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Sensory submodalities testing in neurolinguistic programming, part of mental training

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Abstract

Introduction: this study is part of a larger work, which involves increasing sporting performance by applying mental training techniques - special techniques of neurolinguistic programming. In this case we will discuss some aspects of the test application Jacobson S. (2011). *Purpose of study and hypothesis:* In neurolinguistic programming (NLP) we have studied the relationship between sensory submodalities, in accordance with the Jacobson test (2011). We wanted to check the degree of significance of the mean difference parameters studied and if the materiality result falls within the objective parameters. If ideomotor representations of athletes are completed with multiple sensations of all sensory submodalities such as visual, auditory, kinesthetic, olfactory and gustatory, the possibility of applying the techniques of NLP (neurolinguistic programming) will have more effective results. *Methods and material:* two records were made by using two tests, test1 and test2 on master students of the University "Babes-Bolyai" Cluj-Napoca, from FEFS from APS department (training and sports performance). The statistical indicators were calculated on elements of descriptive statistics and the data is presented using indicators of centrality, location and distribution. Statistical analysis of non-parametric Wilcoxon test was used for sample pairs (data uneven distribution/rank). Materiality tests used was α=0.05 (5%), α=0.01 (1%) or α=0.001. *Results and deliberations:* to detect the correlation between the two variables we used the Spearman rank correlation coefficient (ρ). Statistical analysis was performed using the correlation coefficients Colton's rule. It was found that no statistically significant differences were observed ($p>0.05$) in the statistical analysis of sample pairs Jacobson test values (times T1-T2). This is a result of the short timeframe - just one month - for objectives reasons. However, many of them appear in a good and a very good correlation to both tests, between the values of the items studied. *Conclusions and recommendations:* we want to continue with this study because the time difference between T1 and T2 was very small and we want to extend this study to a minimum of three months. All sensory submodalities are particularly important in achieving ideomotor representations underlying mental training.

Keywords: *ideomotor representation, neurolinguistic programming, sensations, sensitive submodality, mental training.*

Rezumat

Introducere: acest studiu face parte dintr-o lucrare mai vastă, prin care presupunem creşterea performanţelor sportive prin aplicarea tehnicilor de antrenament mental, în special prin tehnici de programare neurolingvistică. În acest caz vom dezbate câteva aspecte legate de aplicarea testului Jacobson S. (2011). *Scopul şi ipoteza studiului:* în cadrul programării neurolingvistice am studiat relaţiile dintre submodalităţile senzoriale, prin aplicarea testului Jacobson (2011) din programarea neurolingvistică (NLP–ului). S-a dorit verificarea gradului de semnificaţie a diferenţei mediilor parametrilor studiaţi şi dacă pragul de semnificaţie rezultat se încadrează în parametrii obiectivi. Cu cât reprezentările ideomotorii ale sportivilor sunt mai complete cu mai multe senzaţii din toate submodalităţile senzoriale: vizuale, auditive, kinestezice, olfactive, gustative, cu atât posibilitatea aplicării tehnicilor NLP (programare neurolingvistică) va avea rezultate mai eficiente. *Material şi metode:* s-au făcut două înregistrări prin aplicarea a două testări, test1 şi test 2 la studenţii masteranzi din cadrul Universităţii „Babeş-Bolyai" Cluj-Napoca, de la FEFS, de la secţia APS (antrenament şi performanţă sportivă). La indicatorii statistici au fost calculate elemente de statistică descriptivă, datele fiind prezentate utilizând indicatori de centralitate,

