STUDY REPORT · SEPTEMBER 2026

C3I

CANINE COMFORT AND CALMNESS INDEX

Owner-Reported and Biometric Outcomes of VIBE PEMF Therapy in Companion Dogs — Results from 25 Paired Dogs

COMFORT
Pain & Physical Function

−1.16
p = 0.005 · lower is better

CALMNESS
Anxiety & Behavior

−0.66
p = 0.044 · lower is better

OVERALL
Quality of Life

−0.77
p = 0.004 · lower is better

25
paired dogs

72%
improved on C3I

100%
owners reported a benefit

−0.93
mean change, p = 0.004

Resona Health · Prime Pet Rehab · Mark L Fox, Principal Investigator · Tom Walsh, DVM, Veterinary Investigator

Contents

Version 3 — this revision adds Dr. Walsh's "new normal" recalibration hypothesis to the Discussion (Section 5) with a corresponding limitation and a survey recommendation, and corrects a participant label in Appendix B. No data or statistics changed from Version 2.

SECTION 1

1. Executive Summary

This study evaluated the VIBE pulsed electromagnetic field (PEMF) device in 31 client-owned dogs enrolled through Prime Pet Rehab between March and May 2026. Each dog was assessed with the Canine Comfort and Calmness Index (C3I), a 23-item owner-reported instrument, before therapy and again after 30–60 days of home use. A wearable biometric collar (Invoxia Minitailz) recorded heart rate, heart rate variability, respiratory rate, sleep, and activity throughout, with the first seven days serving as a no-therapy baseline.

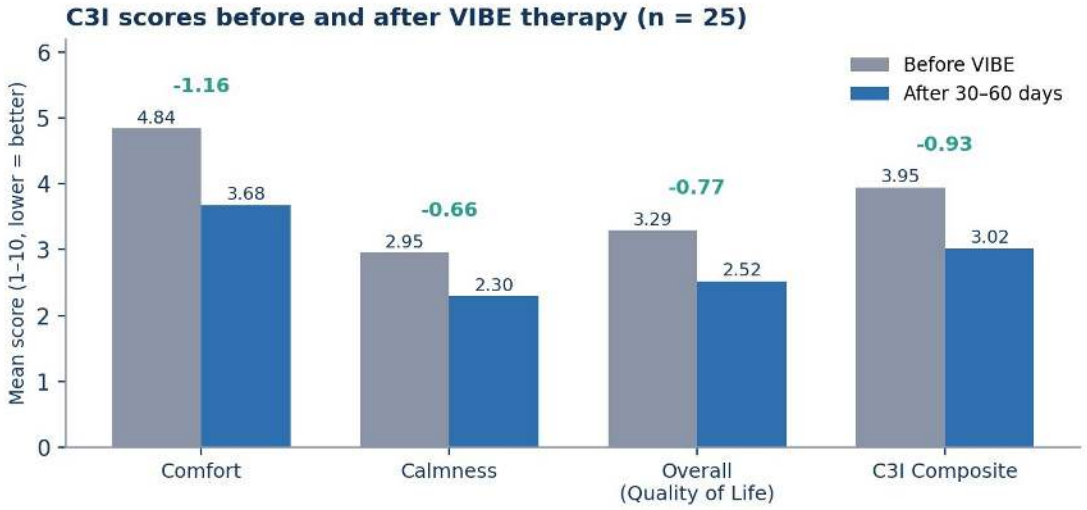


Figure 1. Mean C3I subscale and composite scores before and after VIBE therapy. Lower is better.

Principal findings, as of September 9, 2026:

- **Owner-reported outcomes improved significantly.** Across 25 paired dogs, the C3I composite score fell from 3.95 to 3.02 (change −0.93, p = 0.004, Cohen's d = 0.65; lower is better). Eighteen of 25 dogs improved. Comfort (pain and mobility) showed the largest change (−1.16, p = 0.005), followed by the Overall subscale (−0.77, p = 0.004) and Calmness (−0.66, p = 0.044).
- **Every owner reported a benefit.** All 25 owners described a positive effect of the VIBE in free-text responses, most commonly reduced pain and stiffness, more energy and play, calmer behavior, and better sleep. The written narratives are more uniformly positive than the numeric scores; the discrepancy is explained by documented scale-direction errors in a minority of surveys and, plausibly, by recalibration of owners' reference point over the study period (Section 5).
- **The finding is robust to sensitivity analysis.** Excluding two dogs whose surveys contradict the attending veterinarian's clinical assessment strengthens the result (−1.15, p < 0.001). Excluding all five dogs whose written comments contradict the direction of their numeric scores strengthens it further (−1.39, p < 0.001).

- **Biometric changes were heterogeneous.** Across 28 dogs with adequate collar data, group-level changes in resting heart rate, heart rate variability, respiratory rate, sleep and activity were small and not statistically significant. However, seven dogs (25%) showed heart rate variability gains of 20% or more, and four of these (Bear, Max, Diesel, and Gracie — the last with a probable device artifact) improved concurrently on heart rate, HRV and respiratory rate.
- **Biometric and owner-reported outcomes were not correlated at the individual level.** Owners report changes in behavior, mobility and demeanor; the collar measures autonomic tone at rest. These are related but distinct constructs, and the study was not powered to detect a physiological effect of the size observed. A recalibration ("new normal") mechanism proposed by the veterinary investigator would predict exactly this pattern and would mean both the numeric C3I and the biometrics understate the effect owners observed.

Bottom line

30–60 days of home VIBE therapy was associated with a moderate, statistically significant improvement in owner-assessed comfort and calmness, with unanimous qualitative endorsement by owners. Wearable biometrics identified a subset of strong physiological responders but did not show a group-level effect. The study design is uncontrolled and the results should be interpreted as hypothesis-generating rather than confirmatory.

SECTION 2

2. Background and Objectives

The VIBE is a wearable PEMF device manufactured by Resona Health. It delivers low-intensity pulsed electromagnetic fields through a coil placed against the body and offers a library of frequency protocols intended to support pain relief, relaxation, sleep, and recovery. For canine use it is worn in a vest or harness.

