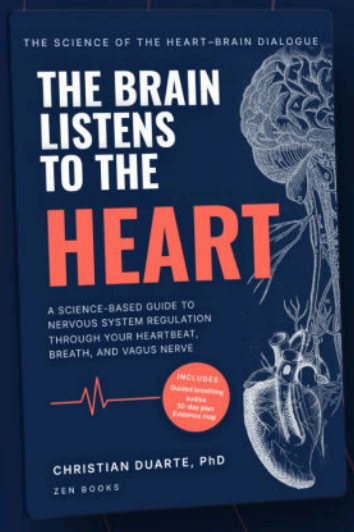
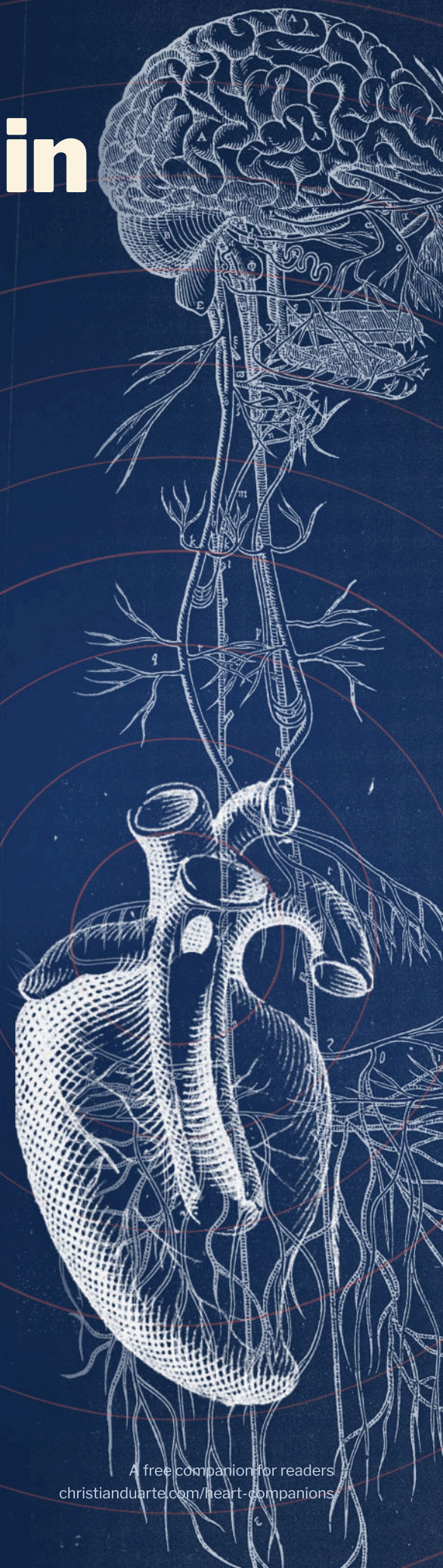
THE BRAIN LISTENS TO THE HEART · COMPANION

The Heart-Brain Workbook

Every practice, sheet, and log from the book, ready to print, with its plates and figures large, and room to write down what your own heart is telling you.





Christian Duarte, PhD

ZEN BOOKS

A free companion for readers
christianduarte.com/heart-companions

START HERE

How to Use This Workbook

Every chapter of the book ends with one practice, and every practice carries its evidence level, just as every important claim does. The levels come from a simple scale the book calls the evidence thermometer. You will see its four marks on these pages, always in the same colors.

High consensus

●●●●

The finding is established across many studies and broadly accepted by the people who study it.

IN THE BOOK · The slowing of the heart during exhalation. *(Chapter 4)*

Moderate

●●●○

Good studies point the same way, but questions remain about how large the effect is, how long it lasts, or who benefits.

IN THE BOOK · Heart rate variability biofeedback against inactive controls: small-to-medium effects. *(Chapter 9)*

Preliminary

●●○○

Early, promising, and unconfirmed.

IN THE BOOK · Breathing practices as a treatment for depression, and for sleep, pain, trauma, and inflammation. *(Chapter 12)*

Not shown

●○○○

The claim has been tested and has not held up, or has never been properly tested at all.

IN THE BOOK · Biofeedback doing better than slow breathing at resonance without feedback: too few trials. *(Chapter 9)*

13 PRACTICES
one at the end of every chapter, each with its log sheet

3 GUIDED AUDIOS
for the breathing practices of Chapters 4, 8, and 13

4 NEW EXERCISES
beyond the book, plus six plates in full color

PRINT WHAT YOU NEED

Every practice has its own pages: the steps on one, the log or worksheet on the next. Print a chapter at a time, or the whole workbook, as many copies as you like.

TWO WAYS THROUGH

Read first and try each one-day version, or practice as you read over about six weeks. The next pages show both routes; the workbook follows the book's order, so either works.

STOP WHEN YOU SHOULD

Each practice carries a note of care. If your heart races at rest, if you faint, or if your symptoms are new or getting worse, the right first step is a medical one.



When a practice has an audio, you will see this dark tag next to its title. The audios are at **christianduarte.com/heart-companions**.

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START HERE

Three Guided Audios

The book comes with three guided breathing audios, the same three that carry the middle weeks of the eight-week plan. Each one paces your breath with a calm voice and a soft tone, so you do not have to count. If you prefer a breath pacer app or a metronome, the doses are the same.

1
AUDIO

Lengthen the Exhale

ABOUT 5 MINUTES · CHAPTER 4 · WEEK 3 OF THE PLAN IN CHAPTER 13

Breathe in gently and out about twice as long, following a soft rising and falling tone. The pattern of the long exhale, paced for you.

GOES WITH · The Long Exhale (Chapter 4) · The Eight-Week Plan, week 3

2
AUDIO

Slow to Six

ABOUT 10 MINUTES · CHAPTER 8 · WEEK 4 OF THE PLAN

About six breaths a minute, five seconds in and five out, with small, smooth breaths. A pacer for the resonance practices.

