Lulzim Ibri, *Sports sector in the Municipality of Prizren*
Sylejman Shala, *Faculty of Physical edukation and sport in Prishtina*

CANONICAL CORRELATION OF MORPHOLOGIC CHARACTERISTIC AND MOTORIC ABILITIES OF YOUNG JUDO ATHLETES

1. INDRUCTION

In last years problem in relations field are very actual between individual dimensions of anthropometric characteristic, and motoric abilities not only because they were not investigated but for the reason that exist pronounced differences in age. Relation certification between motoric abilities and anthropometric characteristic presents basic problem which still is actual practical and theoretical problem which has big importance because of possibility formation of rational procedure for optimum orientation and young sportiest selection, planning controlling programming, training and the efficient tracking, of developing ethnic anthropometric characteristic (Gredelj, M., Hošek, A., Metikoš, D., & Momirović, K. (1975), regarding with this is well known that while in one motoric activity one type of anthropometric characteristic prevents realizations of kinetic program same type in other motoric activity can be really favorable this can be seen in big number of investigations Malacko, J. (2002).. So the problem that appear regarding with this is component from finding statistically important relations between some latency dimensions that match morphological characteristic, and to some components of motor abilities which are relevant in some certain activities, in the manner that from one side to children of this age could be able to verify and to keep the desired anthropological harmony, while from other side to apply desired educational technology of training process and actualization program contents.

2. PROBLEM AND PURPOSE OF INVESTIGATION

The problem of this study is to verify canonical connection between systems of anthropometric characteristic (10 variables) and system of motoric abilities (8 variables) to young judo sportiest 16-17 ages. Respectively purpose of this project is to verify how to fits judo training with a judo possibilities, this would make possible one control progress and versatile this mean diagnostics preliminary situation, immediate control and cumulative of training process and training in general.

3. INVESTIGATION METHODS
3.1. Sample of subjects

In sample from 80 young judo sportiest of four judo times from Prizren 16-17 ages is implicated system from in all 18 variables from which 10 anthropometric variables, and 8 variables motoric abilities, with a purpose to verify theirs mutual relations.

3.2. Sample of variables
● *Sample of measure instrument for valuation anthropometric characteristic:*
1. Body length (LEBO)
2. Length of the leg (LELE)
3. Length of the arm (LEAR)
4. Body weight (BOWE)
5. Adipose tissue under skin of stomach (ATST)
6. Adipose tissue under skin of triceps (ATTR)
7. Adipose tissue under skin of biceps (ATBI)
8. Adipose tissue under skin of sub scapulars (ATSS)
9. Adipose tissue under skin of sub iliac a (ATSI)
10. Adipose tissue under skin of list (ATSL)

● *Sample of measure instrument for valuation motoric abilities:*
11. Flamingo test for balance (FLBA)
12. Taping for hands (TAHE)
13. Reach sitting down position (RSDP)
14. Long jump from place (LOJU)
15. Squeeze palm (SQPA)
16. Recumbence - sitting down (RESD)
17. Support the knuckle (SUKN)
18. Run there-hire (R10x5M)

4. RESULT OF DISCUSSION
With a purpose of verifying relations between two different systems of manifested variables anthropometric characteristic and motoric abilities were implicated analysis of canonical correlation. Purpose of this statistically method is formation of linear combination inside system of independent variables, but in the way that in such linear combination to exist maximal correlation. According to supposition that two implicated system dimensional anthropological of variables are linear connected. First were count descriptive parameters, then were done interpretation matrices of cross correlations in that case through characteristic equation solution were gain base of that equation (λ) while through Bartlett X^2 -test is tested statistically importance of canonical correlation coefficient (Rc).

Table 1. *Descriptive parameters of young judo athletes.*

	Variables	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
1	LEBO	80	155.00	190.00	172.4875	8.50911	.543	-.556
2	LELE	80	46.90	105.40	63.5337	12.38364	1.479	2.508
3	LEAR	80	80.00	114.00	93.8625	5.84557	.633	1.740
4	BOWE	80	65.00	96.00	74.5750	6.37395	.980	.759
5	ATST	80	.70	5.50	1.5287	.77086	2.415	8.872