Prime Pet Rehab is a veterinary rehabilitation practice under the direction of Tom Walsh, DVM. Many of its patients are older dogs with chronic musculoskeletal pain, post-surgical recovery needs, or anxiety-related behavioral concerns — a population for which owners frequently seek non-pharmacological adjuncts.

The study had two objectives:

- Primary: to measure change in owner-reported comfort and calmness after 30–60 days of home VIBE therapy, using the C3I instrument.
- Secondary: to collect continuous wearable biometric data in the same dogs, establish a no-therapy baseline, and assess whether physiological measures changed alongside owner-reported outcomes. This biometric layer is the basis for the PRANA composite score under development.

SECTION 3

3. Methods

3.1 Design

Single-arm, open-label, pre/post observational study in client-owned dogs. There was no control group and no blinding. Owners completed the C3I at enrollment (pre-survey) and again after 30–60 days of therapy (post-survey). The median interval between surveys was 81 days (range 53–111).

3.2 Participants and procedure

Thirty-one dogs were enrolled between March 28 and May 15, 2026, each assigned a participant number (C001–C031) in order of enrollment. The study population is defined by completion of the pre-survey; dogs present in the Invoxia account without a pre-survey are not participants and are excluded from all analyses. At enrollment the owner completed the C3I pre-survey; VIBE protocols were recommended from the intake responses. Each dog was sent home with a VIBE, a vest or harness, and an Invoxia Minitailz biometric collar. Owners were instructed to have the dog wear the collar for approximately one week before beginning VIBE protocols, so that the first seven days of each biometric record represent a no-intervention baseline. Owners then ran the recommended protocols at home for 30–60 days and completed the post-survey.

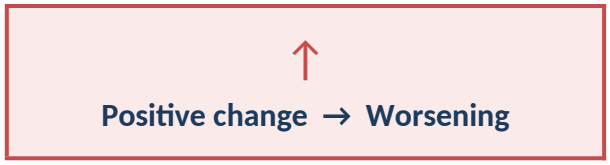
Study consent obtained at enrollment covers the use of dog names, survey responses, and biometric data in Resona Health reporting and communications.

3.3 The C3I instrument

The Canine Comfort and Calmness Index is a 23-item owner-reported questionnaire. Each item is rated 1–10 with lower scores indicating a better state. Items are grouped into three subscales:

- **Comfort (Q1–Q10):** pain intensity at worst, best and average; effect of pain on activity, walking, running and play, rising, and enjoyment of life; stiffness after activity and after rest.
- **Calmness (Q11–Q20):** tension, startle and fearfulness, separation stress, restlessness, hypervigilance, difficulty settling, anxiety around noises, visitors and new places, and the effect of anxiety on rest and daily behavior.
- **Overall (Q21–Q23):** global quality of life, physical discomfort, and emotional stress.

Subscale scores are the mean of their items. The C3I composite is a weighted mean: 50% Comfort, 35% Calmness, 15% Overall. Change is calculated as post minus pre, so a negative change indicates improvement.



The C3I protocol defines interpretation bands for a change score: −1.0 to −1.5 is a noticeable improvement, −2.0 to −3.0 a strong improvement, and −3.0 or more a major transformation. Absolute scores of 1–3 indicate minimal or no impairment, 4–6 moderate, 7–8 significant, and 9–10 severe.

Note: Q2 ("At its best, how little pain did your dog seem to have?") is worded in the opposite direction from the other items. It was retained unchanged for this study to preserve pre/post comparability and will be corrected in C3I version 2.

3.4 Biometric data and PRANA v1

The Invoxia Minitailz collar records heart rate, heart rate variability (RMSSD and SDNN), respiratory rate, activity minutes, and a sleep score, summarized daily. Data were exported from the Invoxia veterinary dashboard on September 9, 2026. Non-study dogs sharing the account (customer and personal dogs with no pre-survey), duplicate profiles created during setup, and dogs with fewer than 21 days of data were excluded, leaving 28 study dogs.

For each dog, the first seven days of the record were taken as the no-therapy baseline and compared with the final 14 days of the record. PRANA v1 is a composite score with five weighted domains — cardiorespiratory (26%), HRV (22%), Poincaré geometry (22%), sleep (18%), and activity (12%) — each expressed as a ratio of the therapy window to the dog's own baseline. In this first implementation each domain ratio is clipped to 0.5–1.5 and scaled so that a dog unchanged from baseline scores 66.7 and a dog improved by 50% or more scores 100. Full beat-to-beat RR-interval data were available only for the

final seven days of each record, so the Poincaré domain uses the daily Poincaré angle ratio as a substitute. The PRANA scaling is provisional and will be refined.

3.5 Statistical analysis

Pre/post change was tested with the paired t-test and the Wilcoxon signed-rank test; effect size is Cohen's d for paired differences. Three pre-specified analyses of the C3I composite are reported: (A) all paired dogs; (B) excluding two dogs (C008 Louise, C017 Poppy) whose numeric scores worsened despite the veterinary investigator's assessment of marked clinical improvement; and (C) a symmetric exclusion of all dogs whose written comments contradict the direction of their numeric change, in either direction. Concordance between C3I change and biometric change was assessed by Spearman correlation. No scores were altered in any analysis.

SECTION 4

4. Results

4.1 Cohort

Thirty-one dogs enrolled; 25 (81%) returned a post-survey and form the analysis set. One owner (three dogs: Max, Boomer, Buddy Joe) submitted separately for each dog; one duplicate post-survey (Watson) was resolved by retaining the later submission. Six enrolled dogs without a post-survey (Jambo, Dakota, Gracie, Wally, Bella, Bentley) had a somewhat higher mean baseline C3I (4.58) than responders (3.95), so non-response does not appear to be driven by milder cases. Twenty-nine of the 31 dogs had collar data; Poppy and Bentley did not. Breeds were mixed, predominantly medium-to-large, and most dogs were senior with chronic orthopedic conditions.

4.2 Primary outcome: C3I change

Table 1 summarizes the group results across the three analysis sets. In the full sample, the composite improved by 0.93 points (p = 0.004, d = 0.65) with 18 of 25 dogs improving. All three subscales improved; Comfort showed the largest absolute change.

