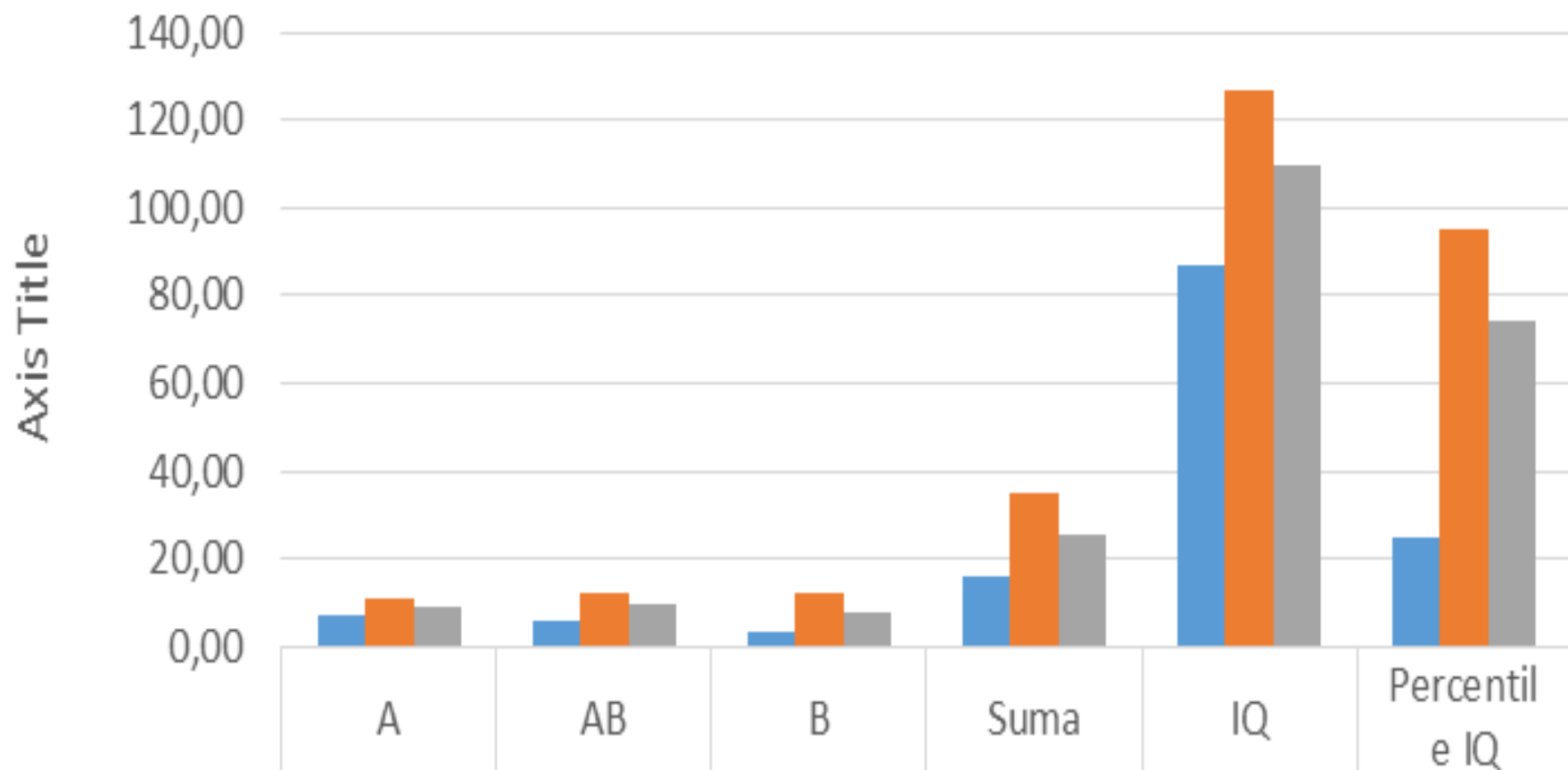


■ Total Boys Min	7,00	3,00	2,00	14,00	89,00	10,00
■ Total Boys Max	11,00	12,00	10,00	31,00	121,00	90,00
■ Total Boys Average	9,31	8,12	6,16	23,48	104,00	60,92

Table 3. Basic statistics parameters – *Raven colored progressive matrices* - Preferred activity (**Girls**)