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localizare şi distribuţie. La analiza statistică a fost utilizat testul neparametric Wilcoxon, pentru probe perechi (date cu distribuţie neuniformă/rangurilor). Pragul de semnificaţie pentru testele folosite a fost α=0,05 (5%), α=0,01 (1%) sau α=0,001. Studenţii au completat testul prin cuvinte cheie care descriu senzaţiile, percepţiile din cadrul reprezentării unui act motric. Actul motric reprezentat de către fiecare student în parte reprezintă o deprindere motrică specifică sportului practicat şi care sunt folosite în cadrul antrenamentului mental. Cuvintele alese de studenţi, care au fost completate în teste, pot da informaţii despre precizia şi acurateţea reprezentărilor mişcărilor din antrenamentul mental al studenţilor FEFS. S-au făcut două înregistrări: T1 şi T2, la interval de 30 zile. *Discuţii şi rezultate:* pentru decelarea corelaţiei dintre două variabile s-a utilizat coeficientul de corelaţie al rangurilor Spearman (ρ). Analiza statistică a coeficienţilor de corelaţie s-a efectuat utilizând regula lui Colton. S-a constatat că la analiza statistică a valorilor testului Jacobson *pentru probe perechi (momentele T_1-T_2),* nu au fost observate diferenţe statistic semnificative (p>0,05), din cauză că timpul a fost foarte scurt – doar o lună – din motive obiective dar, apar foarte multe corelaţii bune şi foarte bune la ambele teste, între valorile itemilor studiaţi. Se observă rezultatele înregistrate pe cele trei categorii mai importante de senzaţii: *vizuale*, *auditive*, *kinestezice* la studenţii din grupul de experiment, la testul Jacobson, la cele două testări. În realizarea reprezentărilor ideomotorii toate submodalităţile senzitive sunt deosebit de importante şi stau la baza antrenamentului mental. Cuvintele cheie ajută la declanşarea acţiunii în executarea unei mişcări. *Concluzii şi recomandări:* dorim să continuăm acest studiu pentru că diferenţa de timp între T1 şi T2 a fost foarte mică şi dorim să extindem acest studiu până la minim 3 luni. Toate submodalităţile senzoriale sunt deosebit de importante în realizarea reprezen-tărilor ideomotorii care stau la baza antrenamentului mental.

***Cuvinte cheie**: reprezentare ideomotorie, programare neurolingvistică, senzatii, submodalităti senzoriale, antrenament mental.*

Problem statement

Examining in particular the phrase "neurolinguistic programming", we can define the following concepts: "programming", which researchers say that our minds are closed patrimonies of programs that can be modified.

"Neuro" these programs will be systematized in a way to become neural configurations. Moreover "neuro" refers to the mutual influence ways between physiological indices and the internal state of the body. Neuroscience confirms that each cerebral hemisphere is highly specialized to develop various functions to manifest different abilities and generate different styles of thinking. [1]

"Linguistics" was defined as: language belongs to our system of communication with others, through accurately language; we can extract limits that are blocking our thinking from the targets. [2] Programming refers to the models and programs of behavior and thinking that we follow to produce specific results [3] Vince Lombardi, a famous Italian football coach said, "defeating is not everything but wanting to defeat yes ", phrases that have entered in sport legend, highlighting the sport model that we want to train.

To work specifically on mental training is important to clarify from the beginning the concept of submodalities from neuro-linguistic programming. Before addressing the topic of submodalities we have an obligation to clarify the concept of modality. Modalities relate to representational systems: visual, auditory, kinesthetic, olfactory, and gustatory. Sensory submodalities clarify specific aspects of the five senses. For example, in visual we have aspects of lighting intensity, the presence or absence of color and intensity. In the same way we manage other aspects related to sensory channels.

In communication is important to understand which is the preferred representational system of our party, so we can adopt a personal style to communicate effectively. For example, if the athlete is stimulated by the visual channel, it should be used more slides and images that increase the level of attention. If he prefers auditory channel we will have a long conversation with him; if he prefers kinesthetic channel we will have to ask athletes to follow specific topics. Once defined the concept modality we can examine what are the submodalities. These relate to how modalities are represented in athletes mind. Submodalities represent the quality that characterizes each singular experience. [4]

A controlled action must be “conscious”, which means that athletes must be absolutely present and concentrated on what they are doing. This should exclude all distractions from interfering. That is the first point.