Table 1. C3I pre/post change by subscale and analysis set (lower score = better).

Measure	Pre	Post	Change	Improved	Cohen's d	p (paired t)
A. All paired dogs (n = 25)						
Comfort	4.84	3.68	−1.16	16/25	0.62	0.005
Calmness	2.95	2.30	−0.66	16/25	0.43	0.044
Overall	3.29	2.52	−0.77	17/25	0.63	0.004
C3I composite	3.95	3.02	−0.93	18/25	0.65	0.004
B. Excluding C008 and C017 (n = 23)						
Comfort	4.82	3.43	−1.39	16/23	0.78	0.001
Calmness	2.86	1.97	−0.88	16/23	0.64	0.006
Overall	3.19	2.23	−0.96	17/23	0.89	<0.001
C3I composite	3.89	2.74	−1.15	18/23	0.90	<0.001
C. Excluding text/score discordant dogs (n = 20)						
Comfort	5.08	3.36	−1.71	16/20	1.01	<0.001
Calmness	2.98	1.94	−1.03	15/20	0.74	0.004
Overall	3.40	2.25	−1.15	16/20	1.16	<0.001
C3I composite	4.09	2.70	−1.39	17/20	1.19	<0.001

Analysis B excludes Louise (C008) and Poppy (C017). Both dogs were assessed by Dr. Walsh as dramatically improved; Poppy's owner wrote one of the most detailed improvement narratives in the

study (Appendix C). Their numeric scores nonetheless moved in the worsening direction, consistent with the scale having been read as 10 = good. Analysis C applies the same logic symmetrically, removing five dogs whose written comments clearly contradict their numeric direction: Cash, Louise, Poppy and Tony (scores worsened, comments describe improvement) and Boomer (score improved, comment negative). Both exclusions strengthen rather than weaken the primary finding, which indicates that the scale-direction errors are attenuating a real effect.

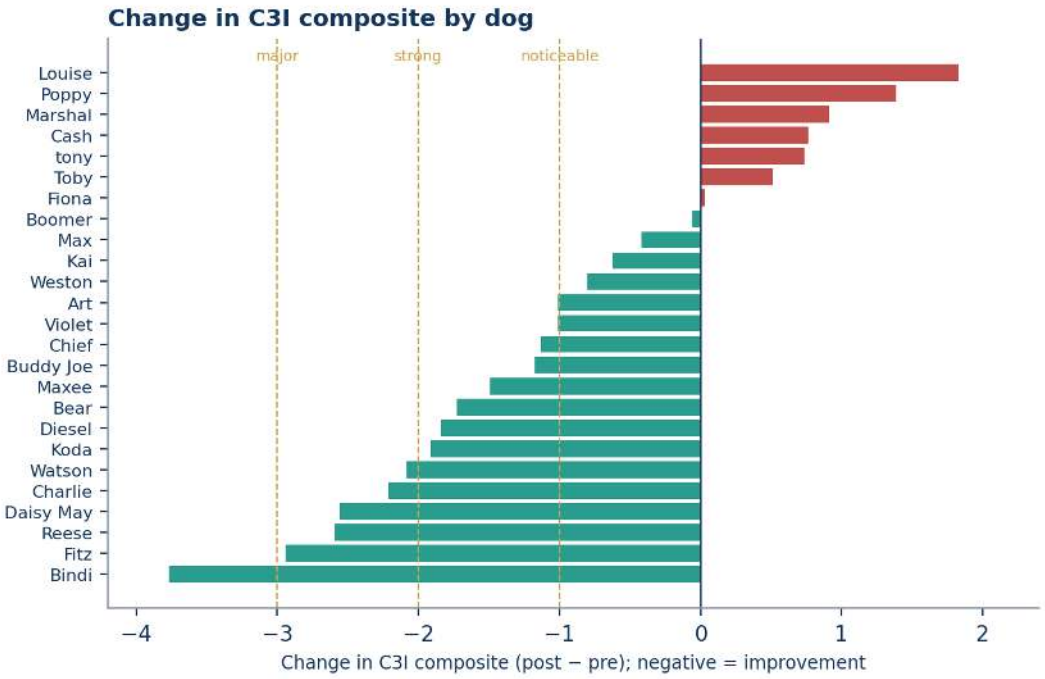


Figure 2. Change in C3I composite for each of the 25 paired dogs. Dashed lines mark the protocol interpretation bands.

Against the C3I interpretation bands, 14 of 25 dogs reached at least a noticeable improvement (−1.0 or better), six reached a strong improvement (−2.0 or better), and one (Bindi, −3.77) a major transformation. The number of dogs in the minimal-impairment range (composite ≤ 3.5) rose from 8 before therapy to 18 after.

Per-dog C3I results are given in Appendix A. The largest improvements were Bindi (−3.77), Fitz (−2.94), Reese (−2.59), Daisy May (−2.56), Charlie (−2.22) and Watson (−2.09).

4.3 Owner narratives

The post-survey included two free-text fields: a neutral prompt to describe the dog's condition over the past seven days (present on both surveys) and a question about what the owner liked most about the study and the VIBE. All 25 owners described a benefit in at least one field. Table 2 groups the reported effects.

Table 2. Effects reported by owners in free-text responses (dogs may appear in more than one category).

Reported effect	Dogs	Named dogs
Less pain, stiffness, or lameness; moving better	14	Poppy, Art, Koda, Bindi, Violet, Fitz, Maxee, Tony, Cash, Marshal, Buddy Joe, Boomer, Kai, Diesel

Reported effect	Dogs	Named dogs
More energy, longer walks, more play	10	Louise, Charlie, Watson, Poppy, Koda, Reese, Diesel, Violet, Chief, Cash
Calmer, less anxious or reactive	11	Weston, Art, Poppy, Marshal, Bindi, Kai, Fiona, Violet, Diesel, Chief, Tony
Better sleep or less night-time restlessness	7	Poppy, Art, Daisy May, Toby, Kai, Diesel, Marshal
Improved appetite	2	Poppy, Fitz
Reduced or avoided medication	3	Weston (trazodone discontinued), Bear, Koda
Effect noticed within one to two weeks	4	Poppy, Weston, Watson, Art
Dog tolerates or enjoys wearing the device	5	Tony, Kai, Chief, Art, Poppy

Representative statements include: "It is like she is 2 years old again" (Louise); "We even stopped his trazodone in the evenings because he was so mellow with the vibe" (Weston); "Now I can see his spark is back" (Koda); "I noticed changes happening within a week" (Poppy); and "It is very obvious that it is helping him. He loves wearing it" (Chief). The full condition narratives are reproduced in Appendix C.

