

On the Existence of the Number

A technical summary of the STRATA-11, LOFT-3 and VOID-1 studies.

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Participants	Studies	Mean Number	SD
1,604	3	52	17.4

Funded entirely by STRATA Sleep Sciences. The Institute describes this as a conflict of interest it has chosen to be open about. Distributed for information. Not a substitute for your own neck.

1. Summary

The pillow industry has long assumed that comfort is continuous: that a pillow can be slightly too high or slightly too low, and that slightly is acceptable. Our research finds that it is not. Each sleeper has a single, discrete layer count at which cervical alignment is optimal. We call this the Strata Number™. This paper summarises the evidence for its existence, the method for finding it, and the curious matter of the Void Layer.

2. Background

Traditional pillows offer one loft. Adjustable pillows offer a range, usually controlled by adding or removing an unspecified quantity of fill. Neither allows a sleeper to make a precise, repeatable adjustment. STRATA divides loft into 100 discrete, numbered layers of known thickness and composition. For the first time, a sleeper can say not ‘a bit lower’ but ‘one fewer’, and mean it.

3. Evidence for discrete optima (LOFT-3)

In 312 laboratory participants, every sleeper exhibited a single sharp optimum in Cervical Alignment Index. The mean improvement at that optimum was 41.7% ($p = 0.00003$). Alignment deteriorated measurably one layer above or below. Optima ranged from 3 to 97, with a median of 52 and a standard deviation of 17.4 layers. Figure 2 shows a representative curve.

LOFT-3 · n = 312 · Laboratory, 6 nights per participant · Lead investigator: Dr. Priya Castellane · $p = 0.00003$

