

Measuring Pathways to Transformation Using Bio-Well

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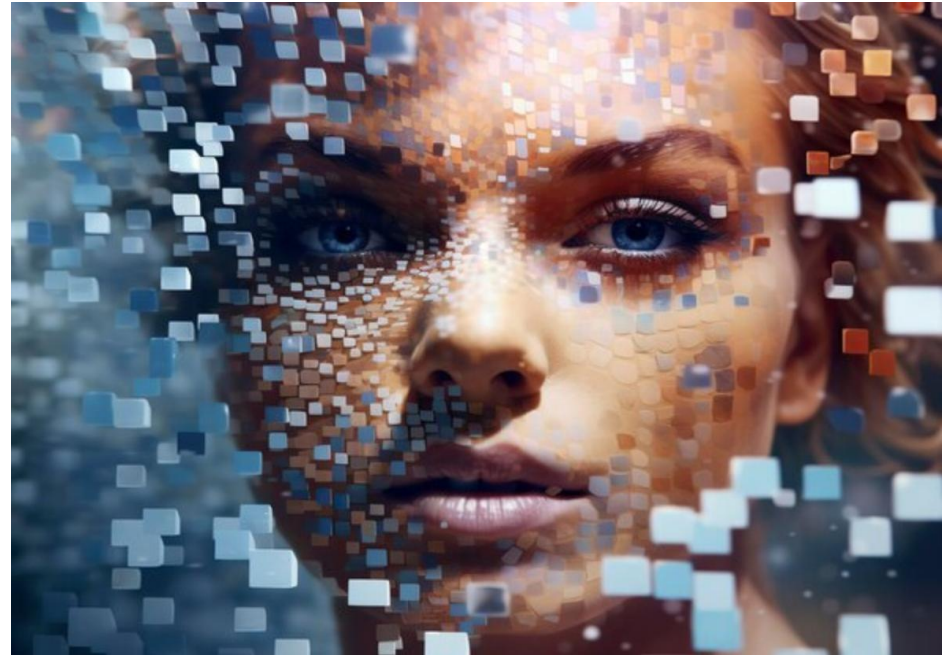
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Outline

- Background
- Exploratory field study using Bio-Well 3.0 at workshop on transformative practices
- Results and Discussion
- Study limitations
- Conclusions
- Suggestions for Future Studies

What Is Transformation?

1. A short-term change of state.
2. A substantial change in how a person experiences themselves, their relationships, or their world.
3. An enduring change in perception, meaning, self-understanding, behavior, or relationships.



This study investigates whether certain interventions at a workshop produce immediate measurable changes that might be components or correlates of a larger transformational process.

Some Practices that Can Alter a Person's State

Breathwork changes psychophysiological state (autonomic regulation)

Ecstatic dance changes embodied state (expression through dance)

Eye-gazing changes relational state (interpersonal connection)

Types of Breathwork

- Slow, controlled breathing, at a reduced rate
→ reduced arousal, relaxation, increased parasympathetic dominance
- Rapid, deep breathing with hyperventilation
→ change in arousal, altered states, potentially transformative psychological experiences (low blood CO₂, respiratory alkalosis)
- Specific patterns of inhalation, holding, and exhalation → change in arousal, altered states, and potentially transformative psychological experiences

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Ecstatic Dance

Free-form rhythmic movement with an emphasis on spontaneous expression.

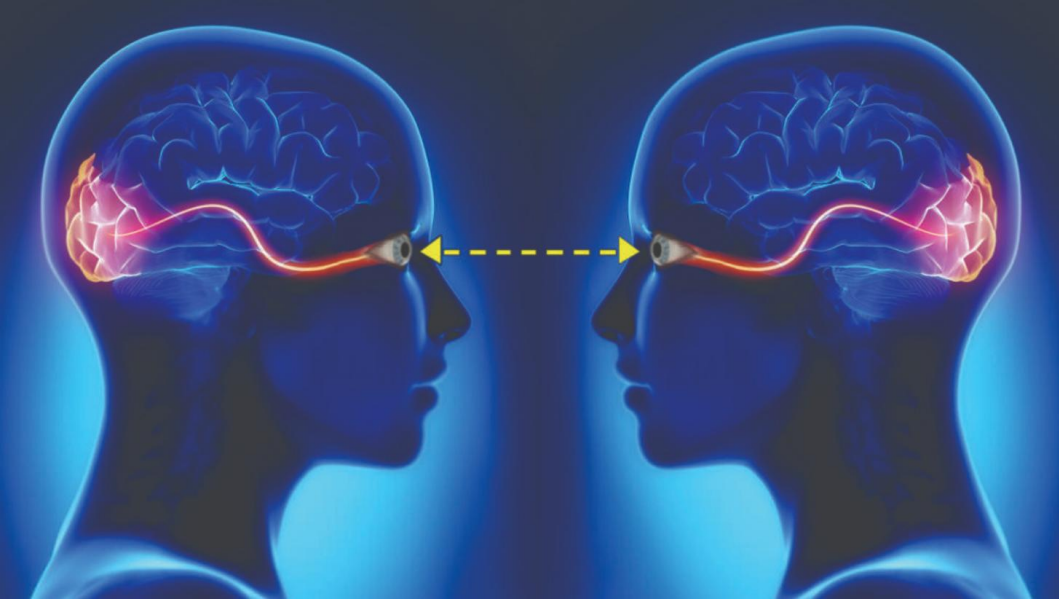
Can synchronize attention, breathing, auditory processing, and interactive movement between people.