Owners also raised two usability points: the need to remove and refit the harness to change protocols, and a wish to queue or stack protocols from an app.

4.4 Biometric outcomes

Twenty-eight study dogs had at least 21 days of collar data (median 92 days; range 37–200). Table 3 compares each dog's seven-day no-therapy baseline with its final 14 days on protocol.

Table 3. Biometric change from baseline week to final two weeks (n = 28).

Measure	Mean change	Better	p (Wilcoxon)
Resting heart rate (BPM)	−0.7	15/28	0.90
Respiratory rate (breaths/min)	+0.7	11/28	0.15
HRV — RMSSD (ms)	+8.2	18/28	0.55
HRV — SDNN (ms)	+3.3	17/28	0.71
Sleep score	−0.7	11/26	0.43
PRANA v1 composite (baseline = 66.7)	66.8	13/28 above baseline	—

No group-level measure reached statistical significance. The distribution of individual responses was wide, however. Seven dogs (25%) increased RMSSD by 20% or more, and four dogs improved on heart rate, HRV and respiratory rate simultaneously:

- Gracie: resting heart rate 89 → 53 BPM; RMSSD 218 → 481 ms (+121%); respiratory rate 18.0 → 17.5. (No post-survey.)
- Bear: 69 → 56 BPM; RMSSD 347 → 538 ms (+55%); respiratory rate 14.1 → 12.2.
- Max: 61 → 51 BPM; RMSSD 532 → 722 ms (+36%); respiratory rate 15.2 → 12.0.
- Diesel: 70 → 63 BPM; RMSSD 399 → 502 ms (+26%).

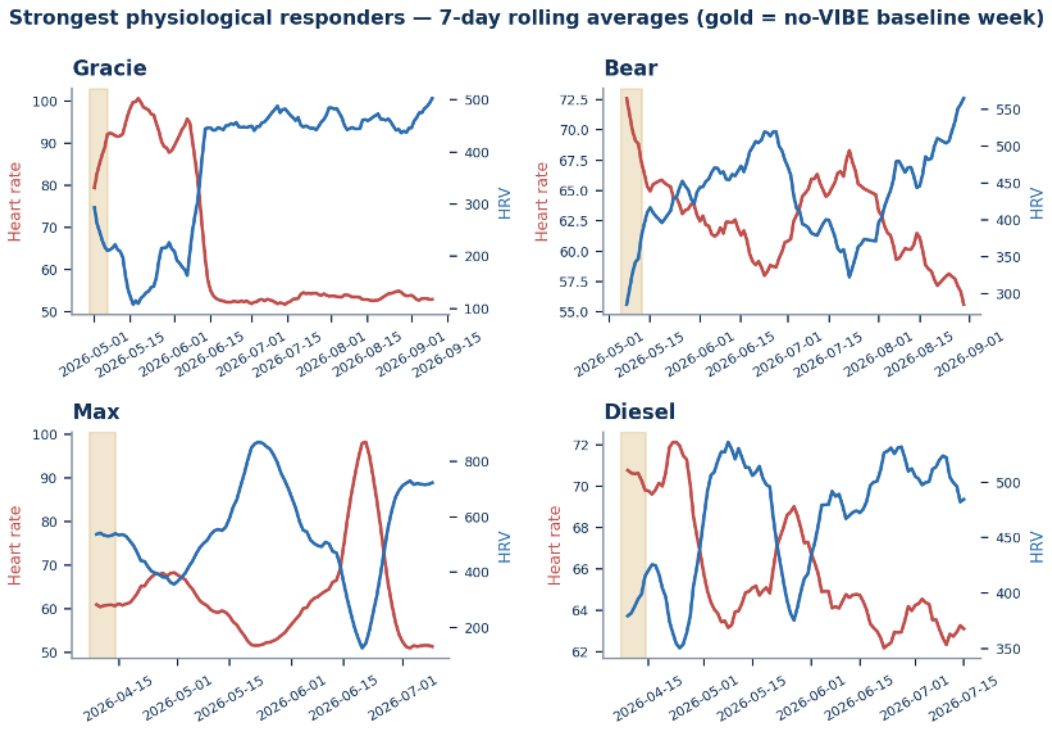


Figure 3. Seven-day rolling heart rate (red) and HRV (blue) for the four strongest responders. Gold shading marks the no-VIBE baseline week. Max's mid-June spike coincides with the surgery his owner reported during the trial.

Gracie's record requires caution. Her heart rate and HRV shift abruptly in early June — a step change over one or two days rather than a gradual trend — which is more consistent with a change in collar fit, placement, or firmware than with a physiological response. Bear, Max and Diesel show gradual, sustained changes that are more credible as therapy effects.

Four dogs lost 20% or more of baseline HRV (Fitz, Marshal, Violet, Art). Marshal's final window shows resting heart rate rising from 69 to 90 BPM with RMSSD halved, which warrants veterinary follow-up independent of the study.

Baseline weeks fell mostly in April and May; final windows fell in June through September. Florida summer heat raises resting heart rate and respiratory rate, so seasonal confounding acts against detection of a therapeutic effect on these two measures. Per-dog biometric results are given in Appendix B.

4.5 Concordance between owner-reported and biometric change

Among the 24 dogs with both a paired C3I and adequate collar data, individual-level correlation between C3I change and biometric change was negligible (Spearman ρ = 0.07 for RMSSD, −0.08 for heart rate, −0.03 for PRANA v1; all p > 0.7). Of the 18 dogs whose C3I improved, 13 gained HRV and 11 lowered heart rate; of the six whose C3I did not improve, three did each. Six dogs were concordant on both layers with substantial changes in each: Bear, Diesel, Max, Watson, Kai and Chief.