GOES WITH · Find Your Rhythm (Chapter 8) · The Eight-Week Plan, week 4

3
AUDIO

Resonance

ABOUT 15 MINUTES · CHAPTER 13 · WEEK 5 OF THE PLAN

Slow breathing with a long, easy exhale and your attention resting on your chest. If you have found your own resonant pace, you can follow it instead of the tones.

GOES WITH · The Eight-Week Plan, week 5 and after



Audio 2 · *Slow to Six*

Where to find them: christianduarte.com/heart-companions. When a page in this workbook has an audio, you will see this dark tag, with the coral play button, next to its title.

A NOTE OF CARE

If you feel dizzy, light-headed, or tingly, make each breath smaller, or return to normal breathing. Never hold your breath with the audios. With severe lung or heart disease, or in pregnancy, check with your doctor before breathing exercises.

START HERE · HOW TO USE THE PRACTICES

Two Ways Through

Done one after another, the thirteen practices would add up to more than five months before you reached the eight-week plan. You do not need to do that, and most readers should not. **Route 1, read first and practice later:** at the end of each chapter, try only its one-day version, below; at Chapter 13, do the eight-week plan in full. **Route 2, practice as you read,** over about six weeks:

WEEKS 1–2

Keep the record of Chapter 1 in week 1, and take the morning pulse of Chapter 2 on the same fourteen mornings. A chest strap, watch, or ring? The baseline reading of Chapter 6 belongs to these mornings. Time your one-minute recovery (Chapter 3) on days 7 and 14.

WEEK 3

Practice the long exhale of Chapter 4 every day, and take your third recovery reading. Chapter 5 is a matter of reading your numbers, not of adding days.

WEEKS 4–6

Three days of week 4 on the heartbeat practice of Chapter 7, your last recovery reading, then the search for your resonance rhythm (Chapter 8) and its fourteen days of breathing.

OPTIONAL

The four-week trial of Chapter 9, if you are thinking of buying a device; the six-day comparison of Chapter 10, if you are curious about HeartMath. Chapters 11 and 12 are done with a pen, not a calendar.

CH.	PRACTICE	THE ONE-DAY VERSION	PAGE	TRIED
1	**A Week of Noticing**	Note three moments of alarm in one day, and how long each took to pass.	9	☐
2	**The Morning Pulse**	Count your pulse for a full minute one morning, before you get up.	14	☐
3	**The One-Minute Recovery**	Climb stairs for two or three minutes and measure how far your pulse falls in the first minute, with the precautions in the chapter.	18	☐
4	**The Long Exhale**	One five-minute session, with your pulse taken before and after.	21	☐
5	**Decode the Number**	Decode one number from your device, or from an advertisement, with the chapter's questions.	25	☐
6	**The Two-Week Baseline**	Take one reading under the fixed conditions the chapter describes.	28	☐
7	**Listening Without Touching**	One session, with your confidence rated from 0 to 10 and then checked.	32	☐
8	**Find Your Rhythm**	One search for your rhythm, from seven breaths a minute down to four and a half.	36	☐
9	**Put Your Device on Trial**	Answer the chapter's questions for one device you own or want.	40	☐
10	**Separate the Ingredients**	One day of slow breathing alone, and one of slow breathing with appreciation.	44	☐
11	**The Five Questions**	Apply them to one health claim you read this week.	47	☐
12	**Your Problem, Your Plan**	Choose your entry and write down its plan.	51	☐
13	**The Eight-Week Plan**	The plan itself. It has no one-day version.	56	☐

Whichever route you choose, the medical note at the front of the book tells you when to stop a practice and talk to a doctor. When you reach the plan, you can skip its two baseline weeks if your own baseline is less than six weeks old.



START HERE · INTRODUCTION

The Door Nobody Told You About

Vesalius, *De humani corporis fabrica* (1543), and an engraving of the heart (1686) · Wellcome Collection, public domain

THE CHAPTER IN THREE LINES

Regulation does not mean being calm all the time. It means a stress response that rises when it is needed and settles when the need has passed.

The heart is the part of your autonomic nervous system that you can feel, measure, and train, and the breath is the lever that reaches it.

Not every claim is equally strong. Each one in the book carries its level on the evidence thermometer: high consensus, moderate, preliminary, or not shown.

TRY THIS NOW Rest two fingers against the side of your neck, just below the angle of the jaw, or simply sit still and notice the beat in your chest. Give it thirty seconds. Then notice the second thing: the beat is not perfectly even.

IN THIS WORKBOOK Start here · Two Ways Through · Audio 1 · *Lengthen the Exhale*

PART ONE

The Wiring

Why You Can't Just Calm Down

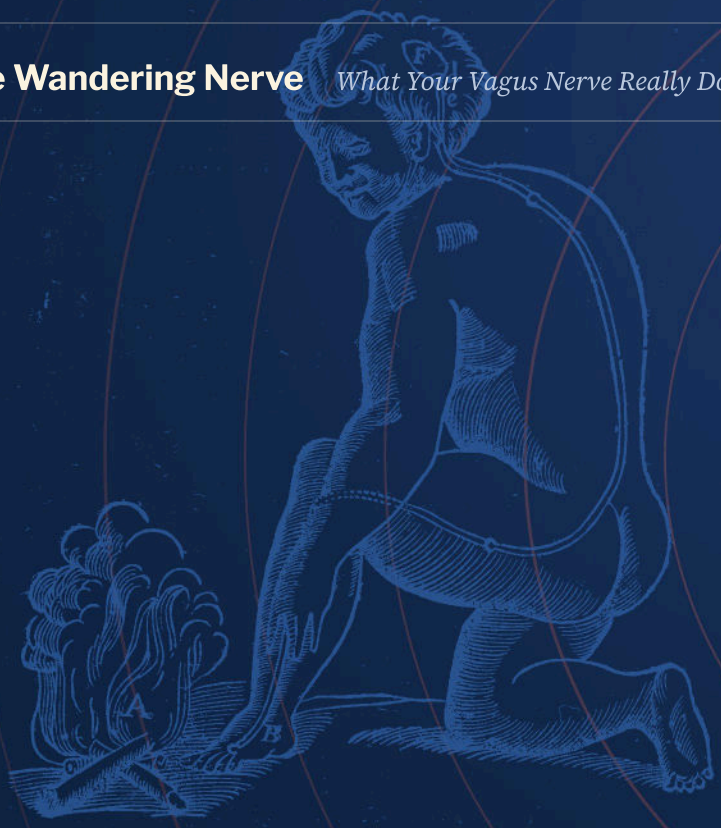
The system: what a nervous system stuck in alarm feels like, and the conversation between heart and brain along its main routes.