Subjective experience: absorption, reduced self-monitoring, rhythmic entrainment, altered time perception, increased emotional arousal, increased interoceptive attention, social connectedness, and reduced habitual cognitive control.

Some practitioners say that dance can release stored trauma from the body and help heal.



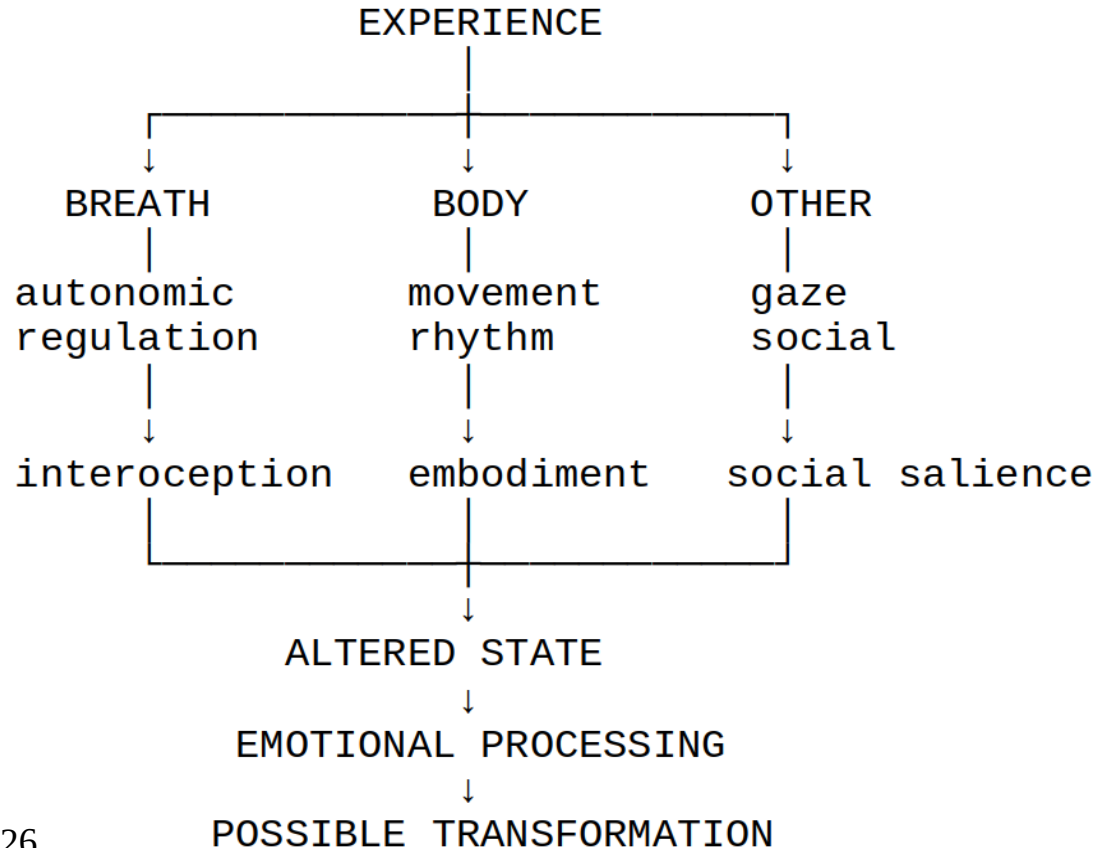
Beyond Words: The Power of Eye-Gazing



“The eyes are the windows to the soul.”