Activity	Variables	Average	Min - Max	Interval
Rhythmics	Age (year)	6.89	7.4 - 6.6	0.8
	A	8,90	7 - 11	4
	Ab	9,30	6 - 12	6
	B	7.50	3 - 12	9
	Sum	25,70	16 - 35	29
	IQ	109,80	87 - 127	40
	Perc-IQ	74,50	25 - 95	70
Activity	Variables	Average	Min - Max	Interval
Swimming	Age (year)	6.7	6.6 - 6.8	0.2
	A	9.33	9 - 10	1
	Ab	6,67	4 - 8	4
	B	5,0	4 - 6	2
	Sum	21,0	17 - 23	6
	IQ	100,67	90 - 106	16
	Perc-IQ	58,33	25 - 75	50
Activity	Variables	Average	Min - Max	Interval
General fitness	Age (year)	7.4	7.3 - 7.5	0.2
	A	11.5	11 - 12	1
	Ab	11,0	10 - 12	2
	B	10,5	10 - 11	1
	Sum	33,0	31 - 35	4
	IQ	126	117 - 135	18
	Perc-IQ	92,5	90 - 95	5
Activity	Variables	Average	Min - Max	Interval
Control	Age (year)	6.74	6.6 - 6.9	0.3
	A	9,21	7 - 11	4
	Ab	8,71	5 - 11	6
	B	5,93	4 - 11	7
	Sum	23,86	16 - 32	16
	IQ	107,79	87 - 129	42
	Perc-IQ	79,71	25 - 95	70

