



International Congress
of Osteopathic Medicine
“Towards an integrated Medicine”



6/9 APRIL 2011
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Somatic dysfunction in newborns: prevalence and correlation interoperator

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Introduction

Definition of Somatic Dysfunction (SD)

- impaired or altered function of related components of the somatic (body framework) system: skeletal, arthrodiar and myofascial structures, and their related vascular, lymphatic, and neural elements

Introduction

Somatic Dysfunction as marker of:

- bodily changing
- clinical condition

Introduction

Measuring Somatic Dysfunction: TART parameters


Palpatory finding	Meaning
Tissue Alteration	Modifications in the quality of the tissue (dry or moist, heat or coolness, pale or red). Expression of ANS alterations.
Asymmetry	Body segmental differences positions in the space, both in standing, sitting and lying position.
Restriction of motion	Unusual motion of one body part compared with the same part of the other side.
Tenderness	Feel the tissue response through a light compression.

Introduction


Somatic Dysfunctions and newborns

*

Region	Cerritelli ('09)	Carreiro('03)	Frymann ('65)
SBS	36,77	40	
<i>Torsion</i>			28,50
<i>Compression</i>			17,49
Occiput			
<i>Condyles</i>	60,65		45,97
Temporal bone	5,79		32,58
Column		70	
<i>Dorsal tract</i>	18,71		
<i>Lumbar/sacral tract</i>	39,35		
Sacrum			
<i>Extension</i>			36,76
<i>Intraosseum</i>	36,77		
Diaphragm	16,77		



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Aim of the study

- Evaluate the AREA and SUBJECT prevalence of Somatic Dysfunctions in a population of newborns
- Evaluate the inter-operator reliability

Methods

Exclusion Criteria

- Osteopathic Evaluation after 14 days from birth
- Newborns transferred from another hospital
- Newborns with congenital, genetic diseases and abnormalities of cardiovascular system