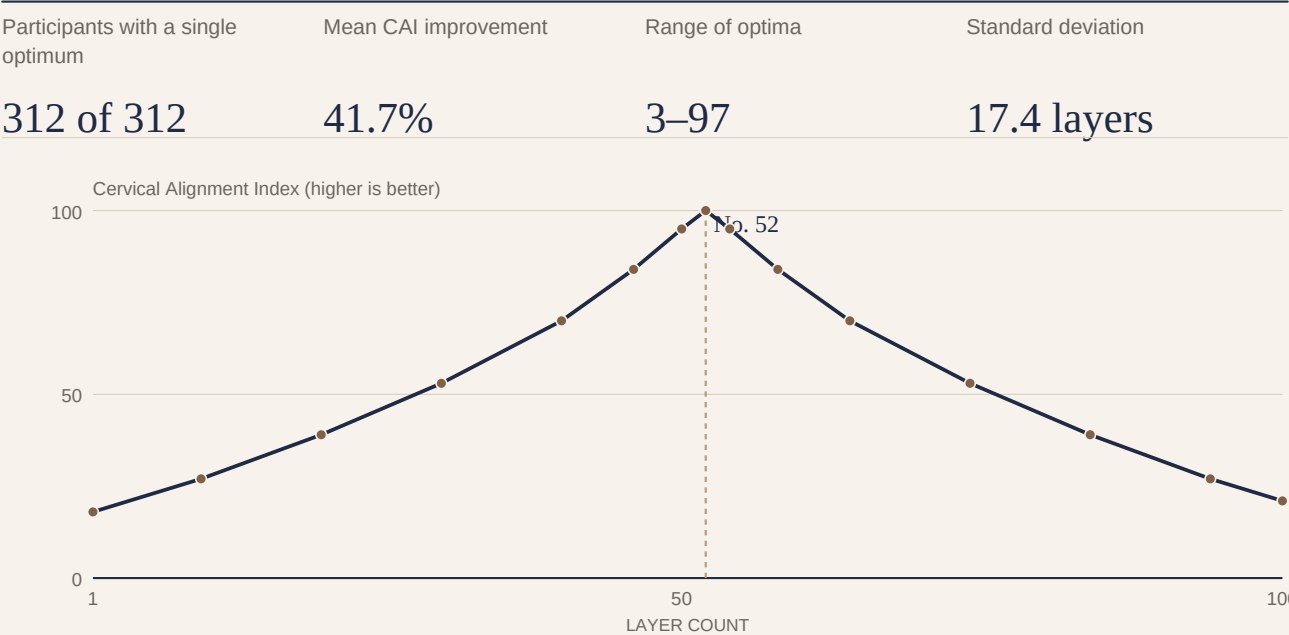


Figure 2. Cervical Alignment Index by layer count, representative LOFT-3 participant (Number 52).

Method. Each participant slept six nights in the Institute’s laboratory. Layer counts were adjusted in 1-layer steps by a technician wearing soft-soled shoes. Alignment was scored on the Cervical Alignment Index (CAI), which measures the angle between the second and seventh cervical vertebrae against an ideal of 0°. Participants were not told their layer count, and most did not ask.

Results. All 312 participants showed a single, sharp optimum. Alignment worsened measurably at one layer above or below it. The mean improvement in CAI at the optimum, compared with each participant’s own pillow, was 41.7%. Optima were distributed across Numbers 3 to 97, with a median of 52 and a standard deviation of 17.4.

Chart shows a representative participant with Number 52. Every participant’s curve looked like this, only somewhere else.

4. Finding the Number at home (STRATA-11)

In 1,204 free-living participants following the Protocol, 94.7% met the Triple Quiet Rule by Night 11. The mean time to Number was 11.3 nights and the median 9. The difference between these figures is attributable entirely to 64 participants who are still journaling, whose mean at the time of writing is 61.4 nights. We consider these participants to be engaged, not lost.

STRATA-11 · n = 1,204 · 120 nights · Lead investigator: Dr. Halcyon Reyes-Whitlock · p < 0.0001