The second important point is the following: during a conscious act, the brain must be uniquely receptive; its function is to record precisely what is taking place**.** [5]

Purpose of study

With this study we want to achieve, by Jacobson, S. test (2011), a comparative analysis of the results and statistical significance (pair sample in the two testing T1 and T2), see table no I. In neuro-linguistic programming we have studied the relations between sensory submodalities by applying Jacobson S. test (2011), Students filled in the tests with keywords that describe the sensations and perceptions of the representation of a motor act. Motor act represented by each student is a sport specific motor skill practice and is used in mental training. The words chosen by students who completed the tests can provide information about the precision and accuracy of representations of mental training movements FEFS students. There were two entries: T1 and T2, every 30 days.

Material and Methods

Students have completes Jacobson test, by keywords that describe sensations, perceptions from representing a motric act. Motric act can be an exercise, defined by Stuart and contributors as: A subset of physical activity that is volitional, planned structured repetitive and aimed at improvement or maintenance of an aspect of fitness or health. [6]
Motric act represented by each student is a specific motor skill of sport and are used in mental training. Keywords chosen by the students, which were completed in tests can give us information about the precision and accuracy of the movement representations in mental training in FEFS students. There were two records: T1 and T2, after 30 days, during this time they made ideomotor representation training and autogenic training. Through these autogenic training techniques, we have attempted to create an inner balance. [7]

Findings and Results

We have results, on three categories of the most important sensations: visual, auditory, olfactory, kinesthetic, in Jacobson test, on the two testing, experimental group. In realizing ideomotor representation, all sensory submodalities are important and underlay the mental training. Keywords help trigger the action in movements.
In table no II we have the values after applying the Jacobson test, accent on: maxim, median, minim, in sensory submodalities
All sensory submodalities are very important in realizing ideomotor representations, which emphasize the mental training. In table no III, we have the representation of values, different sensations, after applying the Jacobson Sid test, in all four groups of sensations, both testing. Median value is at his maximum level, 27, in visual sensations and for auditory sensations, 26.50, which underlines the importance of these sensations in ideomotor representations from mental training.
We also have, null (0) values due to the absence of some students in testing no 2.

Table I. Comparative analysis and statistical significance for the studied tests (pair sample)

Test / *Items*	Moments	Media	ES	Median	DS	Min.	Max.	*Statistical Significance (p)*
Jacobson Test	**T1**	**54.91**	**8.0531**	**59.5**	**37.7724**	**0**	**137**	0.187
	T2	**72.18**	**12.5202**	**77.0**	**58.7251**	**0**	**177**	
Visual sensation	***T1***	*19.77*	*2.5507*	*20*	*11.9640*	*0*	*43*	*0.4628*
	T2	*22.95*	*3.8716*	*27*	*18.1593*	*0*	*54*	
Auditory sensations	***T1***	*15.64*	*2.0895*	*17*	*9.8006*	*0*	*32*	*0.2877*
	T2	*20.95*	*3.6801*	*26.5*	*17.2612*	*0*	*51*	
Kinesthetic sensations	***T1***	*14.55*	*2.6966*	*13.5*	*12.6481*	*0*	*42*	*0.1327*
	T2	*21.50*	*4.1125*	*23*	*19.2892*	*0*	*61*	
Olfactory/Gustatory sensations	***T1***	*4.95*	*1.2475*	*2*	*5.8511*	*0*	*20*	*0.2744*
	T2	*6.77*	*1.5831*	*3.5*	*7.4254*	*0*	*18*	

In Jacobson test, statistical correlation analysis for the studied items showed (see figure no 1): a very good correlation and in the same sense between SV – SA (visual-auditory), see figure no 2, underlying

moment T1 and figure no 4 for moment T2: SV – SK (visual-kinesthetic), see figure no 3, moment T1, and figure no 5 for moment T2; SV – SOG (visual-olfactory, gustatory), SA – SK (auditory-kinesthetic) and SK – SOG (kinesthetic-olfactory, gustatory). A good correlation and in the same sense was found between SA – SOG (auditory-olfactory, gustatory).If we manage to teach our students personalized relaxation and concentration techniques, then even in most difficult moments they will be able to create their own wellbeing and increased self-esteem. [8]