Methods

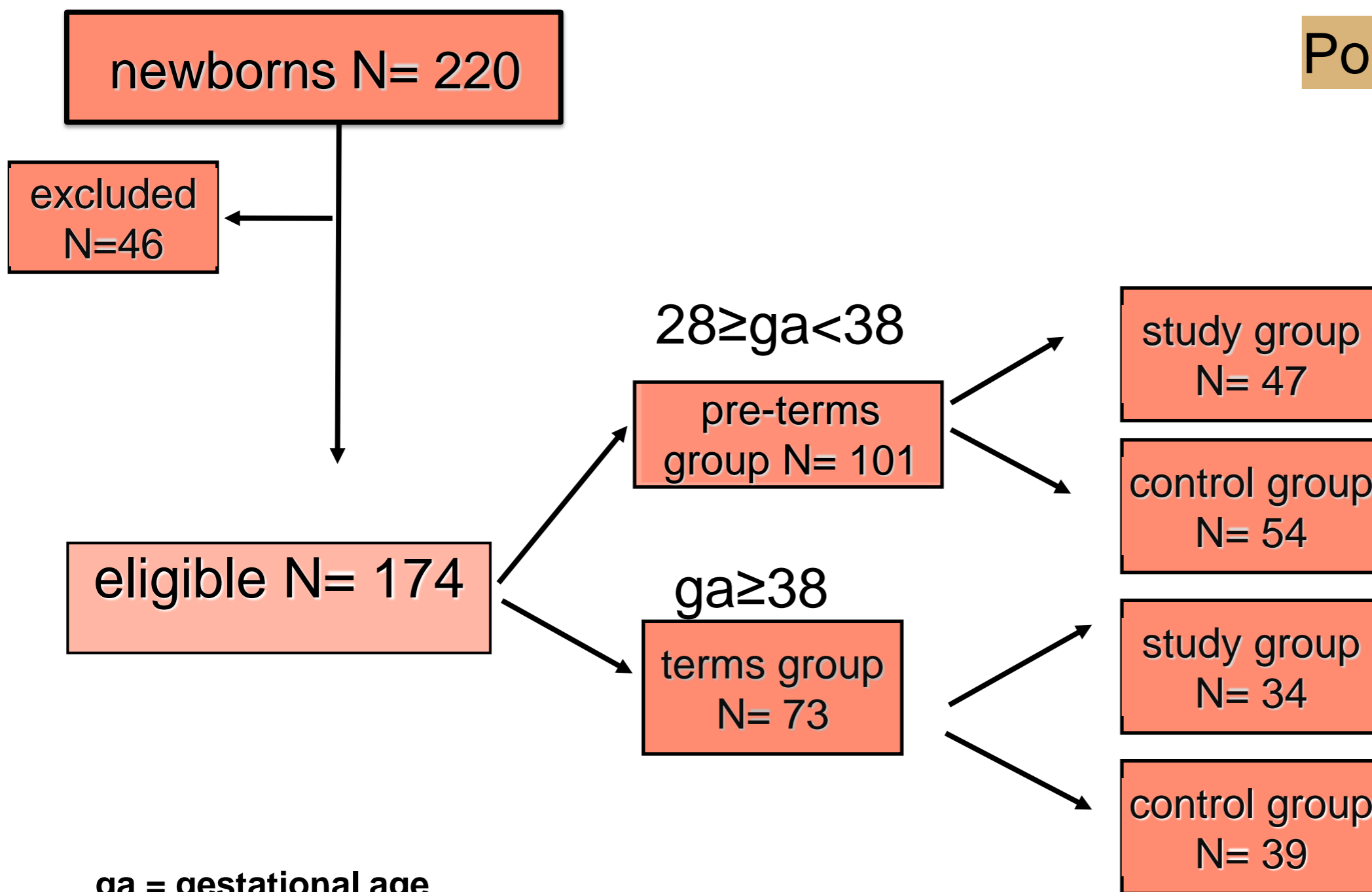
Randomization

4 groups:

- Preterms -Study / Control group
- Terms - Study / Control group

Methods

Population



Methods

- Baseline measurements of osteopathic characteristics (TART)
- Osteopathic Evaluations: 2 per week
- Study period: 20 months
- Outcomes:
 - prevalence of Somatic Dysfunctions