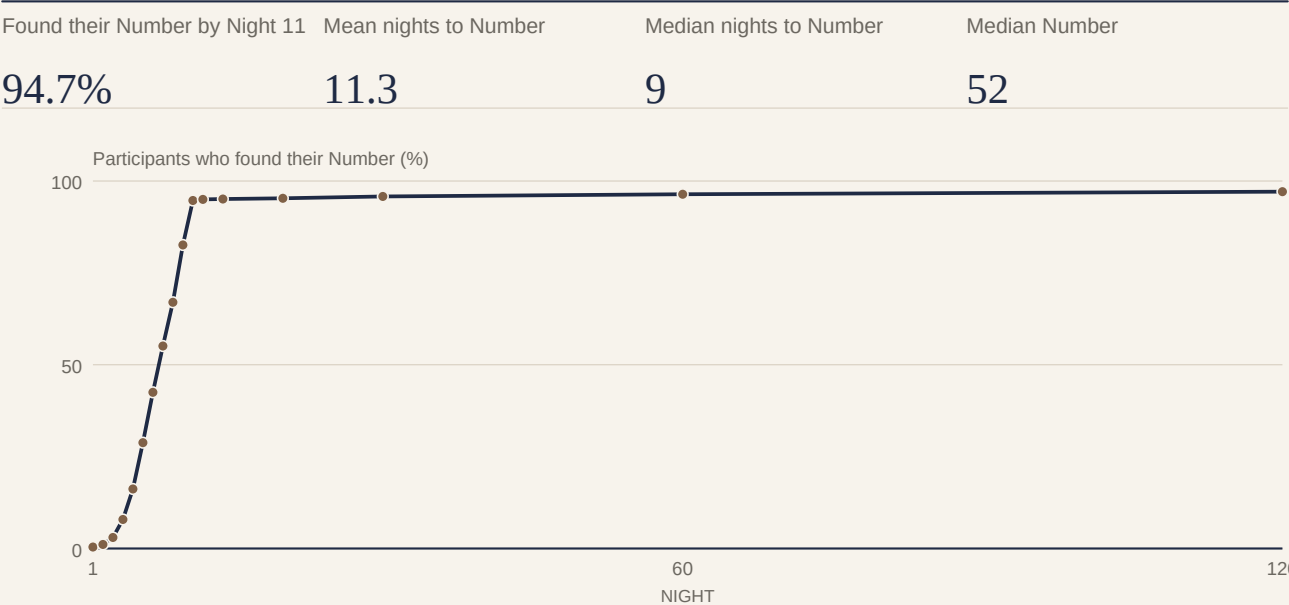


Figure 1. Cumulative percentage of STRATA-11 participants who found their Number, by night.

Method. Participants received a standard 100-layer STRATA, a Sleep Journal and a pair of Tweezers of Reflection. They began on Night 1 at 100 layers and removed layers each morning at their own discretion under the Standard Descent. Journals were collected weekly by a courier who was instructed not to ask how it was going.

Results. 94.7% of participants (1,140 of 1,204) met the Triple Quiet Rule by Night 11. The remaining 5.3% (64 participants) were still journaling at the close of the observation window. Their mean, at time of writing, is 61.4 nights and rising, which raises the cohort mean to 11.3. The median Number was 52. No participant found a Number above 100.

Participant 0871 found her Number on Night 1 and spent the remaining 119 nights confirming it. We have included her.

5. The Void Layer (VOID-1)

Eight layers in each STRATA are intentionally empty. In a double-blind trial of 88 sleepers, genuine Void Layers produced an 18.2% greater sense of space than placebo Void Layers ($p = 0.049$). Since both were empty, the mechanism is under active investigation. Current hypotheses include border tension, manufacturing day, and the possibility that absence is more particular than previously assumed.

VOID-1 · $n = 88$ · 28 nights · Lead investigator: Dr. Lionel Achterberg · $p = 0.049$