- A neural “duet”: may activate mirror neurons in the brain
- Context and relationship are key
- Not necessarily positive or calming
- Perceived loop between “other awareness” and “self awareness”
- May involve release of oxytocin and vasopressin → reduced stress, bonding, empathy, trust
- Perceived interpersonal closeness

Three Practices Target Different Levels of Being: Regulation, Embodiment, Connection



Workshop, July 2025

- Approximately 600 workshop participants, over 3 full days
- Participants were guided by workshop leader in timed sessions involving lectures, breathwork, ecstatic dance, and eye-gazing in dyads, following by sharing and discussion.
- Researcher was contracted by the workshop leader to conduct a field study at the workshop.
- This was the first scientific study on this type of workshop.

Research Question: Are transformational practices used during the workshop associated with measurable pre-post changes in Bio-Well parameters?

Subjects

Subject Attributes	
N	68
Mean Age (Std Dev)	43.4 (12)
Age Range	23 - 81
Gender	45 F, 23 M

- 100 subjects consented for the study
- All volunteers, no compensation
- Convenience sample of high diversity
- All adults, 21 years and older
- No exclusion criteria
- Study protocol and instructions were sent in advance to subjects (short fingernails, clean hands, etc.)
- Only 68 subjects completed pre-post Bio-Well testing

Guided Interventions

- Breathwork: three 20-minute sessions, specific breathing patterns
- Ecstatic dance to invigorating music: 20-minutes, once or twice daily
- Eye-gazing: walk around the room, select a partner: three 5 to 6-minute sessions



Intervention Sequence Varied Each Day

- Bio-Well testing was done pre-post each type of intervention.

1. Introduction/lecture
2. **Ecstatic dance**
3. Discussion
4. **Breathwork**
5. Discussion
6. Lunch break
7. Lecture
8. Discussion
9. **Breathwork**
10. Discussion
11. **Eye-gazing**
12. Discussion
13. **Ecstatic dance**

Study Design

- Repeated measures, pre-post intervention
- No control group
- Testing done in a quiet room outside the workshop room
- Assistants brought in subjects for testing immediately after an intervention
- 10-finger tests using Bio-Well 3.0
- 2 researchers collected data; analyses performed later
- Subjects shown test results only after the workshop
- 1,503 parameters per Bio-Well test; CSV files exported for statistical analysis
- Exploratory research → 9 parameters analyzed
- Statistical analysis: paired t-tests, Cohen's d, effect size r



Results

Bio-Well Parameters Pre-Post Breathwork

1. Increased energy

2. Decreased organ
disbalance

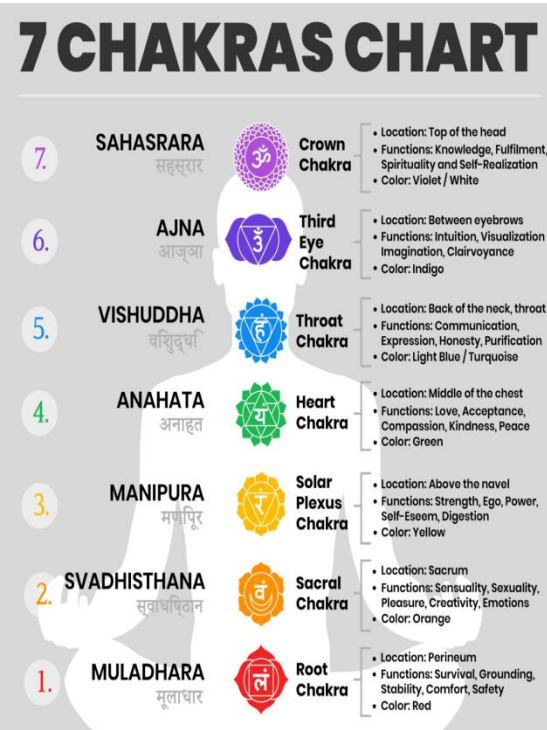
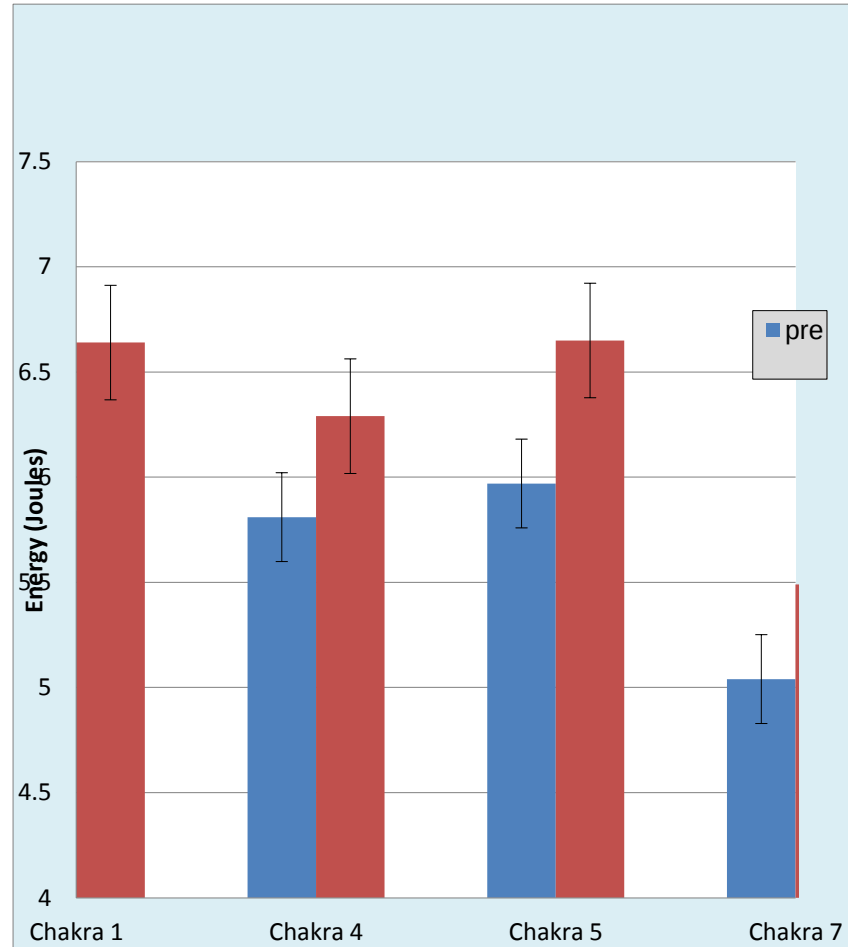
3. Increased left-right
balance