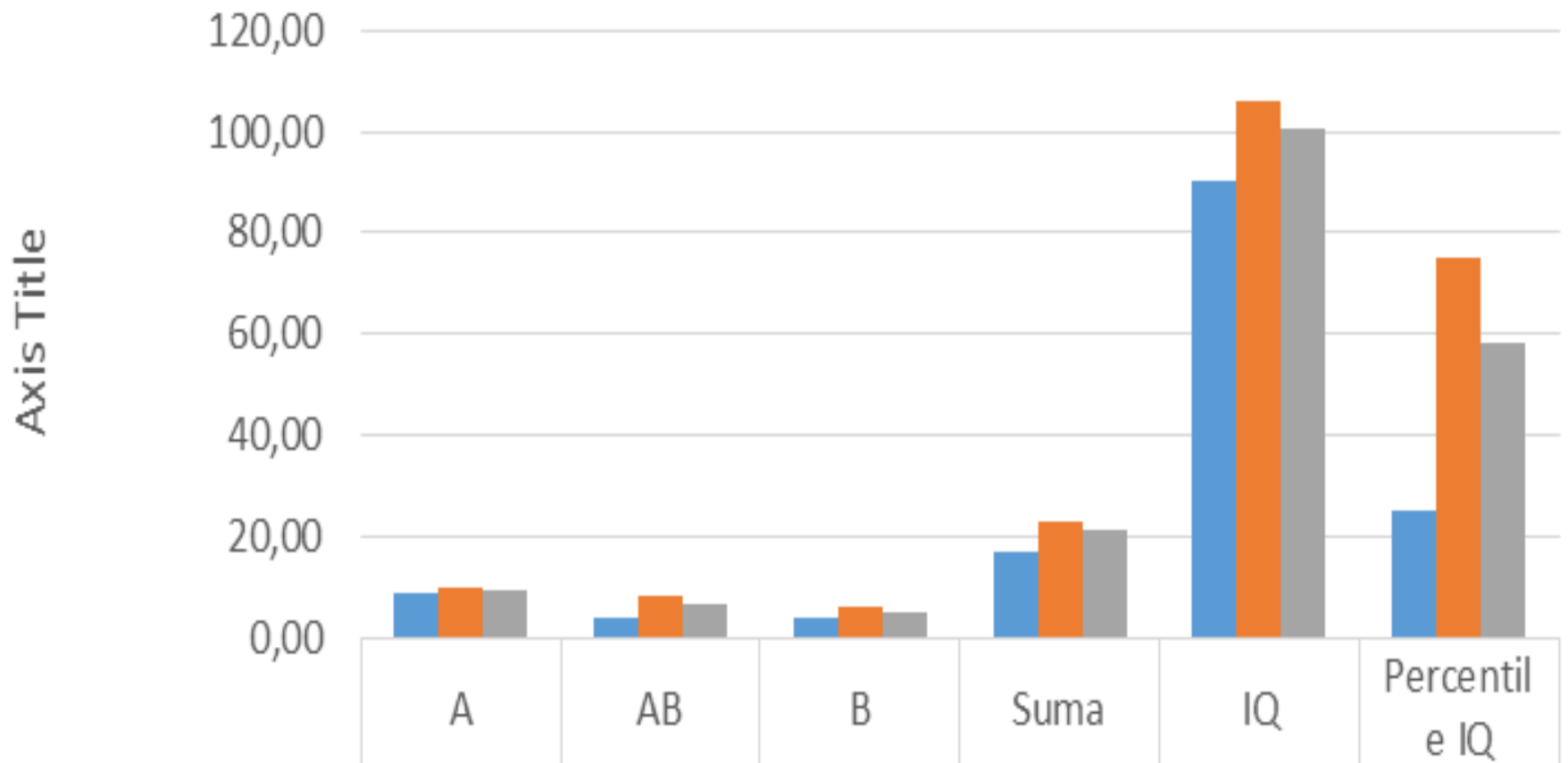
Rhythmic gymnastics- Raven



■ RG Min	7,00	6,00	3,00	16,00	87,00	25,00
■ RG Max	11,00	12,00	12,00	35,00	127,00	95,00
■ RG Average	8,90	9,30	7,50	25,70	109,80	74,50