 - inter-reliability between operators

Statistical Analysis

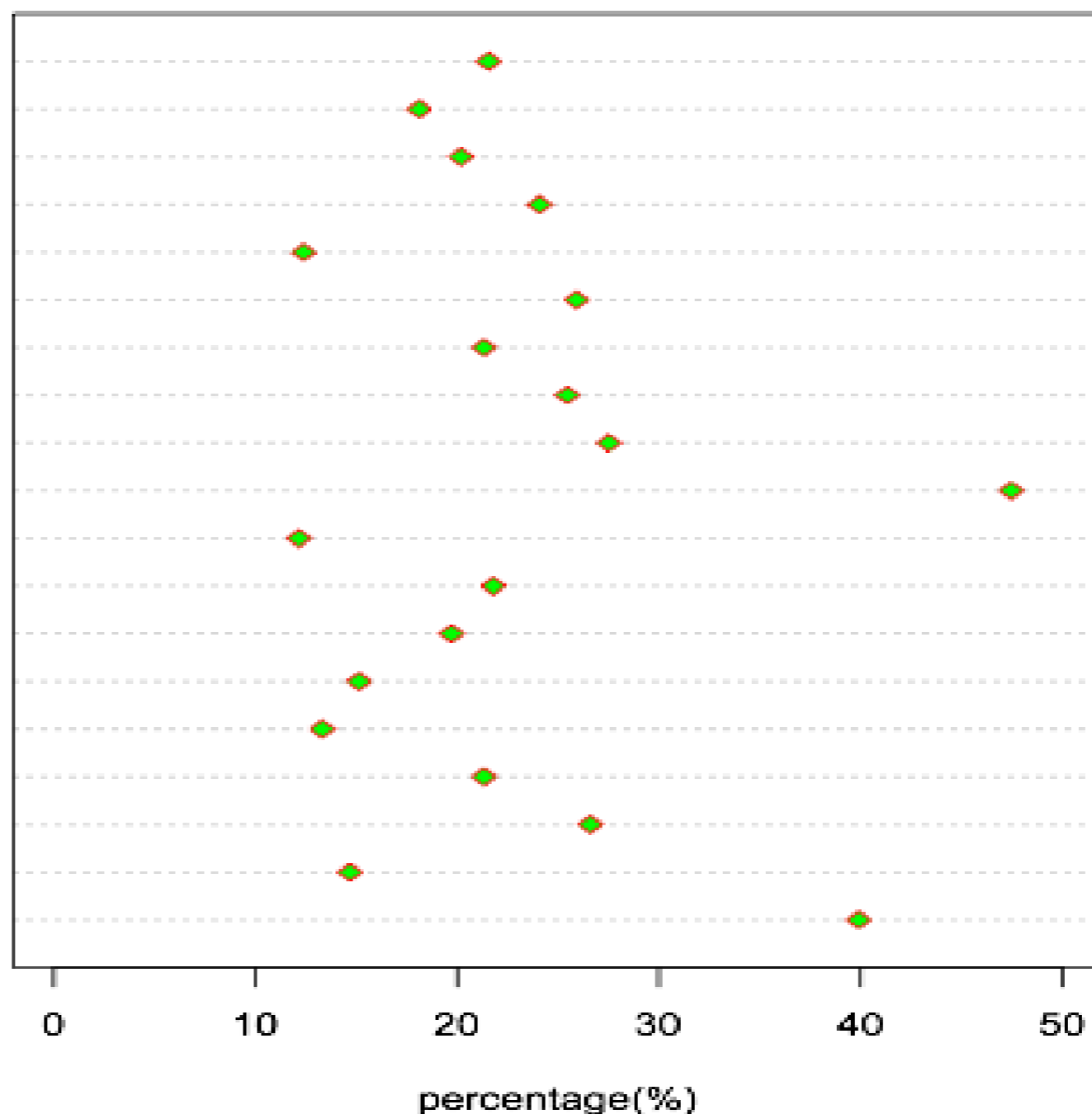
- Arithmetic means and Standard Deviation for the general characteristics of study population
- Univariate statistical tests for all differences between study and control group
- Cohen's test for correlation between operators
- $\alpha = 0.05$