SECTION 5

5. Discussion

The primary outcome is clear and consistent: owners reported meaningful improvement in their dogs' comfort and calmness after 30–60 days of home VIBE therapy, the effect was moderate in size, and it survived every pre-specified sensitivity analysis. The Comfort subscale — pain, mobility and stiffness — carried the largest change, consistent with the predominantly orthopedic case mix and with the free-text reports of easier rising, longer walks and renewed play.

The qualitative record is stronger than the quantitative one. Every owner described a benefit, yet seven of 25 numeric composites moved in the worsening direction. Review of those seven surveys shows that in at least four cases the owner's written account describes clear improvement while the numbers describe decline, the pattern expected when a respondent treats 10 as "good" on a scale where 1 is best. The two dogs Dr. Walsh singled out as dramatic clinical successes, Louise and Poppy, are both in this group. The direction and size of the sensitivity analyses confirm that these errors are diluting, not producing, the main result. The Google Form has since been amended with prominent scale-direction reminders for future cohorts.

The biometric layer tells a more nuanced story. As a group, resting physiology did not shift measurably, and biometric change did not track owner-reported change dog by dog. This should not be read as contradicting the owners. The C3I captures what owners observe: limping, getting up, playing, settling, sleeping through the night. The collar captures autonomic tone at rest. A dog can move more freely and behave more calmly without its resting heart rate changing, particularly against a summer heat load that pushes heart and respiratory rate upward. At the same time, a quarter of dogs showed HRV gains of 20% or more and four improved across every cardiorespiratory measure at once — changes large enough to be clinically interesting in their own right and worth examining for what distinguishes those dogs (protocol selection, adherence, baseline condition, or body size).

Recalibration to a "new normal"

A further explanation for the gap between the owner narratives, the numeric C3I scores, and the biometrics was proposed by the veterinary investigator during review of the data. Dogs adapt rapidly to a changed state, better or worse, and take it as their baseline: a dog that loses a leg does not dwell on it, and within a short time three legs is simply how it moves. Owners adapt alongside their dogs, and the same is familiar in human patients, who after a month of feeling better have largely forgotten how bad they felt before.

In patient-reported outcome research this is a well-documented phenomenon known as response shift, or recalibration. The internal standard against which a respondent rates "current condition" moves as the condition itself changes, so a current-state rating can stay flat — or drift — even while the underlying state has improved substantially. An owner completing the C3I post-survey rates the dog against last week, not against April. The free-text prompts, which invite a comparison with the past, are less affected by this shift, which is consistent with the written accounts being more uniformly positive

than the numeric change scores. Recalibration is therefore a second mechanism, alongside the scale-direction errors, by which the numeric result would understate the improvement owners observed.

The same mechanism applies to the physiology, and may be the more important application. Most study dogs were seniors whose orthopedic or behavioral conditions had been present for months or years. By enrollment, each dog's autonomic set point had already adjusted to living with that condition, so the baseline week captured an adapted animal rather than an acutely distressed one. When comfort improves, the system is expected to recalibrate again rather than to sustain a markedly lower resting heart rate. The improvement is expressed where owners see it — rising, walking, playing, settling — and not necessarily in resting autonomic tone, which is what the collar measures. If this account is correct, both the numeric C3I result and the group biometric result are conservative, and the subset of dogs with large concurrent physiological changes may represent those whose baseline condition was most recent or most severe.

This is offered as a hypothesis. It explains an absence of signal, which is easier than predicting one, and it should be tested directly rather than assumed. The transition question recommended in Section 8 is the standard control for response shift in owner-reported measures, and recording the duration of each dog's condition at enrollment would allow the physiological version of the hypothesis to be examined in the next cohort.

The PRANA v1 composite in its current provisional form did not separate responders from non-responders. Its scaling, the substitution for the Poincaré domain, and the weighting of domains are all open for revision, and the present data set provides the first empirical basis for doing so.

SECTION 6

6. Limitations

- No control group and no blinding. Owner expectation, regression to the mean, concurrent treatments (several dogs were on NSAIDs, gabapentin, supplements or physical therapy), and natural recovery cannot be separated from the effect of the device.
- Scale-direction errors in a minority of surveys attenuate the numeric result and required post hoc, judgment-based identification. The judgments are documented and applied symmetrically, and all three analyses are reported.
- Response shift: owners' reference standard for "normal" — and the dog's own physiological set point — is expected to move over a 30–60 day period, attenuating current-state ratings and resting-physiology change alike (Section 5). The post-survey contained no transition item to control for this.
- Twenty-five of 31 dogs returned a post-survey. Non-responders had slightly worse baseline scores.
- Seasonal confounding: baselines in spring, endpoints in summer.

- Adherence to protocols and actual daily VIBE use were not recorded and could not be related to outcome.
- Sample size supports detection of moderate effects in owner-reported measures but not small physiological effects.
- PRANA v1 is provisional; the Poincaré domain uses a substitute metric because full RR-interval data are retained for only the most recent seven days.

SECTION 7

7. Conclusions

In 25 client-owned dogs treated at home with the VIBE PEMF device for 30–60 days, owner-assessed comfort and calmness improved by a moderate and statistically significant margin, with 72% of dogs improving on the composite score and 100% of owners describing a benefit in their own words. Improvement was greatest in pain and mobility. Wearable biometrics did not show a group-level physiological change but identified a subset of dogs with large concurrent improvements in heart rate and heart rate variability. Two documented mechanisms — scale-direction errors and recalibration of the owner's and the dog's reference point — both act to understate rather than overstate the effect. The results justify a controlled follow-up study with a corrected C3I instrument, a transition item, recorded device usage, season-matched baselines, and a pre-registered PRANA scoring rule.