4. Stress level and chakra
alignment unchanged

Bio-Well Parameter	Pre- Breathwork	Post- Breathwork
Energy	53.27 (5.26)	58.52 (5.49)
p-value		10^{-7} *
Stress Level	2.893 (0.62)	2.836 (0.58)
p-value		0.25
% Organ Dis-balance	1.526 (5.74)	0.1 (4.59)
p-value		0.05 *
L-R Imbalance	8.3 (4.25)	6.67 (3.43)
p-value		0.03 *
Chakra Alignment	89.05 (4.09)	88.86 (4.29)
p-value		0.42

*Significant changes

Chakra Energy, Pre-Post Breathwork



Chakra		Joules (SD)	p-value
1	pre	5.84 (0.71)	
	post	6.64 (0.67)	$p < 10^{-6}$
4	pre	5.84 (0.68)	
	post	6.29 (0.55)	$p < 10^{-6}$
5	pre	5.97 (0.86)	
	post	6.65 (0.87)	$p < 10^{-5}$
7	pre	5.04 (0.56)	
	post	5.49 (0.71)	$p < 10^{-5}$

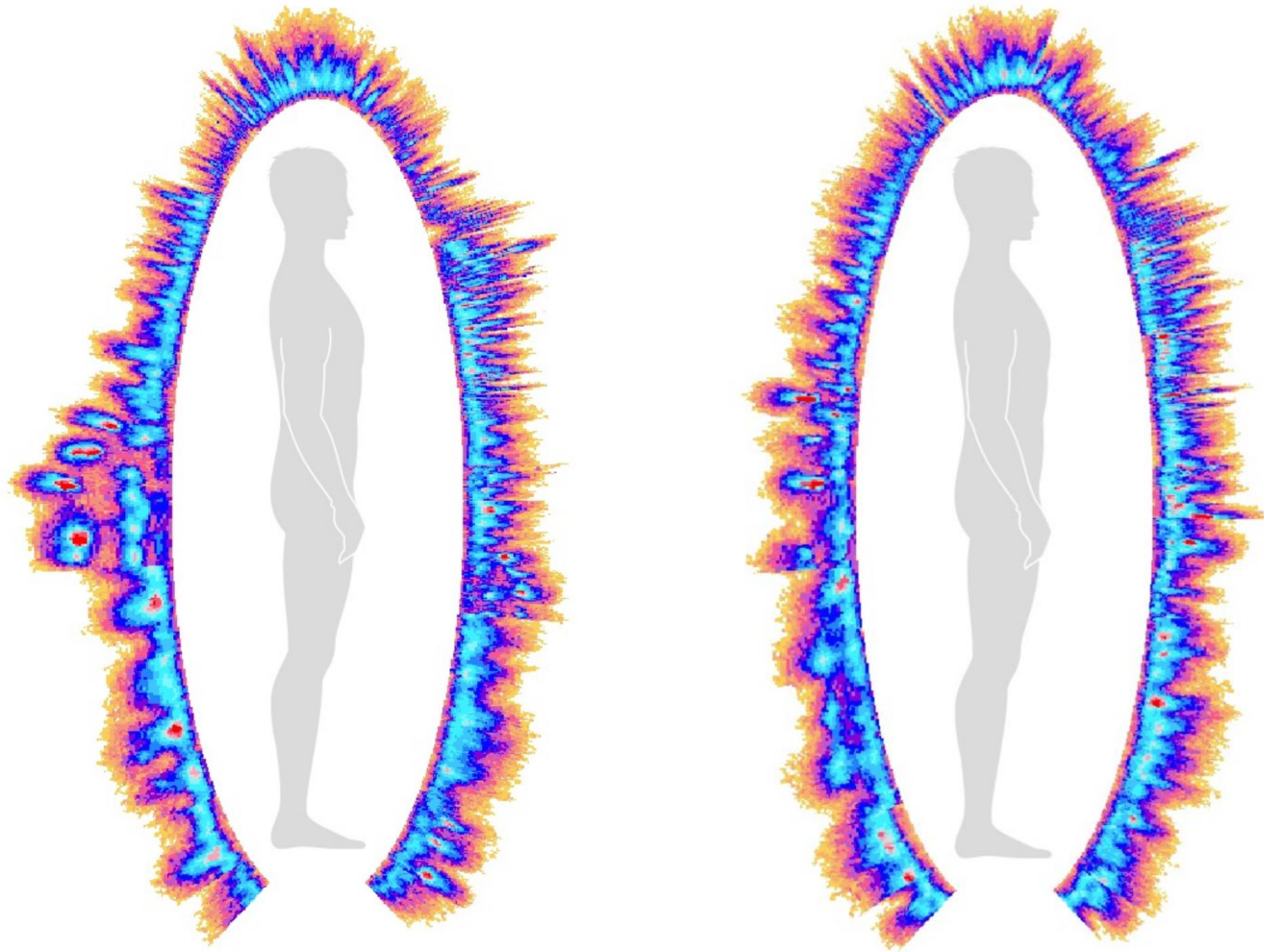
Bio-Well Parameters: Effect Sizes for Breathwork

	Chakra 1	Energy	Chakra 5	Chakra 4	Chakra 7	L-R imbalance	Organ Disbalance
Cohen's d	1.16	0.98	0.87	0.73	0.7	0.42	0.27
Effect size r	0.5	0.44	0.37	0.34	0.33	0.21	0.14

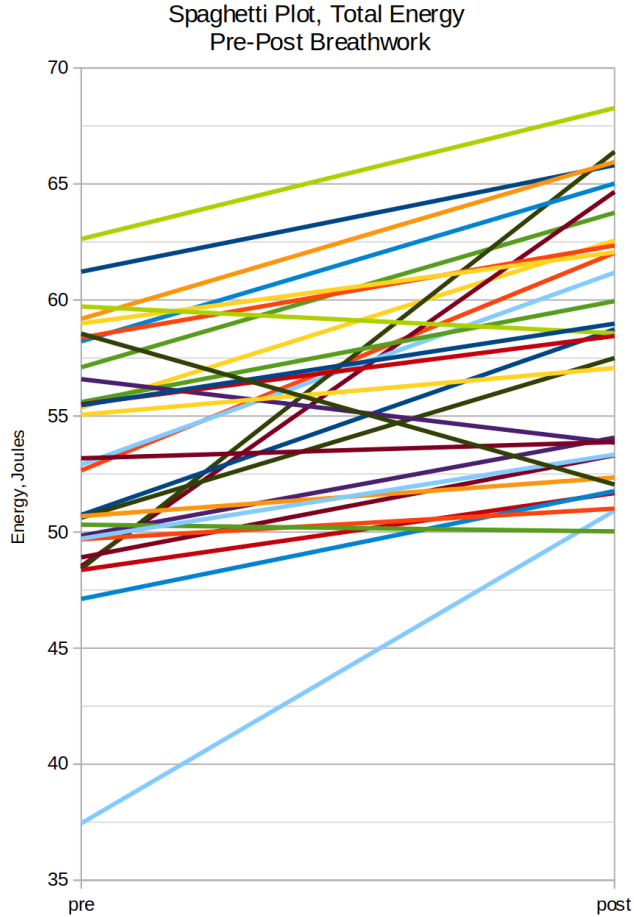
Cohen's d indicates how many standard deviations apart are the 2 measurements:
>1 very large 0.8 large 0.5 medium 0.2 small