Pre-terms Population *

	Study group	Control group	p value
N*	47 (46.5)	54 (53.5)	
Gender			
Male	24 (51.1)	27 (50.0)	0,92
Female	23 (49.8)	27 (50.0)	
Gestational Age			
Overall	34.1 (2.4)	34.1 (2.5)	
> 32*	36 (76.6)	39 (72.2)	0,79
≤ 32	11 (23.4)	15 (27.8)	
Weight (gr)			
At birth	2088 (498.6)	2234 (730.9)	0,24
≤ 1500*	7 (14.9)	10 (18.5)	0,26
> 1500*	40 (85.1)	44 (81.5)	
At recovery	1893 (496.7)	1926 (713.8)	0,59

Dysfunction per area in Pre-terms Group

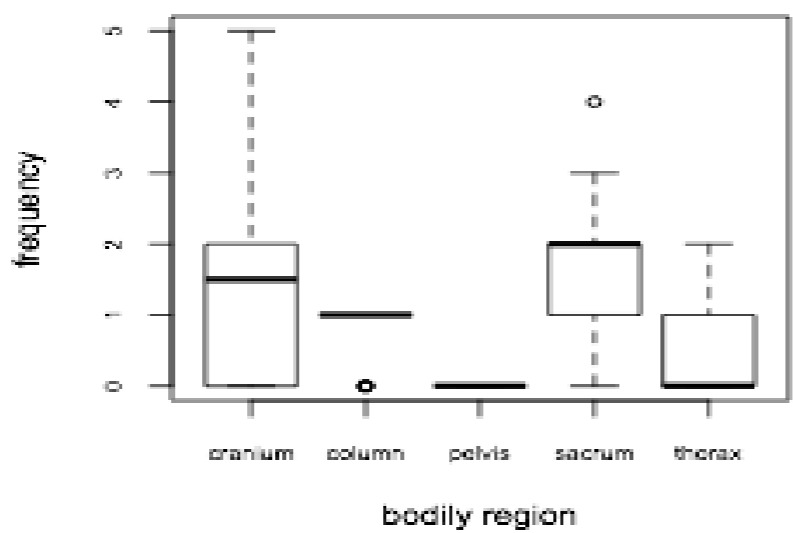
Diaphragm
Sternum-ribs
L1-L5
T12-L1
T9-T12
T5-T8
T1-T4
S-I compression R
S-I compression L
L5-S1
S3-S4
S2-S3
Occiput - condyle R
Occiput - condyle L
Occiput - Intrasquamous
Coronal suture
Interparietal suture
Lambda suture
SBS compression