Table II. Values after applying Jacobson Test

	Jacobson Test	
	Test 1	**Test 2**
Maxim	60.00	60.00
Q3	**17.50**	**40.00**
Median	**33.50**	**77.00**
Q1	**26.00**	**0.00**

Table III. The values of different sensations after applying Jacobson Sid Test

	Jacobson S.							
	Visual sensations		Auditory sensations		Kinesthetic sensations		Olfactory/gustatory sensations	
	Test 1	**Test 2**	**Test 1**	**Test 2**	**Test 1**	**Test 2**	**Test 1**	**Test 2**
Maxim	13.25	18.75	9.00	16.50	17.50	26.25	11.25	3.00
Q3	**9.75**	**8.25**	**6.00**	**8.00**	**11.00**	**11.75**	**6.75**	**11.50**
Median	**7.50**	**27.00**	**9.00**	**26.50**	**10.25**	**23.00**	**2.00**	**3.50**
Q1	**12.50**	**0.00**	**8.00**	**0.00**	**3.25**	**0.00**	**0.00**	**0.00**
Minim	12.50	0.00	8.00	0.00	3.25	0.00	0.00	0.00

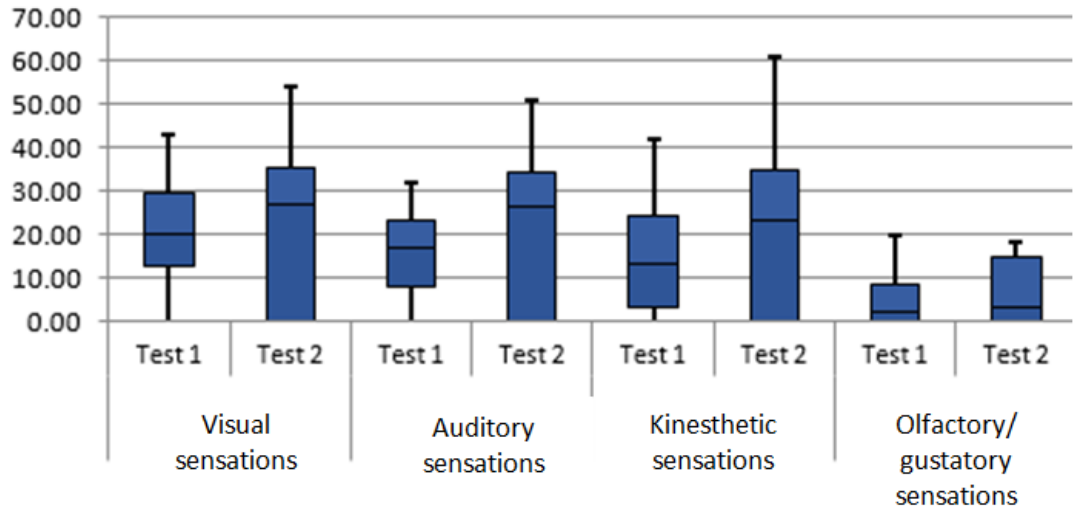

Figure 1. Testing 1,2 for Jacobson Sid test

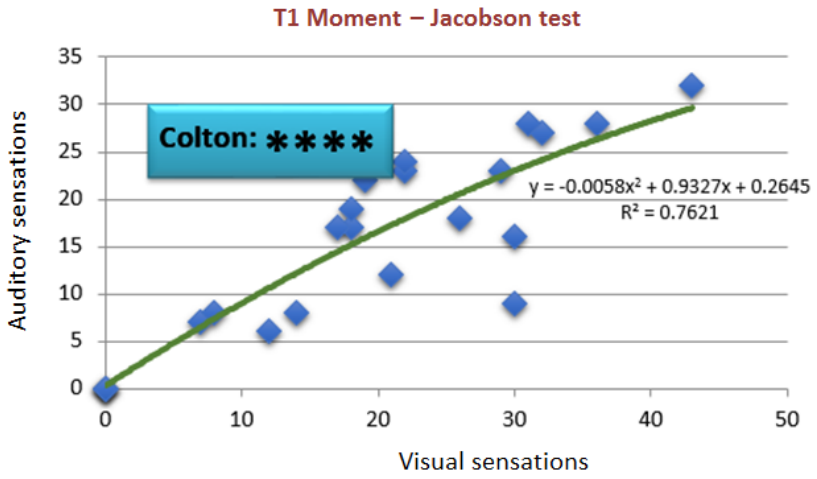

Figure 2. T1 moment for Jacobson test, auditory and visual sensations

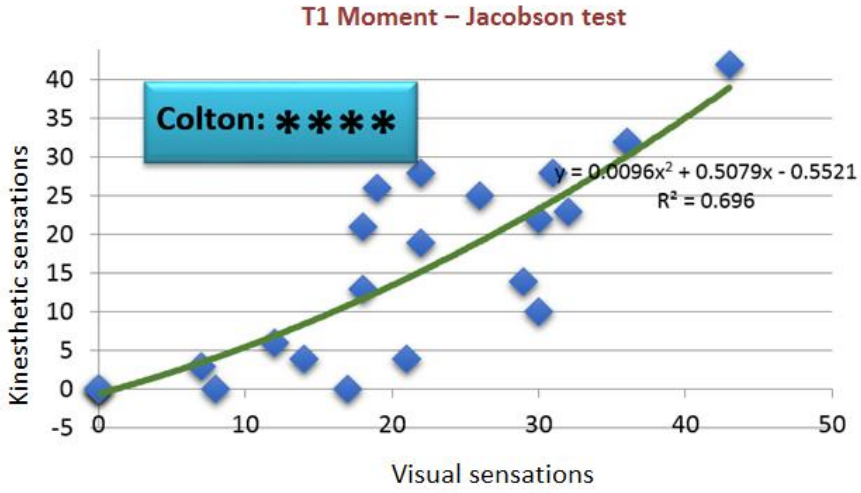

Figure 3. T1 moment for Jacobson test, kinesthetic and visual sensations

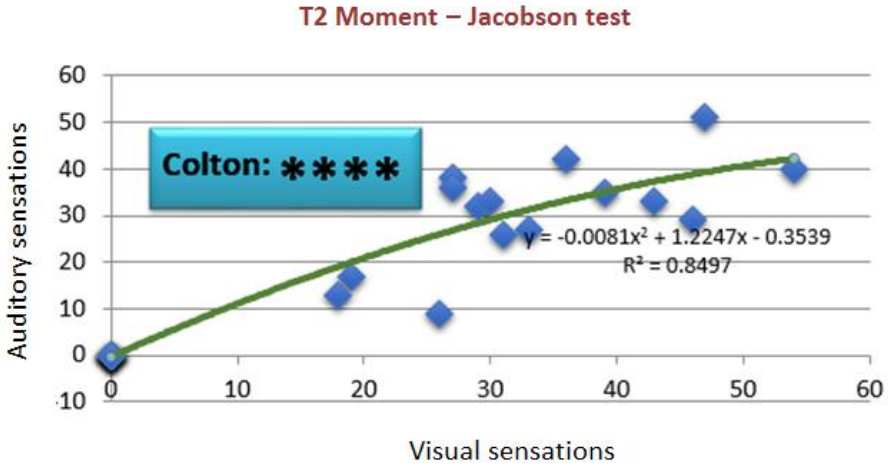

Figure 4. T2 moment for Jacobson test, auditory and visual sensations

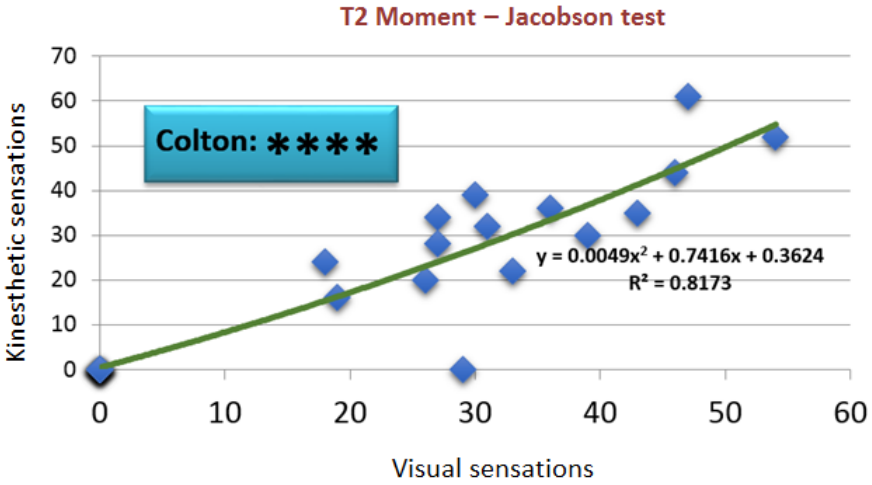

Figure 5. T2 moment for Jacobson test, kinesthetic and visual sensations

Conclusions and Recommendations