1 **Running Hot** *What a Dysregulated Nervous System Feels Like*

2 **A Two-Way Street** *How the Heart and the Brain Talk to Each Other*

3 **The Little Brain** *The Heart's Own Nervous System*

4 **The Wandering Nerve** *What Your Vagus Nerve Really Does*





René Descartes, *L'Homme* (1664): the path from a burned foot to the brain · Wellcome Collection, public domain

PART ONE · CHAPTER 1

Running Hot

What a Dysregulated Nervous System Feels Like

THE CHAPTER IN THREE LINES

The body has one alarm for very different threats, with two speeds: adrenaline within seconds and cortisol over minutes. Neither is a flaw; both keep you alive.

The damage comes from an alarm switched on too often, too strongly, or for too long. Worry and rumination keep the alarm running after the stressor is gone.

You cannot order the alarm off, but you can influence it from the body. The number to watch first is how long you take to settle.

TRY THIS NOW Before you read on, let your shoulders drop as far as they will go and unclench your jaw. If they moved further than you expected, you have just felt a small piece of the climate this chapter is about.

IN THIS WORKBOOK Practice · A Week of Noticing · Diary · Days 1–4 · Diary · Days 5–7 · Reading sheet · How to Read Your Week

CHAPTER 1 · PRACTICE

A Week of Noticing

The first practice in this book needs no device, no app, and no special skill. For one week, you are going to notice your own alarm. The point is not to fix it but to learn its habits: when it goes off, what sets it off and, above all, how long it stays on afterward.

WHAT YOU NEED

- ☐ A small notebook, or the notes on your phone
- ☐ The diary on the next two pages
- ☐ One line each morning about how you slept
- ☐ A watch or phone, to time the settling
- ☐ Three or four moments a day, for seven days
- ☐ No device, no app, no special skill

1 3–4× A DAY



NOTICE

Where Do You Feel It?

At moments when you feel your system revving up, notice what your body is doing: a tight jaw, a fast heartbeat, shallow breathing, a knot in the stomach, heat in the face.

2 EACH TIME



WRITE

Write It Down

The time, what was happening in a few words, what you noticed in your body, and how strong it felt, from 0 for nothing to 10 for the strongest you can imagine.

3 AFTERWARD



TIME

Time the Settling

How long it took to settle, if it did. Of everything you write down, this is the number that matters most, and the one almost nobody measures.

4 DAY 7



READ

Read Your Week

Sit down with the notebook and look for three things, in this order: the recovery time, the trigger, and the pattern.

5 **EACH MORNING · 7 DAYS** Add one line about how you slept. That is all. Do not try to change anything yet, and do not judge what you find.

WHY IT WORKS

Two people can have the same stressful job and the same number of alarms a day, and the one whose body settles in ten minutes will live in a different climate from the one whose body takes two hours. After this week you have a baseline to compare against, and a specific pattern to work on rather than a vague feeling of being overwhelmed.

SELF-OBSERVATION no clinical promise; the four patterns come from a reviewed framework (McEwen), not from this book

A NOTE OF CARE

If what you mostly find is flatness, a tiredness that does not spike at all, take it to a doctor first: a stress response that has stopped responding can have causes that need checking. The medical note at the front of the book tells you when to stop a practice and talk to a doctor.

NOTES

CHAPTER 1 · DIARY · DAYS 1–4

A Week of Noticing

Three or four times a day, when your system revs up. Do not try to change anything yet.

DAY 1

TIME	WHAT WAS HAPPENING	IN MY BODY	STRENGTH 0–10	SETTLED AFTER

LAST NIGHT'S SLEEP _____

DAY 2

TIME	WHAT WAS HAPPENING	IN MY BODY	STRENGTH 0–10	SETTLED AFTER

LAST NIGHT'S SLEEP _____

DAY 3

TIME	WHAT WAS HAPPENING	IN MY BODY	STRENGTH 0–10	SETTLED AFTER

LAST NIGHT'S SLEEP _____

DAY 4

TIME	WHAT WAS HAPPENING	IN MY BODY	STRENGTH 0–10	SETTLED AFTER

LAST NIGHT'S SLEEP _____

CHAPTER 1 · DIARY · DAYS 5–7

A Week of Noticing

Three or four times a day, when your system revs up. Do not try to change anything yet.

DAY 5

TIME	WHAT WAS HAPPENING	IN MY BODY	STRENGTH 0–10	SETTLED AFTER

LAST NIGHT'S SLEEP _____

DAY 6

TIME	WHAT WAS HAPPENING	IN MY BODY	STRENGTH 0–10	SETTLED AFTER

LAST NIGHT'S SLEEP _____

DAY 7

TIME	WHAT WAS HAPPENING	IN MY BODY	STRENGTH 0–10	SETTLED AFTER

LAST NIGHT'S SLEEP _____

MY TYPICAL SETTLING TIME The figure that comes up most often in the last column, not the worst. _____

How to Read Your Week

At the end of the seven days, sit down with the diary and look for three things, in this order. Whatever you find, you now have two things most people who try to manage their stress never get: a baseline to compare against, and a specific pattern to work on. Keep the notebook; you will be asked to open it again.