SECTION 8

8. Recommendations

- Deploy C3I v2 with unambiguous scale anchors and Q2 reworded to match the other items; retain v1 data as reported here.
- Add a transition item to the post-survey — "Compared with before the study, is your dog much better, better, about the same, worse, or much worse?" — alongside the current-state items. Transition ratings anchor the owner to the starting point and are the standard control for response shift.
- Record at enrollment how long each dog's primary condition has been present, so the recalibration hypothesis can be tested against baseline physiology and response.
- Record daily VIBE protocol use (protocol, duration) so dose can be related to outcome.
- Retrieve full RR-interval data on a rolling schedule so the Poincaré domain can be computed longitudinally.

- Fix PRANA scaling and weights before the next cohort and treat the present data as the calibration set.
- Follow up clinically on Marshal (rising heart rate, falling HRV) and check Gracie's collar history around early June before citing her data.
- Consider a waitlist or sham-protocol control arm in the next cohort.

APPENDIX A

Appendix A. Per-dog C3I results

Lower = better; negative change = improvement. Days = interval between surveys.

Dog	Days	Comf pre	Comf post	Calm pre	Calm post	Ovr pre	Ovr post	C3I pre	C3I post	Change
C002 Cash	81	1.0	1.8	2.3	3.2	1.3	1.7	1.50	2.27	+0.77
C003 Reese	102	6.7	3.2	2.5	1.1	4.0	1.7	4.82	2.24	-2.59
C004 Max	102	4.5	4.2	2.4	2.2	3.3	2.0	3.59	3.17	-0.42
C005 Diesel	100	4.6	2.5	3.1	1.7	3.3	1.3	3.88	2.04	-1.84
C006 Boomer	90	6.0	6.4	2.8	2.2	2.7	2.3	4.38	4.32	-0.06
C007 Buddy Joe	90	8.9	7.3	6.4	4.9	4.7	5.7	7.39	6.21	-1.17
C008 Louise	77	2.7	4.5	2.6	4.4	2.0	4.0	2.56	4.39	+1.83
C010 Violet	89	5.5	3.8	1.0	1.4	3.7	1.7	3.65	2.64	-1.01
C012 Bindi	73	6.3	2.1	6.9	2.7	4.3	3.0	6.21	2.45	-3.77
C013 Fitz	111	6.2	1.5	1.4	1.0	4.0	1.0	4.19	1.25	-2.94
C014 Toby Young	94	6.3	6.9	1.4	2.0	4.3	4.3	4.29	4.80	+0.51
C015 Bear	103	4.9	3.6	3.6	1.1	2.7	1.3	4.11	2.38	-1.73
C016 Charlie	103	6.5	2.7	1.0	1.1	4.0	1.7	4.20	1.99	-2.21
C017 Poppy	75	7.5	8.6	5.5	7.6	7.0	7.7	6.72	8.11	+1.38
C018 Marshal	84	4.8	5.7	4.2	5.8	4.7	4.0	4.57	5.48	+0.91
C019 Watson	70	6.6	3.5	4.4	3.3	4.3	3.3	5.49	3.40	-2.09
C021 Daisy May	65	3.3	1.3	5.0	1.4	3.0	1.0	3.85	1.29	-2.56
C022 Koda	76	5.3	1.9	1.0	1.1	3.0	1.3	3.45	1.53	-1.92
C023 Chief	75	5.7	4.8	3.2	1.4	2.7	2.3	4.37	3.24	-1.13
C024 Art	69	1.6	1.0	2.8	1.2	2.3	1.3	2.13	1.12	-1.01
C025 Weston	54	1.0	1.0	3.4	1.4	1.7	1.0	1.94	1.14	-0.80
C026 Kai	72	3.0	1.9	1.5	1.3	2.3	2.3	2.38	1.75	-0.62
C028 tony	53	2.2	3.3	1.0	1.1	1.3	2.3	1.65	2.38	+0.74
C029 Fiona	56	5.4	6.3	2.8	1.6	3.0	3.0	4.13	4.16	+0.03
C030 Maxee	60	4.5	2.1	1.6	1.2	2.7	1.7	3.21	1.72	-1.49

APPENDIX B

Appendix B. Per-dog biometric results

Baseline = first 7 days on collar (no VIBE); Therapy = final 14 days of record. HR in BPM, RR in breaths/min, RMSSD in ms. PRANA v1 baseline reference = 66.7. Sorted by PRANA score. Bella (C022) appears in the Invoxia export under the profile name "Bellaantonio" and was relabeled in Version 3.

Dog	Days	HR base	HR ther	RR base	RR ther	RMSSD base	RMSSD ther	HRV chg	Sleep base	Sleep ther	PRANA
C011 Gracie	134	89	53	18.0	17.5	218	481	+121%	82	87	84.2
C015 Bear	112	69	56	14.1	12.2	347	538	+55%	87	93	77.7
C005 Diesel	100	70	63	22.2	21.7	399	502	+26%	88	85	73.5
C004 Maximus	94	61	51	15.2	12.0	532	722	+36%	85	84	73.2
C023 Chief	121	60	60	21.6	20.1	387	462	+20%	78	74	71.6
C030 Maxee	82	63	61	19.6	18.9	572	604	+6%	90	94	71.2
C019 Watson	46	81	75	16.0	16.0	232	292	+25%	90	94	70.8
C014 Toby	126	91	88	17.9	21.9	83	102	+23%	92	87	70.5
C002 Cash	200	72	70	13.1	16.1	340	378	+11%	93	89	69.7
C020 Wally	37	75	75	20.3	22.1	395	383	-3%	94	—	69.4
C008 Louise	66	58	55	18.9	20.4	466	497	+7%	89	88	68.8
C021 Daisy May	127	56	56	21.0	19.0	645	657	+2%	93	93	68.5
C016 Charlie	117	62	65	12.4	13.2	514	467	-9%	87	86	67.4
C025 Weston	103	57	52	12.3	14.9	478	512	+7%	88	83	66.1
C012 Bindi	61	70	68	17.8	17.9	376	386	+3%	84	88	65.5
C026 Kai	55	62	60	18.0	18.2	373	449	+20%	86	78	65.3
C006 Boomer	80	74	72	12.6	14.4	233	244	+5%	89	90	65.2
C022 Koda	121	77	82	16.6	17.2	388	323	-17%	76	76	64.9
C024 Art	79	57	66	13.1	11.9	481	357	-26%	76	78	64.6
C029 Fiona	65	52	54	15.5	13.5	387	362	-6%	89	89	64.1
C009 Dakota	59	57	61	16.1	19.1	626	559	-11%	81	83	63.1
C028 Tony	92	65	68	11.4	11.6	468	401	-14%	88	88	63.0
C007 Buddy Joe	61	69	71	16.0	19.7	357	358	0%	90	88	62.3
C003 Reese	110	52	53	16.6	19.7	605	613	+1%	86	76	62.2
C022 Bella	49	95	103	22.7	25.0	169	174	+3%	74	78	60.8
C013 Fitz	91	74	82	22.1	22.1	431	259	-40%	92	92	59.2
C018 Marshal	133	69	90	17.0	15.4	402	186	-54%	91	89	55.5
C010 Violet	104	55	61	15.6	20.6	554	421	-24%	89	—	52.1