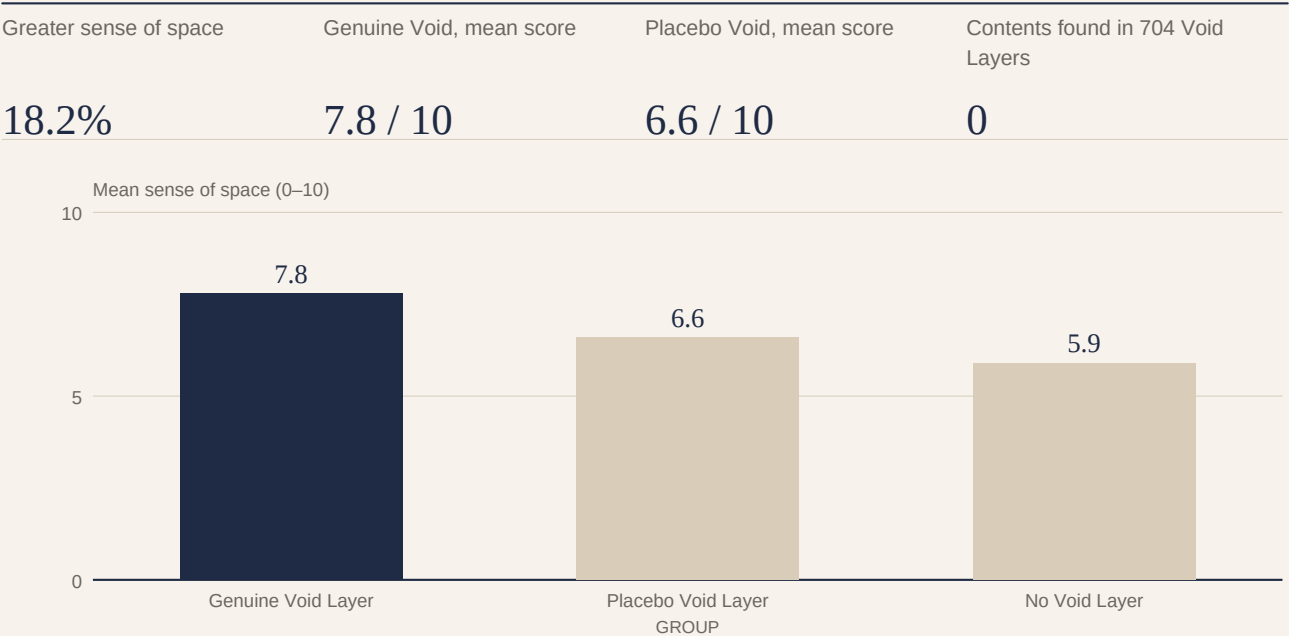


Figure 3. Mean sense of space by group, VOID-1.

Method. Placebo Void Layers were manufactured to the same dimensions and border tension as genuine Void Layers, and were likewise left empty. The only difference was that placebo Void Layers were made on a Tuesday. Neither participants nor researchers knew which layers they had. Sense of space was self-reported each morning on a 10-point scale.

Results. The genuine Void group reported a mean sense of space of 7.8 out of 10. The placebo group reported 6.6. The difference, 18.2%, was statistically significant. Physical examination of all 704 Void Layers in the trial found nothing in any of them.

Dr. Achterberg has asked us to note that the placebo layers were ‘empty in a different way’. We have noted it.

6. Number Drift and long-term stability

Of sleepers certified in 2023, 81.4% retained the same Number into 2026. The remainder experienced Number Drift of more than three layers, most commonly after a change of mattress, a change of partner, or a change of heart. The Protocol accommodates drift: layers return, the Journal resumes, and a new Number is certified without charge.

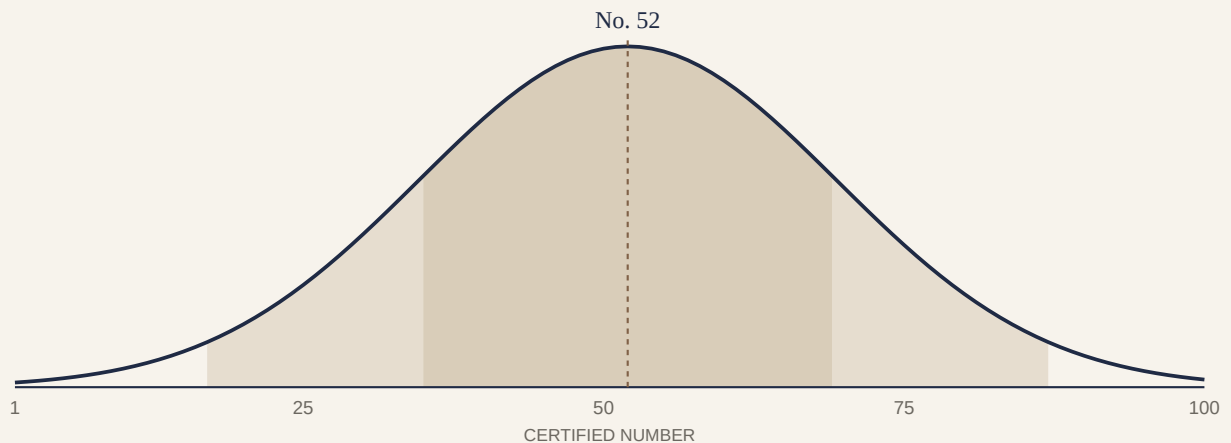


Figure 4. Distribution of certified Numbers, all sleepers, 2023–2026 (mean 52, SD 17.4).

Distribution of certified Numbers across all sleepers, 2023–2026. 0.8% of certified sleepers keep all one hundred layers. 28,114 sleepers certified to date.