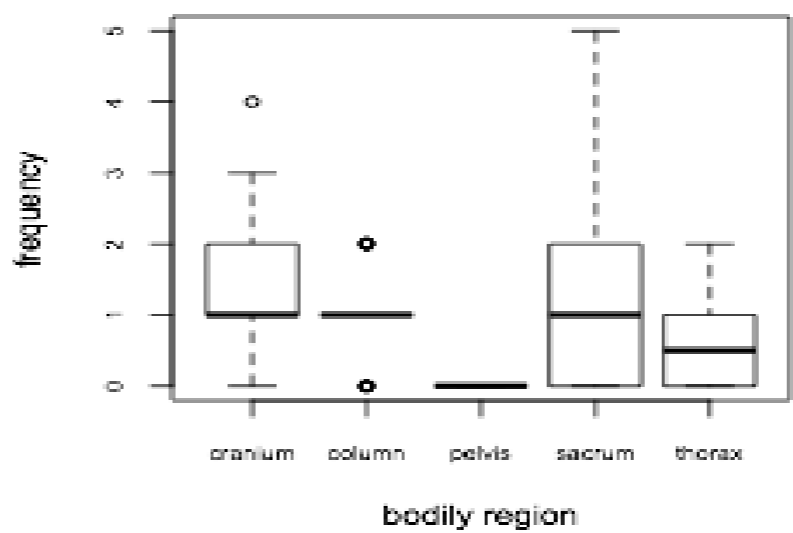


Dysfunction per subject in Pre-terms Group *

t0 - non treated group

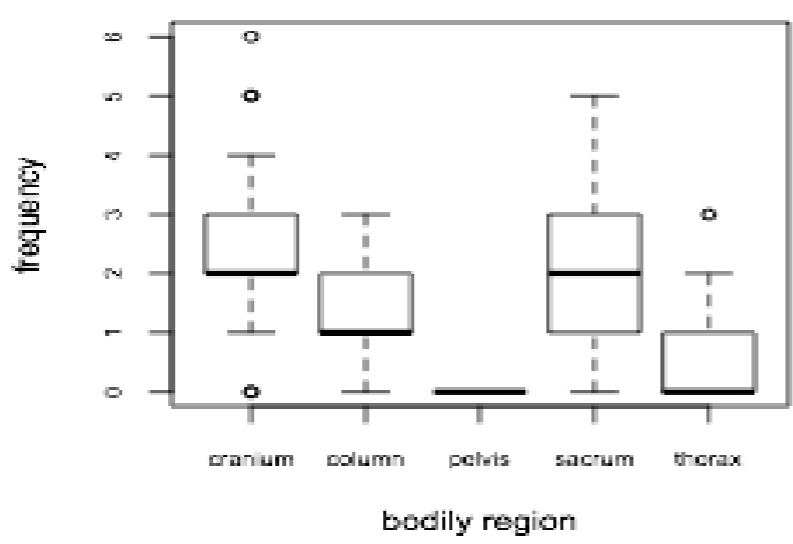


t1 - non treated group

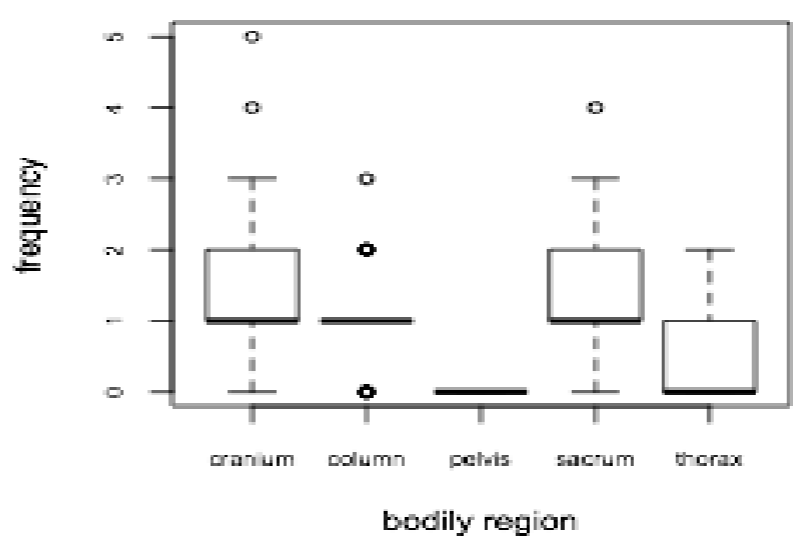


Median _____

t0 - treated group



t1 - treated group



Terms population

	Study group	Control group	p value
N*	34 (46.6)	39 (53.4)	
Gender			
Male	17 (50.0)	18 (46.2)	0,75
Female	17 (50.0)	21 (53.8)	
Gestational Age (w)	40 (0.9)	40 (1.0)	0,82
Weight (gr)			
At birth	3375 (472.9)	3361 (561.6)	0,92
At recovery	3300 (445.8)	3268 (516.1)	0,66