APPENDIX C

Appendix C. Owner post-survey narratives (verbatim)

Responses to "Describe your dog's current condition over the past 7 days" and "What did you like most about the study and the Vibe?"

C002 — Cash (Pit/Shepherd mix, age 11; C3I change +0.77)

Condition: No problems or concerns - he is moving well, lots of energy and great mobility

Liked most: Easy to use, portable, rechargeable and I'm seeing a big difference

C003 — Reese (Mix - Golden Retriver and Bernese Mountain Dog, age 12 years and 11 months; C3I change -2.59)

Condition: Over the past 7 days, Reese has displayed increased drive in chasing his siblings in the yard in brief spurts. This goes along with increased happy and confident interactions with family members and strangers. His only visible anxiety is during thunderstorms. Reese has displayed wanting to go on longer walks. There are still mild deviations in Reese's alignment and gait pattern— especially intermittent weight shifting off of left hind limb and days of increased lumbar spine muscular tension.

Liked most: I loved how simple it was to turn on the Vibe and do something that evidently benefited Reese. It's a small change that made a huge difference!

C004 — Max (Carolina hound, age 12; C3I change -0.42)

Condition: Some stiffness due to excessive play with a puppy friend.

Liked most: I liked the benefits of the vibe, I was able to use multiple settings for Max other than what was required. He had a surgery during this trial and the "Wound Healing " setting was great for that!

C005 — Diesel (Mix, age 5; C3I change -1.84)

Condition: More playful and more enthusiastic with walks. Brief soreness after activity. Seems more calm and relaxed in the evenings including restful sleep. Still requires intermittent recovery days

Liked most: Simplicity of use and visible effects along with developing a healthier routine with Diesel

C006 — Boomer (Lab mix, age 11; C3I change -0.06)

Condition: Lazy, reluctant to be active with others.

Liked most: Great for his arthritis!

C007 — Buddy Joe (German shepherd, age 10; C3I change -1.17)

Condition: Physical discomfort, overrides pain pretty well.

Liked most: Being able to use the arthritis setting was great for his constant arthritic flare ups.

C008 — Louise (Carolina Dingo, age 10 years; C3I change +1.83)

Condition: She has more energy. It is like she is 2 years old again.

Liked most: All of the different treatments we could use for her.

C010 — Violet (English Labrador, age 8 years 9 months; C3I change -1.01)

Condition: Violet has enjoyed 1/2 mile walks daily and is no longer dragging at the end of the walk. She has asked to play fetch more and seems less uncomfortable. She is also retrieving water again and asking to get into bed with me.

Liked most: I noticed that Violet was in less pain and super calm after wearing the vest. She has increased her activity with it use and has helped her get back to work.

C012 — Bindi (Chiweenie JRT, age 6; C3I change -3.77)

Condition: Bindi gets stiff due to her compromised mobility but recently, she seems to be looser and it's easier to do the dog bicycles. She seems to be a bit calmer and bark a bit less. She's become more attached to me but settles in for snuggles more quickly. I have not noted pain or discomfort. She seems to have less inflammation in her spine.

Liked most: There are so many protocols to use and both dogs will benefit

C013 — Fitz (Husky/lab, age 10; C3I change -2.94)

Condition: Moving much better than his baseline over the past couple of years. Calm, adequate sleep, good appetite. No signs of pain or discomfort

Liked most: That you can use it for different problems such as pain, arthritis, anxiety

C014 — Toby Young (Golden retriever, age 14; C3I change +0.51)

Condition: Toby seems to rest peacefully, sleeping through night and naps through the day. His activity is very slight during the day. He definitely has stiffness in am when he wakes up and he takes a lot more breaks walking through backyard over the last few months

Liked most: I could see a difference in his restlessness both midafternoon and during the night.

C015 — Bear (lab/chow, age 15; C3I change -1.73)

Condition: Bear has been moving ok. We go for 2 walks a day (usually only about .3-.6 miles per walk). He is strong and determined so I have to slow him down a lot. He is taking his meds (carprofen and gabapentin) well and sleeps well at night-- and naps during the day. He gets up from lying down ok- I have scatter mats all over my house to help him.

Liked most: ability to help him feel better without adding extra meds to his system

C016 — Charlie (Lab, age 13; C3I change -2.21)

Condition: Significantly improved energy, longer walk, duration, Charlie will even explore the yard on his own without prompting!

Liked most: I am so impressed with the increased energy and endurance after the treatment!

C017 — Poppy (French Bulldog, age 9; C3I change +1.38)

Condition: We have noted significant changes in Poppy's comfort level overall. She rests and sleeps more sound. She has less anxiety when outside and her exercises appear easier for her. She is eager to participate in play with her sibling and actually initiates play now. Her walks have extended in length. We know her pain is less due to her overall activity levels. She no longer hesitates to get up and move. In the past we have had to literally pick her up and she would gently growl. She now let's us know when she wants to go out by getting up and moving toward the door. We rarely see incontinence now. Her appetite has increased as well. Our girl just seems a lot more like herself. We continue the therapy as we are certain it has made a difference.