FIRST · THE RECOVERY TIME

The number that matters most. Copy your typical settling time here, the one that comes up most often, not the worst. _____

SECOND · THE TRIGGER

THINGS THAT WERE HAPPENING

One box per entry.

THINGS ONLY IN MY MIND

The email not yet answered, the conversation not yet had, the mistake from last week.

If most of your boxes are on the right, you have just seen the alarm that runs on thoughts in your own handwriting.

THIRD · THE PATTERN (MCEWEN'S FOUR)

- ☐ **1 · Too many hits**
  The alarms are many and close together, with little room between them. The question is not how to calm down but where the gaps can go.
- ☐ **2 · A failure to adapt**
  The same situation sets off the full alarm every time, as if it were new. Meeting a trigger with a settled body, from the long exhale on, matters most for you.
- ☐ **3 · A response that does not shut off**
  The alarms are not unusually frequent, but they take a long time to settle. It is the pattern the breath is best placed to answer.
- ☐ **4 · Flatness**
  Mostly a tiredness that does not spike at all. Take this one to a doctor first: a stress response that has stopped responding can have causes that need checking.

NOTES



René Descartes, *L'Homme* (1664): a nerve traced from the body to the brain · Wellcome Collection, public domain

PART ONE · CHAPTER 2

A Two-Way Street

How the Heart and the Brain Talk to Each Other

THE CHAPTER IN THREE LINES

Heart and brain share a two-way street with three lanes: nerves, the pressure wave of every heartbeat, and hormones carried in the blood.

The downward lane can be powerful. Chest pain after a shock is an emergency, never "just stress."

The brain listens. Its sense of how you are is partly the heart's account of how it is doing, and your morning resting pulse is the baseline for everything that follows.

TRY THIS NOW Rest two fingers lightly on the side of your neck, just below the angle of the jaw, on one side only. The beat you feel is the carotid artery stretching, and in its wall, a little below your fingertips, the baroreceptors are firing with each pulse.

IN THIS WORKBOOK Practice · The Morning Pulse · Log · Fourteen Mornings · Reading sheet · How to Read Your Two Weeks · Plate 1 · Where the Downward Lane Reaches the Heart

CHAPTER 2 · PRACTICE

The Morning Pulse

The resting heart rate is the simplest window onto the downward lane at its baseline. It moves with things that matter: how well you slept, how much alcohol you drank, whether you are fighting off an infection, and how much strain you have been carrying. For the next fourteen days you will read it first thing in the morning, before your day has had the chance to send its messages down the street.

WHAT YOU NEED

- ☐ A watch or phone with a second hand or timer, by your bed
- ☐ Two fingers (not your thumb)
- ☐ Optional: your smartwatch reading, noted beside your count
- ☐ The notebook from Chapter 1, or the log on the next page
- ☐ One minute, fourteen mornings in a row
- ☐ Your one line about the day and night before

1 ON WAKING



PREPARE

Wake & Stay Still

Stay lying down. Do not check your messages, do not get up, and do not drink coffee yet. Breathe normally for about a minute.

2 THUMB SIDE



FIND

Find Your Pulse

Rest two fingers lightly in the groove on the inside of the wrist, just below the base of the thumb. Or the side of the neck, pressing gently, on one side only.

3 60 S



COUNT

Count 60 Seconds

A full sixty seconds, not fifteen times four. A full minute is more accurate, and it lets you notice whether the rhythm is regular or beats seem to skip.

4 14 MORNINGS



LOG

Log & Compare

The number, whether the rhythm felt regular, and one line about the day before: “slept badly,” “two glasses of wine,” “hard meeting,” “felt fine.”

5 **IF YOU USE A SMARTWATCH** Note its reading as well, but count by hand for these two weeks. Learning to read the signal yourself first makes it much easier to judge what a device is telling you.

WHY IT WORKS

These fourteen mornings are the only baseline the book will ask of you. Over years, the resting rate also carries information about health: in a meta-analysis of 46 studies and more than a million people, every additional ten beats per minute was associated with a nine percent higher risk of death from any cause. That is an association, not a sentence.

SELF-OBSERVATION with a well-established measure: the resting heart rate is a validated clinical sign

A NOTE OF CARE

See your doctor if your pulse is often irregular, with beats that seem to come at random: it can be a sign of atrial fibrillation, which is easy to detect and important to treat. The same if your resting rate is regularly above 100, or below 50 when you are not a trained athlete, especially if you also feel dizzy, short of breath, or faint.

CHAPTER 2 · LOG SHEET

Fourteen Mornings

Lying down, before messages or coffee: a full sixty seconds, counted by hand. Then one line about the day and night before.

DAY	DATE	PULSE (60 S)	RHYTHM	WATCH (OPTIONAL)	THE DAY AND NIGHT BEFORE
WEEK 1					
Day 1			○ regular ○ uneven		
Day 2			○ regular ○ uneven		
Day 3			○ regular ○ uneven		
Day 4			○ regular ○ uneven		
Day 5			○ regular ○ uneven		
Day 6			○ regular ○ uneven		
Day 7			○ regular ○ uneven		
WEEK 2					
Day 8			○ regular ○ uneven		
Day 9			○ regular ○ uneven		
Day 10			○ regular ○ uneven		
Day 11			○ regular ○ uneven		
Day 12			○ regular ○ uneven		
Day 13			○ regular ○ uneven		
Day 14			○ regular ○ uneven		

NOTES

CHAPTER 2 · READING SHEET

How to Read Your Two Weeks

At the end of the fourteen days, look at your numbers in three ways.

FIRST · FIND YOUR BASELINE

Write the fourteen readings in order, from lowest to highest, and take the middle value (between the seventh and eighth). This is your typical morning heart rate, and it belongs to you.