6	ATTR	80	.40	2.30	1.0313	.42474	1.271	1.192
7	ATBI	80	.30	1.90	.8175	.28497	.903	1.465
8	ATSS	80	.50	5.00	1.4400	.94743	1.825	3.474
9	ATSI	80	1.00	6.40	1.8213	1.06470	2.166	5.496
10	ATSL	80	.40	1.80	.8550	.28724	1.032	1.177
11	FLBA	80	12.93	60.24	39.7641	13.90426	.042	-1.069
12	TAHE	80	9.09	15.11	11.4526	1.72901	.628	-.451
13	RSDP	80	16.00	36.00	25.6500	4.67717	.181	-.806
14	LOJU	80	180.00	255.00	220.6625	16.88078	-.122	-.641
15	SQPA	80	60.00	120.00	86.8750	11.83684	-.450	.160
16	RESD	80	21.00	32.00	25.6125	2.24733	.411	-.255
17	SUKN	80	36.55	77.22	55.6934	11.49958	-.177	-.897
18	R10x5M)	80	17.13	23.78	20.8854	1.72034	-.325	-1.019

In table 1, were given results of basic statistically parameters, information from chart show that young judo athletes in many tests have asymmetry in normal line, because theirs value are not more than 1.00 exception to variables: Length of the leg (LELE 1.479), Adipose tissue under skin of stomach (ATST 2.415), Adipose tissue under skin of triceps (ATTR 1.271), Adipose tissue under skin of sub scapulars (ATSS 1.825), Adipose tissue under skin of sub iliac a (ATSI 2.166), Adipose tissue under skin of list (ATSL 1.032), which values exceed the bigger value than 1.00 and show tolerated asymmetry from 18 variables 14 have positive asymmetry and 4 negative asymmetry.

Table 2. *Cross correlations morphological characteristics and motor abilities.*

	Variables	FLBA	TAHE	RSDP	LOJU	SQPA	RESD	SUKN	R10x5M)
1	LEBO	-.081	.192	-.020	.146	.662(**)	-.025	.008	-.086
2	LELE	-.086	.271(*)	-.117	.107	.454(**)	-.003	-.019	-.086
3	LEAR	.001	.195	-.052	.151	.503(**)	.129	.031	.030
4	BOWE	-.129	.208	.048	.029	.467(**)	.035	-.009	-.152
5	ATST	-.116	.244(*)	-.191	-.072	.204	-.050	-.079	-.159
6	ATTR	.046	.347(**)	-.231(*)	-.159	.096	-.132	-.050	-.115
7	ATBI	.002	.348(**)	-.273(*)	-.097	.206	-.106	-.161	-.084
8	ATSS	-.144	.327(**)	-.243(*)	-.072	.185	.004	-.075	-.104
9	ATSI	-.095	.304(**)	-.194	-.104	.133	-.008	-.074	-.179
10	ATSL	-.057	.512(**)	-.230(*)	-.153	.122	-.114	-.173	-.115

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Analysis of cross correlation matrix between system of anthropometric varia-bles, and motor variables (table 2) were not observed that is shown high correlation and statistically important results between variables system. According to given results can

be observed that motor variables squeeze palm (SQPA), show that have correlation statistically important with 7 anthropometric variables, while motor variables taping for hands (TAHE) show that have correlation statistically important with 4 anthropometric variables and motor variables reach sitting down position (RSDP) show that have correlation statistically important with 3 anthropometric variables. And other motor variables did not show that they have correlation statistically important with same anthropometric variables.

Table 3. Significance of canonical correlation

	Lambda – Prime λ	Canonicl – R Rc	Canonical R-sqr.	Chi-sqr. X^2	df	p
0	.117479	.786117	.617980	148.8341	80	0.00
1	.307520	.663076	.439669	81.9554	63	0.05
2	.548819	.455766	.207723	41.6990	48	0.72
3	.692711	.390088	.152168	25.5164	35	0.87
4	.817038	.283149	.080173	14.0438	24	0.94
5	.888252	.258235	.066685	8.2357	15	0.91
6	.951718	.182379	.033262	3.4393	8	0.90
7	.984463	.124647	.015537	1.0883	3	0.77

(λ=lambda, Rc =coefficients of canonical correlations, Rc² =coefficient of determination, Hi-square test χ2, df =degrees of freedom, p=statistical significance).

With case authentication of relations between anthropometric characteristic and motoric abilities (table 3), with help of Bartlett's measure chi-square test (χ2), is confirmed that the young judo sportiest exist wan pair of canonical correlation statistically important factor in the importance level p = 0.00 where first pair of canonical correlations factors is (Rc = 66), while other pairs of canonical correlations factors are not statistically important.

Table 4. Canonical structure of anthropometric and motoric factors.