Exploratory Individual Case: M, 77

M, 77, Pre-Post Breathwork



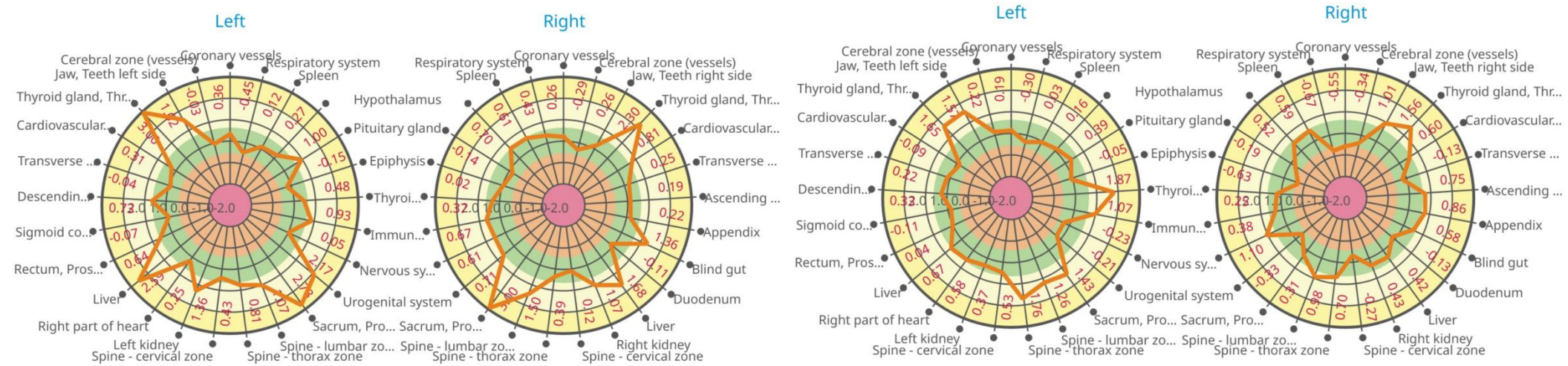
Case: M, 77, An Outlier in Breathwork Results