1	2	3	4	5	6	7	8	9	10	11	12	13	14

MY BASELINE (BPM) _____ BASELINE + 5 _____

For most adults a resting heart rate between 60 and 100 is considered normal, and fit people are often below 60. What matters more than where you sit in that range is your own baseline.

SECOND · FIND THE OUTLIERS

Mark every morning at least five beats above your baseline, and read the line beside it. A short night, alcohol, a cold that was starting, a day of heavy worry?

MORNINGS ≥ 5 ABOVE _____

THE USUAL CULPRITS _____

THIRD · PUT IT NEXT TO YOUR WEEK OF NOTICING

If the patterns match

If the mornings after slow recoveries are also the mornings with a faster pulse, you have a measure of your alarm that takes sixty seconds and needs nothing but your fingers.

The alarm that runs on thoughts

A faster heart on the mornings after a day spent turning something over in your mind is the alarm of Chapter 1, seen in a single number.

When it is a doctor's question

Often irregular, regularly above 100, or below 50 when you are not a trained athlete, especially with dizziness, breathlessness, or faintness.

NOTES



PART ONE · CHAPTER 3

The Little Brain

The Heart's Own Nervous System

Bourgery and Jacob, *Traité complet*, vol. 3, plate 43 bis, fig. 2: the nerves on the back of the heart · BIU Santé, public domain

THE CHAPTER IN THREE LINES

Every normal heartbeat starts in the heart itself, in the sinoatrial node. Left to itself, the heart would run at roughly 90 to 105 beats a minute.

The heart has its own small nervous system of tens of thousands of neurons. It is a reflex station that senses and adjusts, not a second mind that thinks or remembers.

How much your heart slows in the first minute after effort reflects how fast the vagal brake comes back on, and you can track it at home, week by week.

TRY THIS NOW Take your pulse for fifteen seconds and multiply by four. Whatever the number, the gap between it and roughly a hundred is the brake, being held on right now.

IN THIS WORKBOOK Practice · The One-Minute Recovery · Log · Four Weeks of Recovery · Plate 2 · Where the Beat Is Born

CHAPTER 3 · PRACTICE

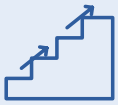
The One-Minute Recovery

In 1999, C. R. Cole and his colleagues followed 2,428 adults for six years after a treadmill test. In about a quarter of them the heart slowed by twelve beats or fewer in the first minute after stopping, and those people were four times as likely to die during the follow-up. That minute is driven almost entirely by the vagal brake coming back on. Over the next four weeks you will take that measurement once a week, in a home version that is not a clinical test but lets you see your own brake at work.

WHAT YOU NEED

- ☐ The same staircase, or a low step, every week
- ☐ Two fingers, or a chest strap or watch that shows your heart rate live
- ☐ Once a week for four weeks, at about the same time of day
- ☐ A one-minute timer
- ☐ The log on the next page
- ☐ A clear answer to the safety check in the note of care

1 2–3 MIN

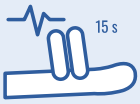


EFFORT

Climb

Brisk stair climbing, or stepping up and down on a low step, to where you breathe hard but can still speak a short sentence. Same stairs, pace, and duration every week.

2 15 S × 4



COUNT

Count at Once

The moment you stop, count your pulse for fifteen seconds and multiply by four, and start a one-minute timer. The one place in the book where a fifteen-second count is right.

3 1 MIN



REST

Rest One Minute

Stand or sit quietly, without talking or moving about. At exactly one minute, count again for fifteen seconds and multiply by four.

4 WEEKLY



LOG

Log the Drop

Subtract the second number from the first. Write the difference with the date, the effort you used, how you slept, and whether you had caffeine beforehand.

5 **WITH A LIVE DISPLAY** If you own a chest strap or a watch that shows your heart rate live, read it at the moment you stop and again at one minute; counting by hand right after effort is harder than it sounds.

WHY IT WORKS

When exercise stops, the first thirty seconds of slowing are driven almost entirely by the vagal brake coming back on: faster in athletes, blunted in heart failure. A first-minute drop that grows over the weeks is commonly observed in people who take up regular activity.

HIGH CONSENSUS recovery as a marker of risk, and the first minute as vagal reactivation

MODERATE improvement with regular activity

SELF-OBSERVATION the home stair version is not a validated test

A NOTE OF CARE

Skip this practice, or ask your doctor first, if you have known heart disease, if you have ever had chest pain, dizziness, or fainting during effort, if you take beta-blockers, if you are pregnant, or if you have not been cleared for exercise. Stop and see your doctor if the effort brings on chest pain, dizziness, palpitations, or breathlessness.

CHAPTER 3 · LOG SHEET

Four Weeks of Recovery

Same stairs, same pace, same duration, about the same time of day. Pulse at the moment you stop, and again at exactly one minute, each counted for fifteen seconds and multiplied by four.

WEEK	DATE	EFFORT USED	AT STOP	AT 1 MIN	DROP	SLEEP	CAFFEINE?
Week 1					–		○ yes ○ no
Week 2					–		○ yes ○ no
Week 3					–		○ yes ○ no
Week 4					–		○ yes ○ no

HOW TO READ YOUR FOUR WEEKS

A trend, not a verdict

Cole's cutoff of twelve beats came from a treadmill test taken to exhaustion, and your stairs are neither of those. Do not hold your numbers against his. Hold them against each other.

Look at the direction

A drop that grows over the weeks is usually read as the brake coming back on sooner, one of the earliest measurable benefits of being more active, weeks before your resting pulse moves.

Look at the exceptions

A week with a markedly smaller drop deserves a glance at your notes: a short night, a heavy day, or an infection on its way can all leave the brake slow to return.