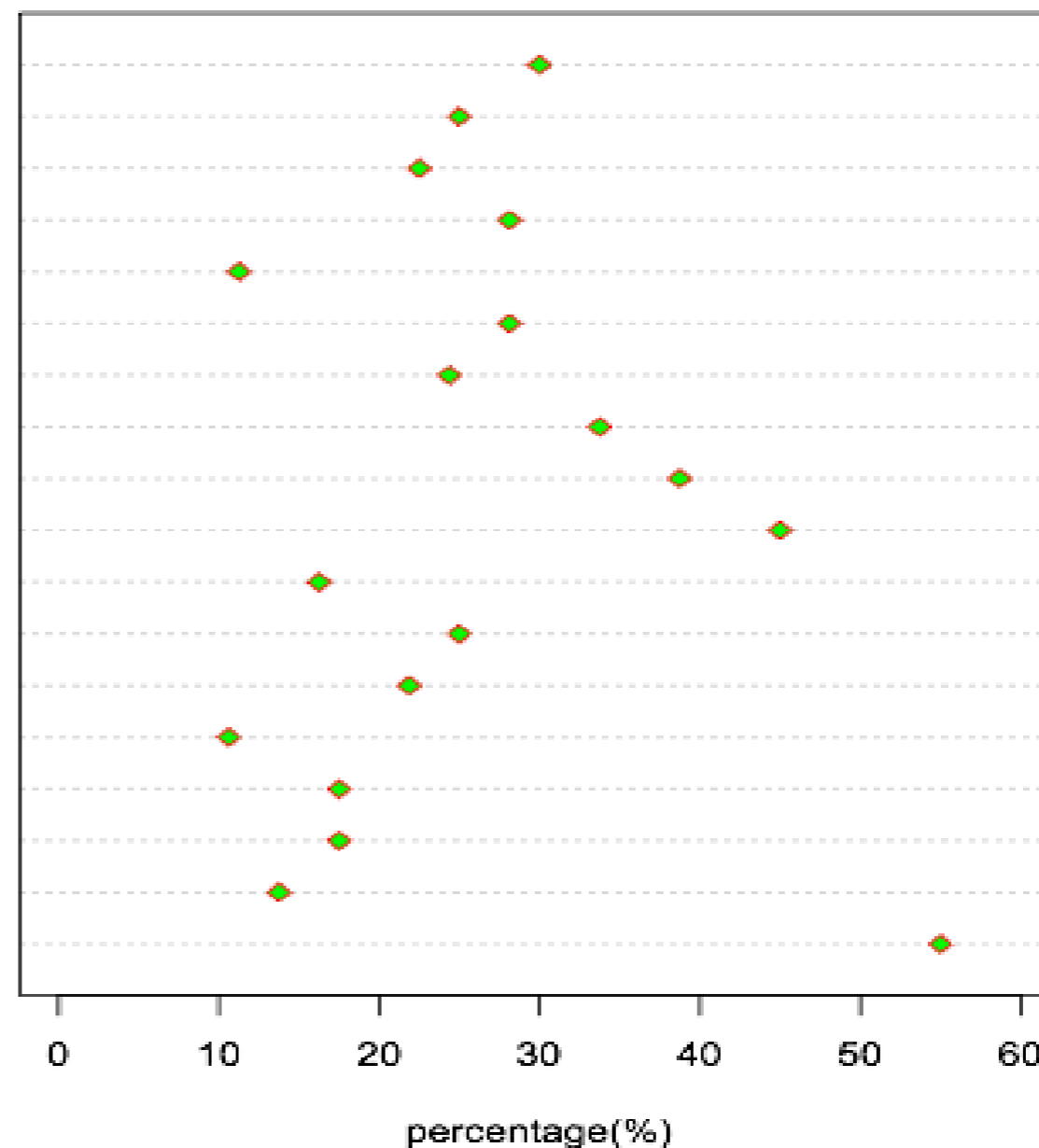
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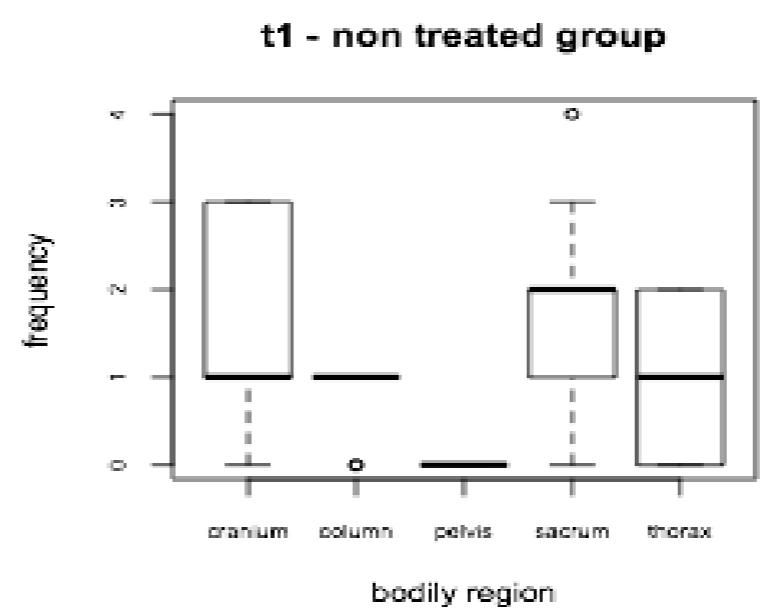
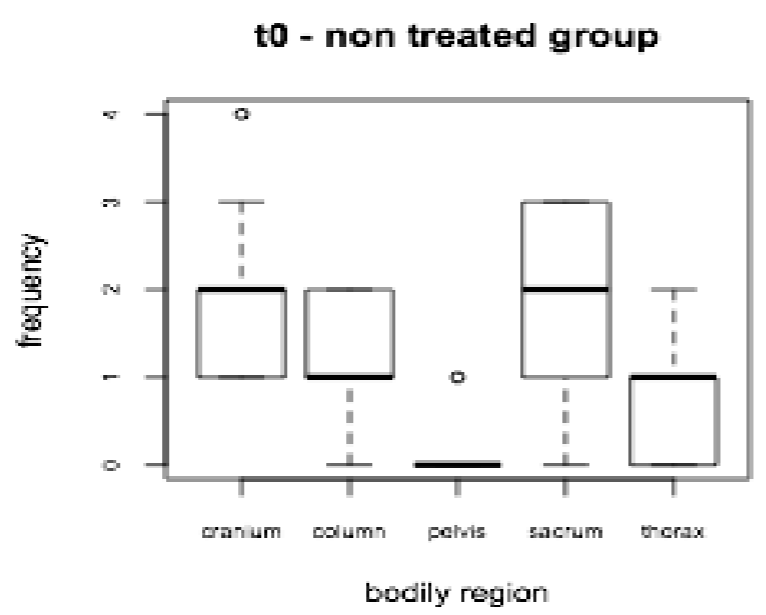
Dysfunction per area in Terms Group *