	Pre	Post
Group mean	53.27 (5.26)	58.52 (5.49)
M, 77	58.55	52.05

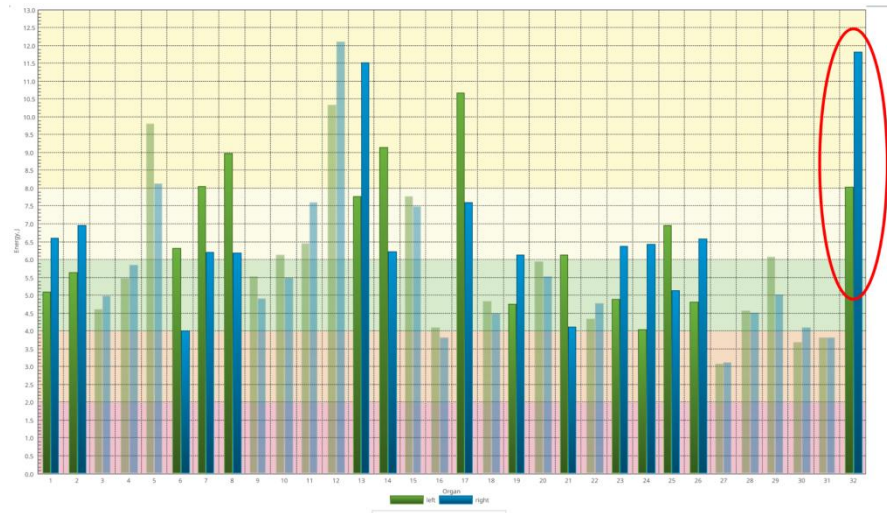
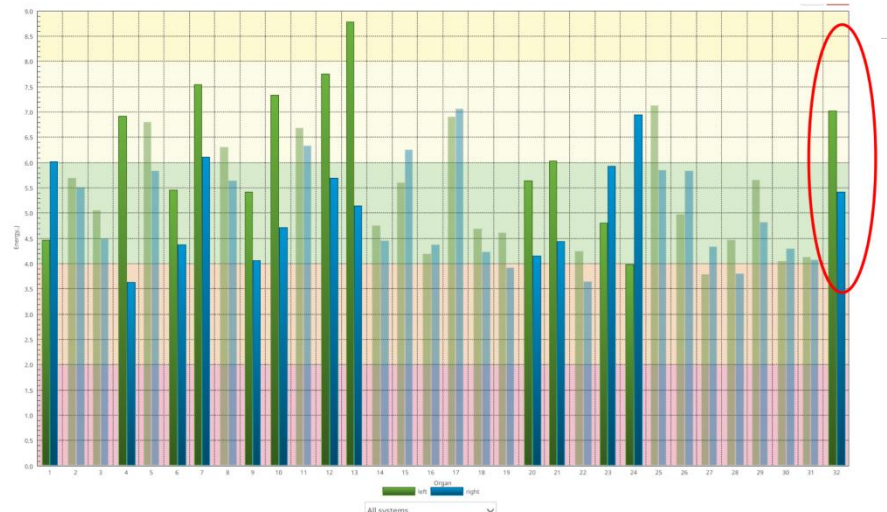
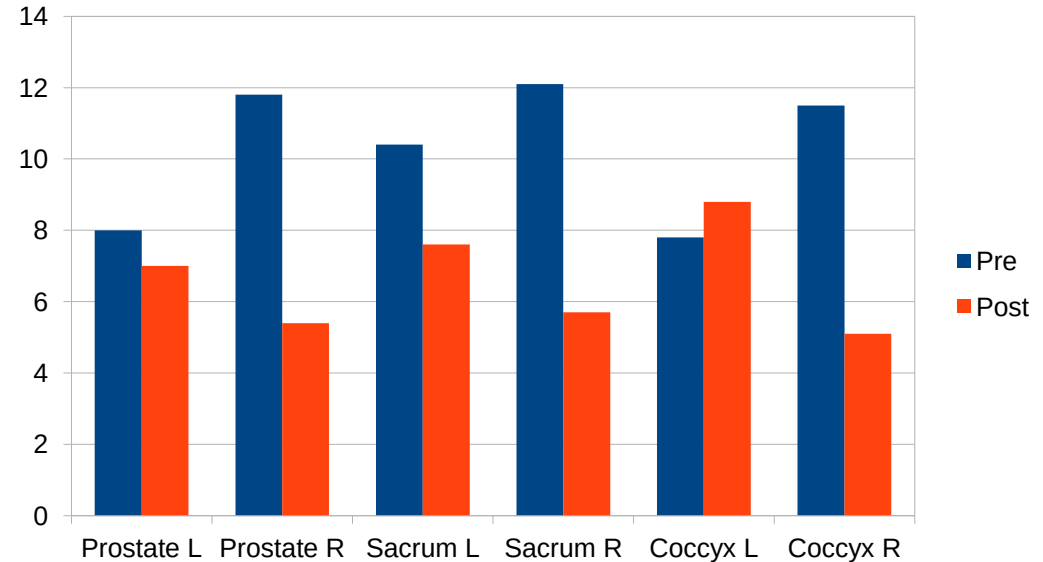
Random selection of 30 of N=68

M, 77: Area Diagram, Pre-Post Breathwork



- Subject has had prostate cancer for years, worse on right side.
- He focused on self-healing during breathwork, visualizing the tumors shrinking.
- He said that he saw the tumors “gone” before the Bio-Well post-test.
- Note: the findings cannot be interpreted as evidence of tumor regression.

M, 77, Prostate Cancer, Pre-Post Breathwork with Visualization



**“Where the mind goes, the *qi* flows
and the blood follows.”**

-- Oriental philosophy

Group Results for Ecstatic Dance and Eye-Gazing

Bio-Well Parameters, Pre-Post Ecstatic Dance

	Energy (SD)	Stress (SD)	% Organ Disbalance (SD)	L-R Imbalance (SD)	Chakra Alignment (SD)	4 th Chakra (SD)	5 th Chakra (SD)
Pre	61.02 (7.67)	3.22 (0.37)	4.68 (3.82)	7.6 (1.14)	85.06 (4.41)	6.86 (1.07)	7.08 (1.24)
Post	59.69 (7.22)	3.16 (0.53)	4.52 (4.73)	8.2 (4.44)	88.63 (3.82)	6.17 (0.72)	7.07 (0.59)
p-value	0.3	0.38	0.48	0.39	0.14	0.02 *	0.17