	Nr.	Variables	Fc 1	Fc 2
Anthropometric characteristics	1	LEBO	.354176	**.830472**
	2	LELE	.631445	.683180
	3	LEAR	.226235	**.733257**
	4	BOWE	.193433	**.732311**
	5	ATST	**.844752**	.314210
	6	ATTR	**.902803**	.198002
	7	ATBI	**.843671**	.230397
	8	ATSS	**.838460**	.280516
	9	ATSI	**.887137**	.267786
	10	ATSL	**.881676**	.200450

	11	FLBA	-.045718	-.099014
Motoric abilities	12	TAHE	.432037	.073883
	13	RSDP	-.347995	.136843
	14	LOJU	-.309408	.443176
	15	SQPA	-.078577	**.844606**
	16	RESD	-.202726	.240847
	17	SUKN	-.122196	.002406
	18	R10x5M)	-.182567	.020835

Based in motoric analysis of counted structure canonical factor in anthropometric variables space and structure of canonical factors to motoric abilities (table 4), is clearly seen that the first structure of canonical factors in anthropometric variables is component: adipose tissue under skin of stomach (ATST), adipose tissue under skin of triceps (ATTR), adipose tissue under skin of biceps (ATBI), adipose tissue under skin of sub scapulars (ATSS), adipose tissue under skin of sub iliac a (ATSI) and adipose tissue under skin of list (ATSL), so that is interpreted as a canonical factor of adipose tissue, and second structure of canonical factors of anthropometric characteristics is component: body length (LEBO), length of the leg (LELE) and length of the arm (LEAR), so that is interpreted as a canonical factor of longitudinal dimensionality. The first structure of canonical factors in motoric variables is can not be interpreted because of low values of motor variables, while second structure of canonical factors of motoric variables is component: squeeze palm (SQPA), so that is interpreted as a strong factor in shrinkage.

5. CONCLUSION

With case of canonical relations interpretations as is known were applied simple rule which said that linear grow of resulting value variables vector canonical factor from first space match proportionally linear grow of factors value resulting to vectors changes canonical from other space and conversely, with a condition that between these two variables system of different spaces to exist statistically important correlation. So specifically in this study can be concluded that, based to first couple of canonical factor in motoric abilities space, young judo athletes achieve better result in strong squeeze palm, if they have better result on longitudinal dimensionality. While the lowest results in strong squeeze palm will be, if they don't have the high value in anthropometric characteristic and conversely. Even the first couple of canonical factors can not be interpreted in adequate way morphological structure of canonical factors because of lower information value of variables, in proportion with second canonical factor of anthropometric characteristic that is interpreted as a canonical factor strong factor in palm. It's possible that in this case that has to deal with variables motoric abilities that warn to young judo athletes of this age have not come yet one favorite's extension of certain segments to anthropological characteristic. Study has fulfill expectations, because over basis of achievement result can be confirmed general assumption that, to

young judo athletes 16-17 ages, exist statistically valid relations between anthropometric characteristic and motoric abilities.

6. LITERATURA

1. Gredelj, M., Hošek, A., Metikoš, D., & Momirović, K. (1975). Model hijerarhijske strukture motoričkih sposobnosti: Rezultati dobijeni primenom jednog neoklasičnog postupka za procjenu latentnih dimenzija. Kineziologija, 5(1-2), 7-82.
2. Gredelj, M., A. Hošek, K. Momirović (1980.). Kanoničke relacije morfoloških karakteristika i intelektualnih sposobnosti nakon parcijalizacije socioloških činilaca koji mogu utjecati na procese rasta i razvoja. Zagreb. Kineziologija, Vol.10, br.3, str.10-1
3. Ibri L. (2011). Kanonički odnos morfoloških dimenzija i motoričkih sposobnosti vrhunskih rvača. Međunarodna naučna konferencija Veles, Makedonija.
4. Jozić, M. (2002.). Relacije između morfoloških karakteristika i motoričkih sposobnosti učenika 5. i 6. razreda. Rovinj. Zbornik radova 11. ljetne kole kineziologa RH.
5. Kostovski Ž, Georgi G., Shala S, Ibri L, (2011). Relations betwen motor abilities and the wrestler's competitive effectiveenss, Acta Kineziologika 5-2011 2: 72-75
6. Malacko, J. (2002). Relations of coordination, morphological characteristics and motor abilities. U D. Milanović, F.Prot (Ur.), Proceedings Book of 2 rd International scientific conference "Kinesiology for the 21st century", 1999, (pp. 291-295), Zagreb,
7. Viskić-Štalec, N., & Mejovšek, M. (1975). Kanoničke relacije prostora koordinacije i prostora motorike. Kineziologija, 5(1-2), 83-112.