Diaphragm
Sternum-ribs
L1-L5
T12-L1
T9-T12
T5-T8
T1-T4
S-I compression R
S-I compression L
L5-S1
S2-S3
Occiput - condyle R
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Occiput - intrasquamous
Coronal suture
Interparietal suture
Lambda suture
SBS compression

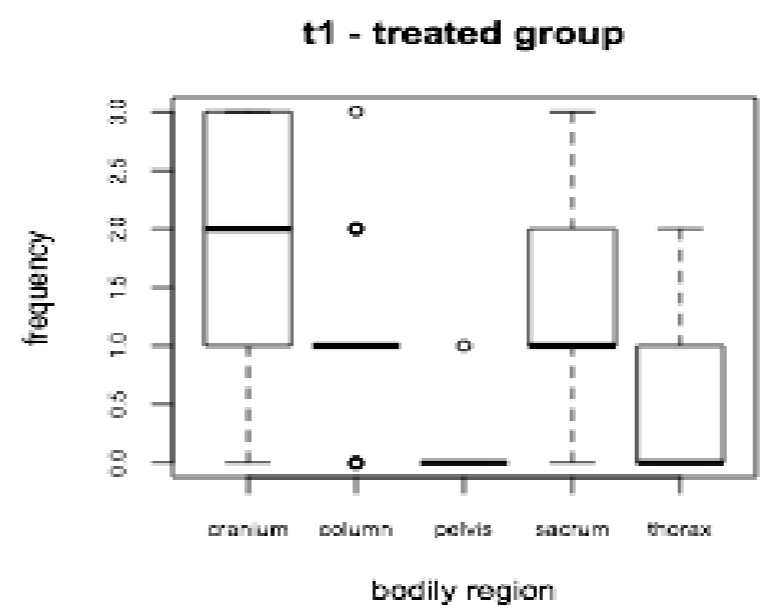
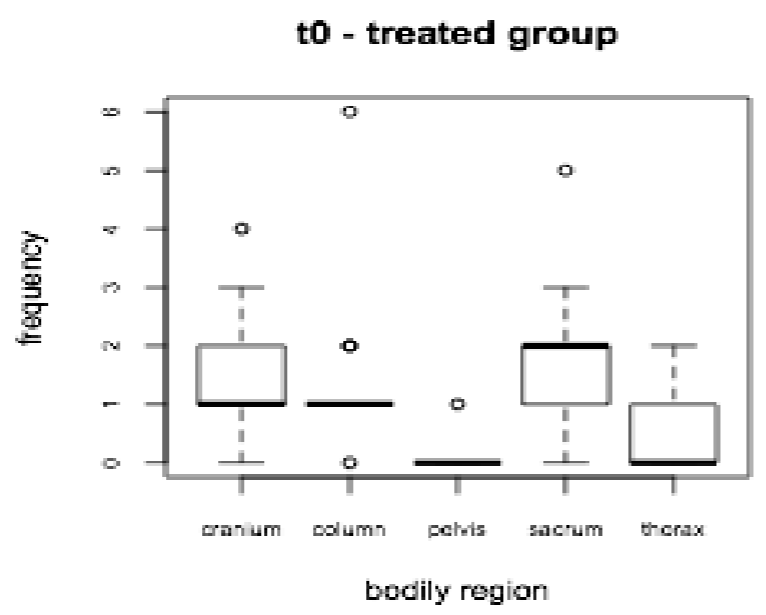




Dysfunction per subject in Terms Group *



Median _____



Correlation inter-operator *

Area	k value*	p value†
Cranium	0.52	0.01
Column	0.66	0.01
Pelvis	0.75	0.001
Thorax	0.38	0.02