WHEN TO SEE A DOCTOR INSTEAD

If your first-minute drop is very small, twelve beats or fewer, on most of your attempts, or if the effort brings on chest pain, dizziness, palpitations, or breathlessness, stop the practice and describe it to your doctor. A small number on a staircase is a reason to ask a question, not a conclusion to draw.

NOTES



PART ONE · CHAPTER 4

The Wandering Nerve

What Your Vagus Nerve Really Does

Otto Loewi and Henry Dale, who shared the 1936 Nobel Prize · Wellcome Collection, public domain

THE CHAPTER IN THREE LINES

Some 80 to 90 percent of the vagus nerve's fibers carry information up to the brain. It is, above all, a listening nerve.

Breathing opens and closes a gate on the brake: the pulse rises on the in-breath and falls on the out-breath, so a longer exhale gives the brake more time to work.

Implanted stimulators have earned approval for specific conditions, but no gadget or single trick has been shown to reset your vagus.

TRY THIS NOW Put two fingers on your wrist and breathe slowly for a minute. Notice whether the beats quicken a little as you breathe in and ease as you breathe out.

IN THIS WORKBOOK Practice · The Long Exhale · Log · A Week of the Long Exhale · Plate 3 · The Nerve That Wanders

Audio 1 · *Lengthen the Exhale*

Audio 1 · *Lengthen the Exhale*

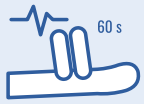
The Long Exhale

Everything in Chapter 4 points to one small, testable act. The gate in every breath opens on the out-breath, and making the out-breath the longer part of each breath increased both the breath-linked slowing of the heart and people's sense of calm. First you feel the gate at work, then you lengthen your exhale for five minutes, then you measure what happened. Once a day for a week, and once more when you actually need it.

WHAT YOU NEED

- ☐ A chair, feet flat on the floor
- ☐ The log on the next page, or a notebook
- ☐ Optional: Audio 1, if you prefer a voice to counting
- ☐ A watch or phone with a timer
- ☐ Five minutes a day, for seven days
- ☐ Two fingers and your own wrist

1 · 2 MIN + 60 S



PREPARE

Pulse First

Sit comfortably, feet on the floor, and rest for two minutes without talking or looking at a screen. Then take your pulse for a full sixty seconds and write it down.

2 · 1 MIN



NOTICE

Feel the Swing

Fingers on your wrist, breathe a little more slowly than usual. Do the beats bunch together as you breathe in and spread apart as you breathe out? Some feel it at once, others not at all. Both are normal.

HIGH CONSENSUS

3 · 5 MIN



BREATHE

Out Twice as Long

In gently through your nose for about three, out softly, through your nose or slightly pursed lips, for about six. No big breaths, no holding, no pushing.

MODERATE

4 · 60 S



MEASURE

Count & Log

As soon as the five minutes are over, take your pulse for another full sixty seconds. Write down the difference from your first count and one word for how you feel.

5 **EACH DAY · 7 DAYS** Repeat once a day, at about the same time. On at least one day, also use step 3 at a moment of real tension, before a difficult call, in a slow line, in bed when sleep will not come, without counting your pulse. Afterward, note what you noticed.

WHY IT WORKS

During the out-breath, the gate on the vagal brake opens, and the pulse falls. Spend more of each breath exhaling, and you spend more of it with the gate open. The swing you feel in step 2 is that brake made visible.

HIGH CONSENSUS the slowing of the heart during exhalation

MODERATE a longer exhale deepening it and the sense of calm, from small lab studies

A NOTE OF CARE

Dizzy, light-headed, or tingly? You are breathing too deeply or too forcefully: return to normal breathing, and next time make each breath smaller. With severe lung or heart disease, or in pregnancy, check with your doctor first.

Audio 1 · *Lengthen the Exhale*

A Week of the Long Exhale

Pulse for a full sixty seconds before and right after five minutes of breathing out twice as long as you breathe in. Mark the day you also used it in a moment of real tension.

DAY	TIME	PULSE BEFORE	PULSE AFTER	DIFFERENCE	ONE WORD	REAL MOMENT?
WEEK 1 · FIVE MINUTES A DAY						
Day 1						○ yes ○ no
Day 2						○ yes ○ no
Day 3						○ yes ○ no
Day 4						○ yes ○ no
Day 5						○ yes ○ no
Day 6						○ yes ○ no
Day 7						○ yes ○ no

HOW TO READ YOUR WEEK

Look at the direction

Expect the change to be small, often a few beats a minute, and to vary from day to day. A pulse counted by hand has an error of a beat or two. On most days, did the second count come in lower than the first?

Read the one-word notes

For many people the more useful result is the real moment: a tool that slowed the pulse at the kitchen table also takes some of the edge off a tense moment, or it does not. Both answers are yours.

If nothing changed

Nothing is wrong with you. The effect of one session is modest and may hide in the noise of counting by hand. Chapter 6 measures more precisely, and Chapter 8 adds the pace of breathing.