CANONICAL CORRELATION OF MORPHOLOGIC CHARACTERISTIC AND MOTORIC ABILITIES OF YOUNG JUDO ATHLETES

In sample from 80 young judo athletes aged from 16-17 year, was applied the system a total of 18 variables, of which 10 are morphologic characteristic and 8 motoric abilities variables, with a purpose to determinate mutual report between each other, while the information were analyzed by using canonical correlation analysis. With case of authentication statistically important relation was achieve one pair of canonical correlations statistically important. In morphologic variables field the canonical factor is interpreted in first canonical structure is the consists of variables: adipose tissue under skin of stomach (ATST), adipose tissue under skin of triceps (ATTR), adipose tissue under skin of biceps (ATBI), adipose tissue under skin of sub scapulars (ATSS), adipose tissue under skin of sub iliac a (ATSI) and adipose tissue under skin of list (ATSL), so that is interpreted as a canonical factor of adipose tissue:

And second structure of canonical factors of anthropometric characteristics is the consists of variables: body length: body length (LEBO), length of the leg (LELE) and length of the arm (LEAR), so that is interpreted as a canonical factor of longitudinal dimensionality. The first structure of canonical factors in motoric variables is can not be interpreted because of low values of motor variables, while second structure of canonical factors of motoric abilities is the consists of variables: squeeze palm (SQPA), so that is interpreted as a canonical factor of strong factor in palm. Based on structure analysis of matrix results of canonical factors results were shown that to young judo athletes of this age exist statistically valid correlations between canonical factor of anthropometric variables and canonical factor of variables to motoric abilities which is (Rc=77) that is statistically valid in level (P=00).

__Key words:__ canonical analysis morphologic characteristic, motoric abilities, relations, young judo athletes.

„Dan", 23. februar 2013.

У СУСРЕТ НАУЧНИМ СКУПОВИМА ЦРНОГОРСКЕ СПОРТСКЕ АКАДЕМИЈЕ У ПОДГОРИЦИ

Велико интересовање

За скупове Црногорске спортске академије, који ће се од 4. до 6. априла по први пут одржати у Подгорици влада велико интересовање, па иако је рок за пријаву радова на задате теме већ истекао организатори свакодневно добијају молбе научника широм свијета да их уврсте у програм јубиларног; десетог издања ових скупова. За сада на списку има 106 радова са 181. учесником, а на списку од бројева 41. до 50 налазе се следећи радови: **41. Георги Георгиев, Вујица Живковић** (Универзитет „Св. Ћирила и Методија", Факултет за физичку културу, Скопље), **Виктор Митревски** (Бизнис Академија Смилевски, Битољ): „**Фреквенција покрета ученицима кроз лонгитудинално проматрање**", **42. Виктор Митревски, Георги Георгиев, Вујица Живковић**: „**Релације боди мас индекса (БМИ) са постигнућа и извођења моторичких знања код ученика**", **43. Мр Нела Татар** (Секретаријат за културу и спорт Главног града – Подгорица), **мр Мирза Мулешковић** (Центар за развој спорта), **проф Рајко Ћупић** (Секретаријат за културу и спорт Главног града – Подгорица): „**Физичке активности у слободном времену младих Црне Горе**", **44. Мр Вукан Вујовић, др Пеко Вујовић, др Маријана Тишма** (Факултет за спорт и туризам, Универзитет Едуконс, Нови Сад): „**Савремени спорт и туризам као двије узајамно подстицајне и комплементарне области**", **45. Др Пеко Вујовић, мр Вукан Вујовић, Василије Вујовић** (Нови Сад): „**Компаративна анализа квантитативно квалитетних показатеља фаза напада на СП у фудбалу у Њемачкој 2006 и Јужној Африци 2010 године**", **46. Бранимир Микић** (Факултет за тјелесни одгој и спорт Тузла), **Сакиб Куртовић** (независни истраживач), **Наталија Куртовић** (Педагошки факултет Бихаћ), **Вахид Дедић** (ОШ „Шерићи" Живинице): „**Ефекти парцијалних квантитативних промјена динамичке снаге и статичке силе спортиста узраста 15-16**", **47. Небојша Чокорило, Милена Микалачки, Даринка Коровљев, Горан Димитрић,** (Факултет спорта и физичког васпитања, Нови Сад): „**Разлике у ефектима нордијског ходања и ходања на морфолошке карактеристике жена**", **48. Горан Димитрић, Небојша Чокорило, Мирослав Петровић, Милица Богдановски** (Факултет спорта и физичког васпитања, Нови Сад), **Игор Главичић** (Свеучилишни одјел за студије мора у Сплиту): „**Брзина реакције пливача на старту у дисциплини 50 м слободно**", **49. Горан Димитрић, Маја Батез, Милица Богдановски, Мирослав Петровић** (Факултет спорта и физичког васпитања, Нови Сад), **Игор Главичић**: „**Утицај пливачких техника на резултат у дисциплини 200 метара мјешовито**", **50. Assoc. проф. Dsc. Златко Златев** (Technical University of Varna): "**Longitudinal study of some anthropometric and physiometric indicators of students**"...   Т.Б.