4th Chakra energy decreased significantly. No other significant changes. Cohen's d = 0.76; effect size r = 0.35

Bio-Well Parameters, Pre-post Eye-Gazing

	Energy (SD)	Stress (SD)	% Organ Disbalance (SD)	L-R Imbalance (SD)	Chakra Alignment (SD)	4 th Chakra (SD)	5 th Chakra (SD)
Pre	56.39 (4.17)	2.87 (0.41)	1.342 (3.34)	7.47 (1.36)	90.31 (2.63)	6.144 (0.61)	6.26 (0.95)
Post	56.38 (3.13)	2.93 (0.56)	2.15 (7.80)	8.4 (3.87)	91.09 (2.64)	6.143 (0.60)	6.53 (0.79)
p-value	0.5	0.26	0.11	0.17	0.16	0.49	0.1

No significant differences

Summary of Results

- The 3 types of intervention were associated with different patterns of Bio-Well change.
- Breathwork produced the most widespread response among the Bio-Well parameters examined—significantly greater energy, left-right balance, and organ balance.
- Ecstatic dance showed one nominally significant change among the 9 Bio-Well parameters: a decrease in 4th chakra energy. (This requires replication.)
- Eye-gazing did not show a detectable change in the 9 Bio-Well parameters.
- Individual case showed that an “outlier” with a specific aim who used visualization showed changes in Bio-Well that were particularly meaningful to his condition.