Results

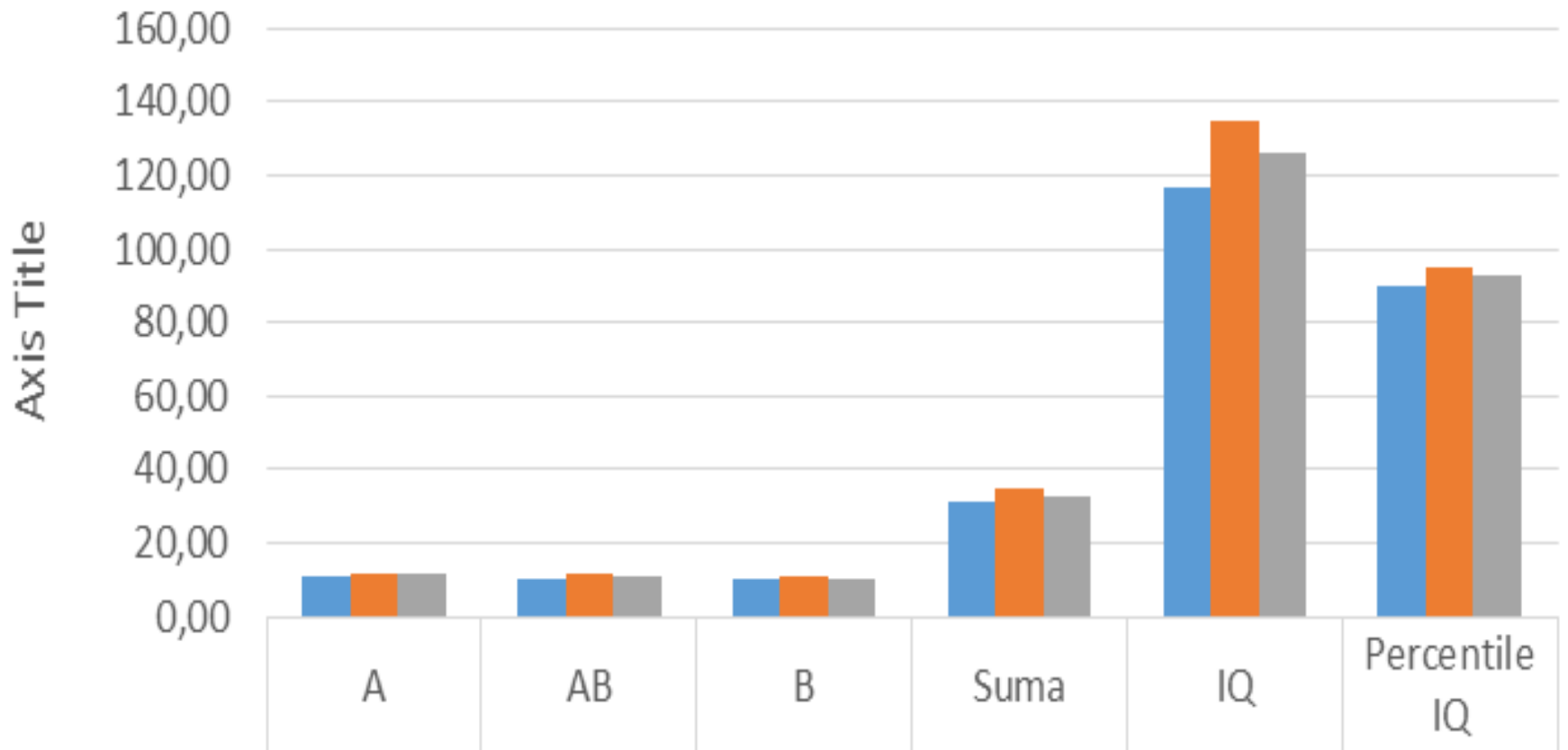
Swimming- Raven



■ Plivanje Min	9,00	4,00	4,00	17,00	90,00	25,00
■ Plivanje Max	10,00	8,00	6,00	23,00	106,00	75,00
■ Plivanje Average	9,33	6,67	5,00	21,00	100,67	58,33

Results

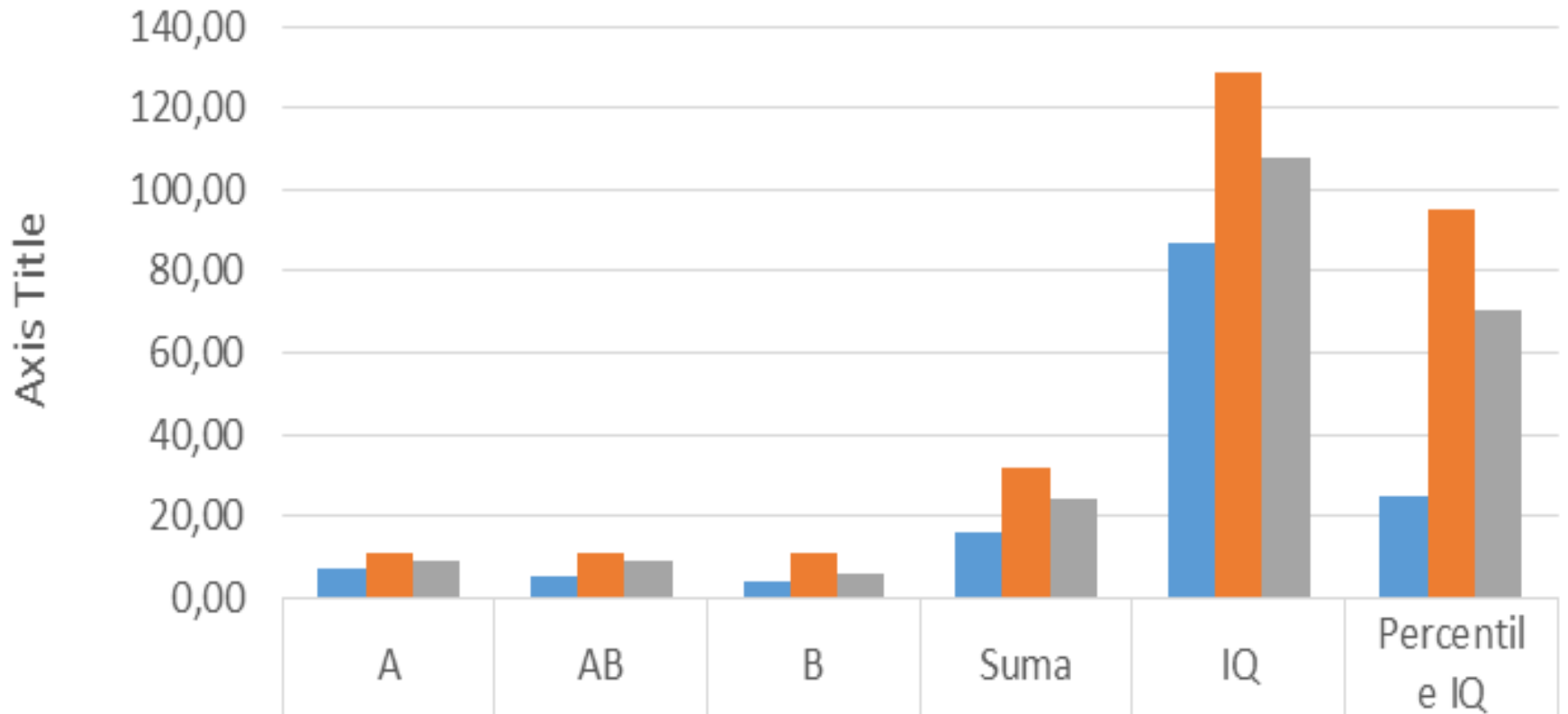
Sport school- Raven



■ SŠ Min	11,00	10,00	10,00	31,00	117,00	90,00
■ SŠ Max	12,00	12,00	11,00	35,00	135,00	95,00
■ SŠ Average	11,50	11,00	10,50	33,00	126,00	92,50