Liked most: Easy to use, tolerated well by Poppy, I noticed changes happening within a week.

C018 — Marshal (Chesapeake Bay Retriever, age 13; C3I change +0.91)

Condition: Marsh tweaked his left elbow and it required a few days for this limping to subside. His activity was limited and we increased usage of the Vibe. He now seems better. This elbow benefited from a hyaluronic acid injection years back.

Liked most: Vega and Anxiety settings presented as the most immediately effective options. Vega helps Marsh with sleep and the anxiety selection calmed him during big thunderstorms.

C019 — Watson (English Springer Spaniel, age 14 years 8 months; C3I change -2.09)

Condition: Much more energy the last 5 days. Walks are better. He has started to trot a little and played this week.

Liked most: The vibe needs a way to stack programs. Taking the collar on and off is painful when changing programs. The info from the collar was nice to see and have.

C021 — Daisy May (Lab/Hound Mix, age 12; C3I change -2.56)

Condition: Excellent condition over last 7 days. No indication of pain, discomfort or anxiety. Movement and activity has been consistently solid especially considering the high temperatures and humidity. Sleep has been excellent with minimal disruptions.

Liked most: The Vibe seemed to provide relieve from occasional episodes of pain and anxiety. Daisy's sleep was consistently better and her HRV was better.

C022 — Koda (Black Lab, age 7; C3I change -1.92)

Condition: Koda is in great condition. He is eager to walk longer distances, he brings his balls to us to hide and throw, he is less guarded of his back end, and his episodes of discomfort upon waking in the morning have decreased.

Liked most: I am so glad to learn about this therapy and have access to other ways of controlling my dog's pain.At its worst, I have seen him in pain that was a 9 or 10. That was gut wrenching. I questioned whether his life was worth living. Over time he began to heal but I do believe the Vibe pushed him farther and faster than he could have accomplished with time and PT alone. Now I can see his spark is back and I'm so grateful Koda was part of this study.

C023 — Chief (Black Lab/Beagle/Treeing Hound, age 8; C3I change -1.13)

Condition: He does not like to put weight on his front, right leg because it has been causing him some level of pain. We keep his activity minimal and assist him with stairs. He will always be on high alert during walks (hunting is in his blood). When he wears his vibe, though, he'll either be more relaxed or he will get the "fat boy" zoomies, depending on the setting we use and when we use them. After going for a walk, we let him recover with the arthritis or general inflammation setting. He will lay on the couch with his arms stretched out. When we use those settings in the evening, he will get his version of zoomies and throw toys across the room and pretend to kill them. Before we leave for work or before bed, we turn the vibe to vagus nerve and he goes right to sleep.

Liked most: I love that it makes my dog feel better. I might not understand the exact science of it, but it is very obvious that it is helping him. He loves wearing it and has positive responses to it. My dog's wellbeing is a huge priority for me, so I will continue using the vibe on him until it eventually gets worn out. I really appreciate and am grateful for being offered this opportunity to try something that I knew nothing about, to improve my dog's quality of life. If not for this study, I probably would have never tried this type of treatment.

C024 — Art (Mixed Breed, age 5 years; C3I change -1.01)

Condition: Significant decrease in favoring either rear limb - happened once this past week when previously it happened anytime he sprinted. No longer favoring either rear limb when using the stairs. He would chew his paws

in the middle of the night which would wake me up and that has not happened for a couple weeks. His paws are no longer red nor inflamed. He is resting soundly. When coming home from work, normally he would be jumping on the back door. Now 50% of the time, he is still comfortable and snoozing on the couch. He is a very energetic dog that was very restless at times and now he actually seems to be comfortable. Still full of energy and wanting to run out the door with me everyday and play. But now his energy displayed is more excited than restless. As if now he is fully rested and restored after sleeping and not exhibiting the signs of discomfort with limping or restlessness. Has not been reactive towards any dogs this past week, even when another dog aggressed him at the veterinary hospital when he was there for his annual exam. Also not exhibiting reactive nor dominating behaviors towards the newer dog in the household - they actually laid with each other this week. Also, Art is no longer running into another room to distance himself from the newer dog. He seems more confident, rested, and comfortable overall.

Liked most: My favorite part is seeing the difference in Art's overall happiness with life in such a short period of time. He has always been a high energy dog but now that energy comes with confidence and assurance rather than restlessness and anxiety. The Vibe is easy to use, versatile for all aspects of health/behavioral needs, and compact. He doesn't mind wearing it at all and it does not inhibit him from any activity he is doing. I am grateful to have been a part of this study and to have discovered another tool that improves my dog's overall well being. The survey truly allowed me to reflect on what a positive difference it has made for him.

C025 — Weston (Belgian Malinois Mix, age 10 years; C3I change -0.80)

Condition: Less anxious, more relaxed and zen

Liked most: I loved how calm and relaxed my dog became within a short duration of wearing the vibe. We even stopped his trazadone in the evenings because he was so mellow with the vibe.

C026 — Kai (Belgian Tervuren, age 13; C3I change -0.62)

Condition: Kai has been calmer and more relaxed prior to using the PEMF. He has slept easier with calmer breathing. In addition his movement has been better, particularly his arthritis. But that may be partially due to the mushroom supplements he is taking.

Liked most: Kai enjoyed and was eager to use it. It was calming and relaxing for him.

C028 — tony (boxer pointer, age 10; C3I change +0.74)

Condition: Tony enjoys his vibe. It relaxes him and he will fall asleep while wearing it,which tells me it is easing his pain from the arthritis.

Liked most: How Tony enjoys using the vest and he relaxes when wearing it.

C029 — Fiona (Mixed, age 7; C3I change +0.03)

Condition: Slow to get up and stiff legs.

Liked most: That it seemed to relax her.

C030 — Maxee (Shepherd mix, age 12; C3I change -1.49)

Condition: Moderate movement for a 12 year old

Liked most: Getting the feedback of the daily activities from the tracker and also seeing a difference in Maxee's pain when she uses the vibe compared to when she doesn't. It was great, happy to be a part of it!