It requires further research because the time difference between T1 and T2 was very small, and we want to extend this study to a minimum of tree months. All the lessons were made on modular basis in the second semester due to objective reasons. Very good correlations and in the same sense between SV – SA, SV – SK, SV – SOG, SA – SK and SK – SOG show that the motric skill (profound structure) will be the more complete, as it is accompanied by its description and sensations. Words and visual, auditory, kinesthetic, olfactory and gustatory sensations are part of the representational systems. Sensory language is a powerful toll for communication and world impact [9, 10]

Modifying the sensory submodalities leas to an exchange at sensory modalities, which also creates profound changes in subjective experience. [11]

The NLP principles (neurolinguistic programing) offer us new instruments to modify and optimize our subjective experience. In order to succeed we must understand what is unique in every experience, the sensations are very important in our experience, the perceptions and interpretations that come from outside pass in background. [12]

We have to remember, in our work with students or athletes, if our objective is to produce a change by training, we will see "how" is possible for our students to feel a certain sensation, and this fact is more important than "why".

All sensory submodalities are particularly important in achieving ideomotor representations underlying the importance of neurolinguistic programming and mental training techniques. If the ideomotor representations are accompanied by many sensorial submodalities, the motric skills are richer and the motric skills specific to various sports are more complex.

References

1. Bandler R., Thomson G. (2012) *PNL per il benessere*, The Secrets of Being Happy, Edizione Alessio Roberti, p.126, 130;
2. Fanelli V. (2010) *Coaching e PNL*, Strumenti della PNL per aumentare l'efficacia del coaching, Edizioni MyLife, PG, Italia, p.28;
3. Garrat T. (2012) *PNL per lo sport*, Come allenare la mente per vincere con la programmazione neuro-linguistica, edit. Alessio Roberti, p. 18;
4. O'Connor J., McDermott I. (2009) *Manuale di PNL*, Programmazione neurolinguistica e sviluppo personale, Edizione il Punto d'Incontro, Italia, p.101;
5. Vittoz R., Godefroy C.H. (2001) *How to control your brain at will*, IAB, Manufactured in te United States of America, p. 45;
6. Biddle S.J.H., Fox K.R., Boutcher S.H. (2002) *Physical Activity And Psychological Well – Being*, Editor Routledge Taylor and Frances Group, London and New York, e – Library;
7. Mauti E. (2012) *Training autogen*, Tecniche, sequenze ed esercizi, Giunti Demetra Editore, p.16;
8. Brugnoli M. P. (2005) *Techniche di mental training nello sport*, Vincere la tensione aumentare la concentrazione e la performance agonistica, Edizioni Red, Italia, p.51;
9. O'Connor J., McDermott I. (2009) *Manuale di PNL*, Programmazione neurolinguistica e sviluppo personale, Edizione il Punto d'Incontro, Italia, p.96;
10. Alder H., Beryl H. (2013) *PLN in 21 giorni*, Un approccio rivolu-zionario alla comunicazione umana e allo sviluppo personale, Edizoni Il Punto D'Incontro, p.105.