Possible effects of cranial and sacral approach on the brain activity

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INTRODUCTION

Compression of the 4th ventricle?

(Han et al., 2015)
✓ lower sleep latency (Cutler et al., 2005);

✓ changes in blood flow velocity and cerebral tissue oxygenation (Shi et al., 2011);

✓ electrical brain activity modulation (Martins et al., 2015);

✓ …
INTRODUCTION

Brain waves and their related functions

(Biomarker #2)
1. motor binding
2. sensorimotor association
3. sensory discrimination
4. fatigue
5. autonomous nervous system regulation
6. motor imagery

(Biomarker #4)
1. sensorimotor task
2. perception binding
3. attention
4. working and associative memory

(Biomarker #1)
1. navigation
2. eye-head-body movement
3. episodic memory
4. sensorimotor integration
5. goal setting
6. network coordination
7. motor control
8. Emotion
9. Dream recall

(Biomarker #3)
1. global resting state
2. selective attention
3. cognitive performance
4. inhibition and gating
5. consolidation of new motor sequence (sleep-spindle)

(Biomarker #5)
1. memory consolidation (sleep, slow wave activity)
2. facilitation of multiple unit activity
3. visual discrimination

(Choron et al., 2016)
to explore and compare the effect of CV4 and sacral technique on brain activity by measuring the alpha-band power.
METHODS

International 10/20 System for Electrodes

(Miana et al., 2013)
## METHODS

### Study Design

<table>
<thead>
<tr>
<th>Resting State</th>
<th>Technique A (sham or active)</th>
<th>4 hours wash-out</th>
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<tbody>
<tr>
<td>10min</td>
<td>6-8min hands-on</td>
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<tr>
<th>Resting State</th>
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</table>
METHODS

Interventions

CV4

Sham CV4

(Miana et al., 2013)
RESULTS

![Graph showing Absolute $\alpha$ power (n.u.) post-Sham T. and post-Active T. for CV4 and ST conditions.](image-url)
DISCUSSIONS

- Alpha CV4
- Alpha Sham CV4

CV4 interoceptive effect

Deep touch

(Cerritelli et al., 2020; Edwards et al., 2018; von Mohr et al., 2018; Benedek et al., 2011; Corbetta et al., 2008)
Post CV4 > Post Sham CV4

CRI = THM Wave

CV4 [STILL POINT] > 0.1 Hz THM Wave

Sham CV4 [NO STILL POINT] NO > CRI/THM Wave

(Curi et al., 2018; Shi et al., 2011; Lagopoulos et al., 2009; Benarroch et al., 2008; Nelson et al., 2006; Chaitow, 2005)
> 0.1 Hz THM Wave → > Local Blood Flow

< cardiac sympathetic activity
> vagal output to the heart

Baroceptor

relaxing state characterised by the enhancement of the alpha band power

(Curi et al., 2018; Shi et al., 2011; Lagopoulos et al., 2009; Benaroch et al., 2008; Nelson et al., 2006; Chaitow, 2005)
None of the above functional hypotheses may apply to sacral treatment.

Probably a sacral effect on brain activity is not monitorable through occipital alpha rhythm.

A different biological marker for the osteopathic cranial therapy should be explored.
CONCLUSIONS

• CV4 produces immediate effects on brain activity
• Alpha band power increase during CV4 and sham CV4
• Alpha band power largely increase after CV4 technique
• Sacral technique is not able to variate alpha expression
Thank you for your attention

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REFERENCES


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