THE REAL MOMENT · WHAT HAPPENED, AND WHAT I NOTICED

NOTES

PART TWO

The Signal

Learning to Read Your Heart

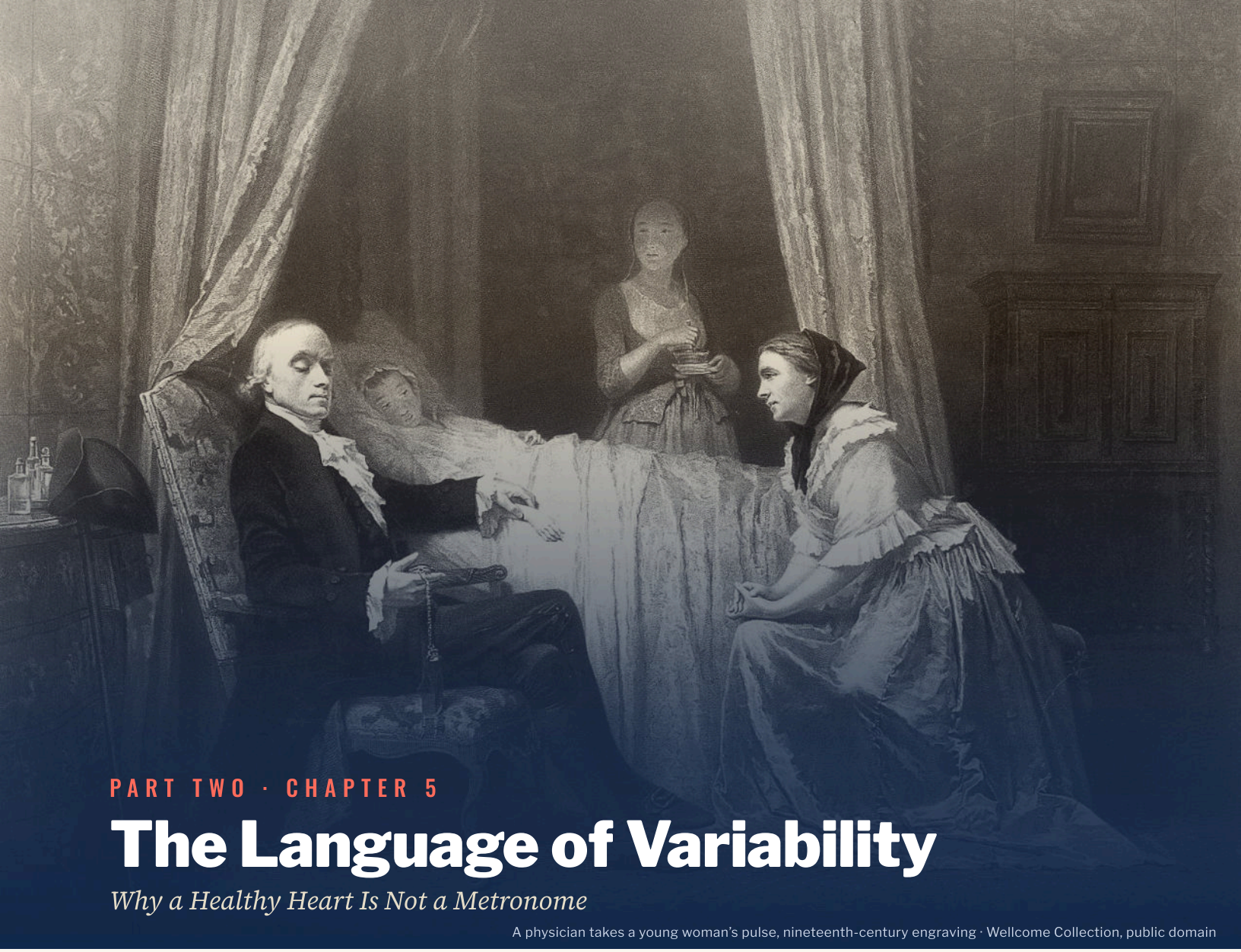
Measurement and perception: what heart rate variability is and is not, how to measure it at home, and how the brain perceives the heartbeat.

5 **The Language of Variability** *Why a Healthy Heart Is Not a Metronome*

6 **Your Wrist Is Not a Doctor** *Measuring HRV Without Fooling Yourself*

7 **Feeling Your Own Heartbeat** *Interoception and Emotion*





PART TWO · CHAPTER 5

The Language of Variability

Why a Healthy Heart Is Not a Metronome

A physician takes a young woman's pulse, nineteenth-century engraving · Wellcome Collection, public domain

THE CHAPTER IN THREE LINES

A healthy heart is not a metronome. The small changes in the gap between beats are the sign that your nervous system is steering it.

Never read an HRV number without the heart rate that came with it. A faster heart leaves less room to vary, so the two must be read together.

The normal range is so wide that the only fair comparison is with yourself. A "readiness" score is an undisclosed composite, not HRV.

TRY THIS NOW If you wear a watch or a ring, open its app and find last night's HRV figure. Before reading further, write down what you think it measures and how it was taken. You will check your guess in the practice at the end of the chapter.

IN THIS WORKBOOK Practice · Decode the Number · Worksheet · Decode the Number

CHAPTER 5 · PRACTICE

Decode the Number

A signal is only as useful as the reading of it, and the reading of an HRV number depends on five questions. Ask them of one real number: the figure your watch, ring, or app showed this morning, or, if you have no device, a figure quoted in an advertisement, a news story, or a friend's conversation. It takes ten minutes once, and after that it becomes a habit you apply in seconds.

WHAT YOU NEED

- ☐ One real HRV number, from a device or from an ad or story
- ☐ Ten minutes, once
- ☐ The heart rate from the same window
- ☐ The app's help pages, or the maker's website
- ☐ The worksheet on the next page
- ☐ A pen, and some patience with fine print

1 NAME



FIND

Find the Name

Is it RMSSD, SDNN, HF, or something else, such as "readiness," "recovery," "stress," or "balance"? Write it down, or write "undisclosed" if the product will not say what it measures.

2 WINDOW



FIND

Find the Window

When was it taken, and for how long: through the night, a one-minute morning check, five minutes, twenty-four hours? A figure from one window cannot be compared with one from another.

3 PAIR



READ

Pair It With HR

Write the heart rate from the same window beside it. If the rate was higher than usual, expect the variability to be lower for that reason alone.

4 TRANSLATE



WRITE

Translate It

One line in plain words. An LF/HF or "balance" figure translates as "a ratio that current physiology does not support," and you can ignore it.

5 · **YOUR COMPARISON RULE** Write it at the top of the page: this number is compared only with my own numbers, from the same window, on the same device. Not with a friend, not with a table of norms, not with last year's phone.