NOTE: Because this was an exploratory pilot study, no formal statistical correction for multiple comparisons was made.

Conclusions

- Demonstrates the feasibility of using Bio-Well to study large groups in a real-world workshop setting.
- Breathwork was associated with increases in several Bio-Well energy parameters and improvements in left-right and organ balance.
- An exploratory individual case illustrated the potential value of examining individual response patterns in addition to group averages.
- Results are consistent with breathwork as a well-known method for changing psychophysiology by altering ANS function.

Discussion

- The 3 types of interventions target different levels and were associated with different patterns seen in Bio-Well. This suggests potentially different pathways toward transformation.
- The present study examined immediate bioenergetic correlates of transformational practices rather than transformation itself.
- Transformation may not result from any single intervention—it may emerge from shifting repeatedly between the different modes of altered physiology, embodied experience, and interpersonal connection.
- Eye-gazing was brief and involved changing dyads with 3 encounters. Although no significant Bio-Well changes were found, this does not mean the absence of effect. Because this interaction is interpersonal, a dyadic analysis may be more appropriate than examining each participant independently.
- This study was exploratory. Findings are preliminary but hypothesis-generating.

Study Limitations

- Single group; lacked randomization of subjects into test and control groups
- Uncontrolled, potential confounding variables in the “real world.”
- Interventions were not isolated; preceding ones may have produced order effects and carryover effects.

Laboratory Studies vs. Real World Human Studies

- Controlled; standardized
 - Control of confounders
 - Limited sample diversity
 - Ability to replicate: high
 - Generalizability: uncertain
 - Unexpected factors: minimized
 - Intervention → outcome
- Natural; variable
 - Confounders abound: music, other people, expectations, etc.
 - Broader sample diversity
 - Replication more difficult
 - Often a major strength
 - Abundant
 - Intervention + environment + people + expectations + context + uncontrolled events → outcome

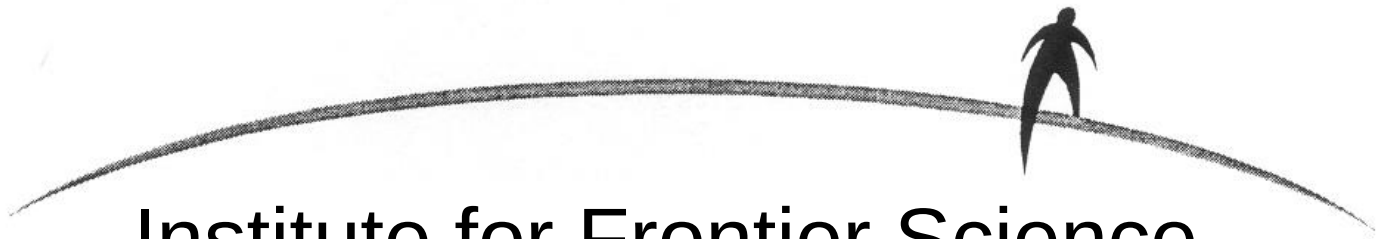
The biggest advantage of field research: people behave like people!

Suggestions for Further Research

- Does analysis of remaining 1,494 Bio-Well parameters reveal different bioenergetic patterns of change for the 3 interventions? Rich dataset that would require further validation.
- Does the time sequence in which the interventions are performed affect the results?
- Use a control group and randomization to improve the study design.
- Examine more individual cases in addition to group measures.
- Look for dyadic synchrony between eye-gazing partners.
- Obtain subjective reports of transformational experience.
- Do changes in Bio-Well parameters correlate with subjective reports of transformational experience?
- Use Bio-Well along with other devices to test whether Bio-Well parameters co-vary with established measures of autonomic, psychological, and interpersonal states.

The “Bottom Line”

- This study measured immediate Bio-Well changes associated with transformational practices—not transformation itself.
- Key research questions:
 - do different transformational practices produce distinguishable patterns of biofield change?
 - Can those patterns be linked to subjective experiences of transformation and independently measured changes in psychological, physiological, embodied, and interpersonal states?



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