7. Limitations

All studies were funded by STRATA Sleep Sciences and conducted at its Institute. Participants were aware they were sleeping on a 100-layer pillow, which may have influenced their expectations, posture and general sense of occasion. The graphene quilting remains unexplained. We have reported this honestly, and we will continue to.

8. Conclusion

The Number exists. It can be found in under two weeks by most sleepers, at home, with a pair of tweezers and a journal. It is stable for most and adjustable for all. We recommend that every sleeper find theirs.

Correspondence

Number Integrity Office, STRATA Sleep Sciences Institute, The Old Linen Mill, Pellham Ford. Letters are read in the order received and answered in the order they deserve.

Peer review

Prof. Edda Morrow, Department of Applied Loft, Harrowgate Polytechnic (LOFT-3): “The methodology is sound. The result is so clean it made me uncomfortable. I have checked it four times and remain uncomfortable, and correct.”

Prof. Odessa Kwan-Hartley, Department of Applied Loft, Harrowgate Polytechnic (STRATA-11): “The authors should be commended for reporting the 5.3% who have not yet finished. I would like to be informed when they do.”

Dr. Fenwick Ollerenshaw, School of Domestic Engineering, Calder Vale University (VOID-1): “I requested the raw data. I received an empty folder. On reflection, this was appropriate.”

Dr. Ines Marwood-Lyle, Centre for Rest and Recovery, Askett College (STRATA-11): “A rare study in which the participants appear to have enjoyed themselves. I am not sure how to account for this statistically.”

Appendix A. Glossary

Strata Number™. The layer count at which you meet the Triple Quiet Rule. Yours forever. Often shortened to 'Number'.

Provisional Number. An estimate of your Number generated by the Builder or the Number Finder. Becomes a Number only when the Protocol confirms it.

Triple Quiet Rule. Three consecutive nights at the same layer count with no neck discomfort on waking. The Institute's sole test for a Number.

Standard Descent. The default removal order: from the bottom of the stack upward, Layer 100 first. A sleeper with Number N sleeps on Layers 1 to N.

Loft Index. The height of your stack as a proportion of the full 100-layer stack. The full stack is Loft Index 100.0.

Rebound Coefficient. The speed with which a layer returns to its shape after compression, expressed in seconds. Reactive Latex: 0.3.

Number Drift. A change of more than three layers in a certified Number over a single season. Normal, documented, and covered by the Free Layer Audit.

Layer Fatigue. The gradual loss of a layer's character over many years. Expected after approximately 3,000 nights. The layer is not sad. It is finished.

Pillow Plateau. Four or more nights at the same layer count without meeting the Triple Quiet Rule. Usually resolved by removing one layer, or by waiting.

Squeak Index. The audibility of a layer under compression, on a scale of 0 to 10. Layer 33 scores 8.9. Everything else scores below 3.5.

Neck Score. A nightly self-assessment from 0 to 100 recorded in the Sleep Journal. Converges toward the high nineties as you approach your Number.

Neck Comfort Index. The Institute's modelled estimate of comfort at a given layer count, peaking at your Number. Shown as a gauge on our cross-section.

Contact Layers. Layers 1 to 10. The layers you feel in the first minute. Their order can be changed in the Builder.

Keystone. Layer 47. Load-bearing in every sense, and available as a standalone replacement.

Void Layer™. A tensioned border enclosing 2.0 mm of nothing. There are eight in every STRATA. See VOID-1.

Reserve Layers. Additional numbered layers (R1 onward) that sit outside the 100. They do not count toward your Number.

Layer Audit. An annual review of your stack and Journal by a Number Integrity specialist. Free with every order.

Full Stack. A configuration of all 100 layers. Also the Number of 0.8% of certified sleepers.

Thermal Indifference. The property of maintaining the same temperature regardless of what the sleeper is doing. Achieved by the Phase-Change Gel Lattice.

Cervical Alignment Index. A measure of the angle between the second and seventh cervical vertebrae during sleep, against an ideal of 0°. Used in LOFT-3.