* k value from Cohen's test
† p value from Cohen's test

Discussion*

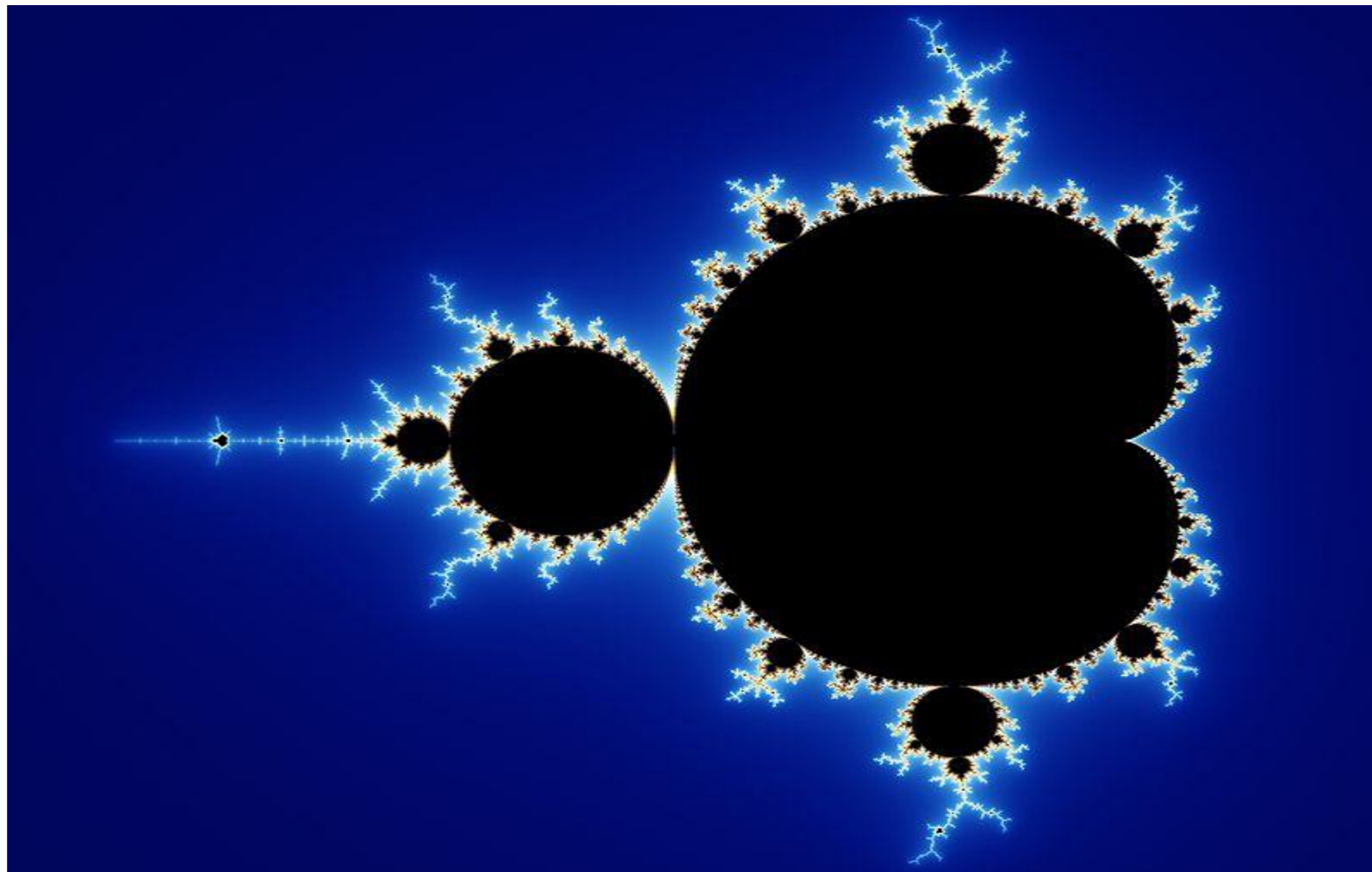
- Cranial and pelvic areas highest percentage of Somatic Dysfunction
- Supposed etiology:
 - type of labor;
 - absence of delivery;
 - fetal condition;
 - mother condition.

Discussion

- How we should consider the Somatic Dysfunctions ?
- Are the Somatic Dysfunctions related to an improvement of the clinical condition ?


Discussion

How to measure Complexity
Fractal system?




Conclusion

- The study shows a significant K inter-reliability score as well as an high percentage of Somatic Dysfunctions in cranial and pelvic areas.



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Thanks for your attention

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