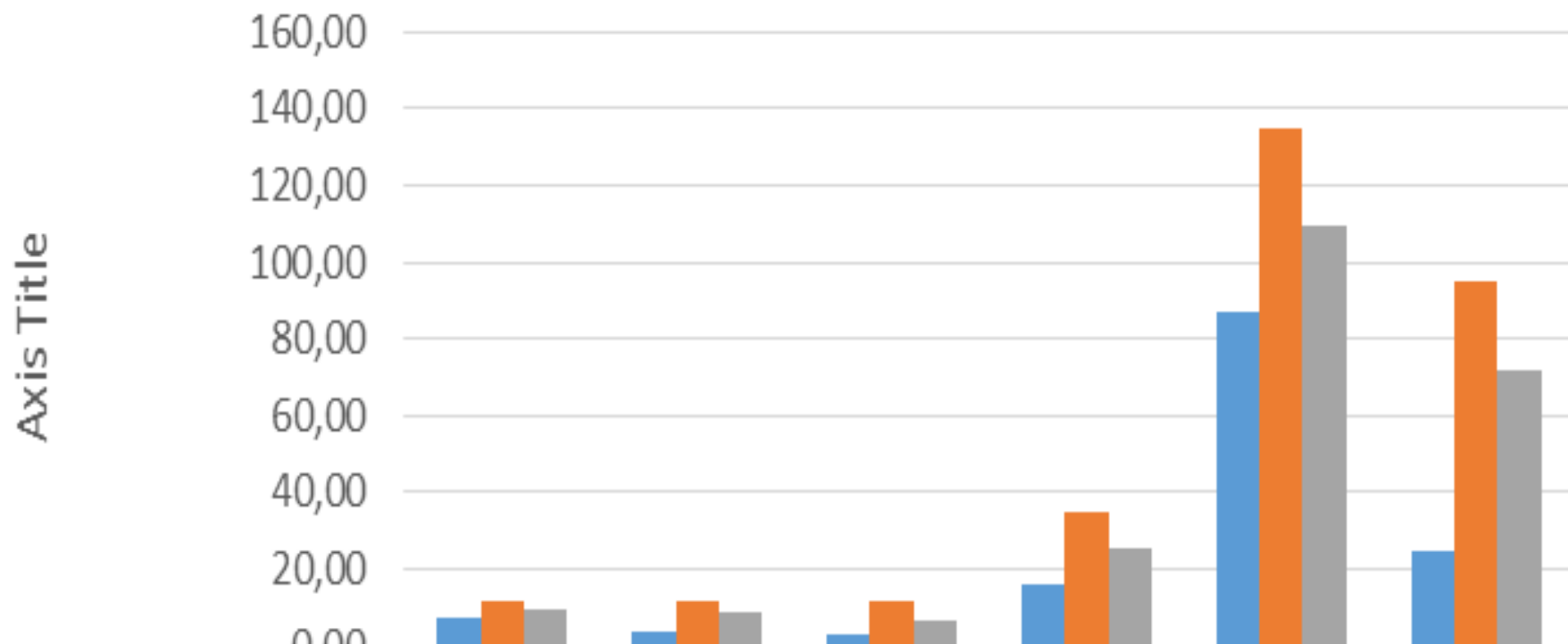
Results

No Activity- Raven



No Min	7,00	5,00	4,00	16,00	87,00	25,00
No Max	11,00	11,00	11,00	32,00	129,00	95,00
NO Average	9,21	8,71	5,93	23,86	107,79	70,71

Girls total- Raven



	A	AB	B	Suma	IQ	Percentile IQ
■ Total Girls Min	7,00	4,00	3,00	16,00	87,00	25,00
■ Total Girls Max	12,00	12,00	12,00	35,00	135,00	95,00
■ Total Girls Average	9,44	8,84	6,92	25,18	109,46	71,72

Conclusion



This study could be useful for the general population, and the professional audience, as well as for parents who participated in the selection of optional physical activity for their children. At this age, no choice can be called better or worse, so each can have its advantages and disadvantages. It all depends on the child's individuality and needs.

The analysis of the research results was carried out after the application of appropriate basic statistical procedures, presented in tables and graphs. They will answer the research questions, regarding the determination of gender differences as well as groups differences, considering elective physical activity.



Thank you for your attention

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