WHY IT WORKS

Three numbers cover most of what you will meet: SDNN, the broadest; RMSSD, the closest to the vagal brake and the one most devices use; and HF, which slips out of range when you breathe slower than about nine breaths a minute.

HIGH CONSENSUS the measurement standards behind the five questions

SELF-OBSERVATION a way of interpreting a reading, not a treatment

A NOTE OF CARE

A single low value after a bad night, alcohol, illness, or hard exercise is expected and temporary. A value that is unexpectedly high alongside an irregular-rhythm notification, or alongside palpitations, is a reason to see a doctor, not to feel reassured.

CHAPTER 5 · WORKSHEET

Decode the Number

5 · MY RULE This number is compared only with my own numbers, from the same window, on the same device. Not with a friend, not with a table of norms, not with last year's phone.

Number A

AS SHOWN _____

1 · NAME

☐ RMSSD ☐ SDNN ☐ HF ☐ A score
☐ Undisclosed

2 · WINDOW

☐ Overnight ☐ 1-min morning ☐ 5 min ☐ 24 h
☐ Unknown

3 · HEART RATE, SAME WINDOW

BPM _____

4 · MY TRANSLATION, IN PLAIN WORDS

_____

_____

_____

Number B

AS SHOWN _____

1 · NAME

☐ RMSSD ☐ SDNN ☐ HF ☐ A score
☐ Undisclosed

2 · WINDOW

☐ Overnight ☐ 1-min morning ☐ 5 min ☐ 24 h
☐ Unknown

3 · HEART RATE, SAME WINDOW

BPM _____

4 · MY TRANSLATION, IN PLAIN WORDS

_____

_____

_____

TWO TRANSLATIONS FROM THE BOOK

"RMSSD 38 ms, overnight, heart rate 58: beat-to-beat variation during sleep, mostly the vagal brake."
"Readiness 72: undisclosed composite, not an HRV measure, not comparable with anything outside this app."

If it ends in "undisclosed"

You have learned the most important thing about that product: its number cannot be checked against any evidence in the book.

If it names a real measure

A value that drifts one way over several weeks, with heart rate taken into account, is worth attention. A single low value after a bad night is expected.

If you have no device

Keep the page anyway. These are the questions to ask of any HRV claim you will ever read.

NOTES

_____

_____

_____

_____

_____



PART TWO · CHAPTER 6

Your Wrist Is Not a Doctor

Measuring HRV Without Fooling Yourself

A physician takes a young woman's pulse, nineteenth-century engraving (detail) · Wellcome Collection, public domain

THE CHAPTER IN THREE LINES

Your watch or ring measures light reflected by the blood under the skin, not the heart's electrical signal. With movement, the agreement breaks down.

Posture, breathing, caffeine, alcohol, food, poor sleep, illness, a loose sensor, and a single extra beat can all move the number.

Trade the morning verdict for a log: fourteen days of one reading, taken the same way, with a line of context. Your own range replaces every chart of norms.

TRY THIS NOW If your device shows your heart rate live, read it lying down, then stand up and read it again after a minute. The difference you see is posture alone.

IN THIS WORKBOOK Practice · The Two-Week Baseline · Log · Fourteen Days, One Reading · Worksheet · Find Your Range · Plate 4 · Where Your Watch Is Looking

CHAPTER 6 · PRACTICE

The Two-Week Baseline

A tracing means something only against a picture of what normal looks like. This practice gives you that picture for yourself. It is a method, not a treatment: for fourteen days you take one reading, in one way, and record the context, and on the fifteenth day you find your range. Its fourteen days are the same fourteen mornings as the morning pulse of Chapter 2.

WHAT YOU NEED

- ☐ One device and one number: overnight HRV (RMSSD if offered), or a 1-to-5-minute morning reading
- ☐ The same posture every morning
- ☐ Your morning pulse, from Chapter 2
- ☐ A phone-camera app or a chest strap, if you take morning readings
- ☐ The 14-day log and the range finder that follow
- ☐ Fourteen days of not reacting to the number

1 · 14 DAYS



CHOOSE

One Source

One device, one app, one setting, one number, for all fourteen days. If you must change any of them in the middle, start the fourteen days again.

2 · ON WAKING



FIX

Same Conditions

After waking and the bathroom, before coffee, nicotine, food, or screens; same posture; still and silent; breathing naturally, not the long exhale. Overnight: wear the device the same way every night.

HIGH CONSENSUS

3 · DAILY



LOG

Log the Context

One line beside the number and its heart rate: sleep, alcohol, a late meal, caffeine after noon, illness, hard exercise, unusual stress, a change of medication, the day of your cycle.

4 · DAY 15



FIND

Find Your Range

Order the fourteen numbers. The middle, between the seventh and eighth, is your typical value. Set aside the single highest and lowest; the remaining extremes mark the edges of your range.

HIGH CONSENSUS

5 **DAYS 1–14 · DO NOT REACT** Change nothing in your routine because of a number, and do not look for a trend. You are collecting, not interpreting.

WHY IT WORKS

Your range is your reference, and it replaces every chart of norms you will ever see. Chapters 8 and 9 will ask whether a practice changes anything measurable, and the only honest way to answer is against these two weeks.

HIGH CONSENSUS standardizing time, posture, breathing, and intake before measuring

HIGH CONSENSUS your personal range as the right comparison for consumer HRV

A NOTE OF CARE

Some things go to a doctor, not into your log: an irregular-rhythm notification from the device, or readings that swing erratically from night to night alongside palpitations, dizziness, chest discomfort, or breathlessness. Take the log with you; it will make the conversation shorter and better.

CHAPTER 6 · LOG SHEET

Fourteen Days, One Reading

DEVICE AND NUMBER _____ POSTURE _____

DAY	HRV	HEART RATE	MORNING PULSE	SLEEP (H · HOW)	ALCOHOL, CAFFEINE, FOOD	ILLNESS, EXERCISE, STRESS, OTHER
WEEK 1						
Day 1						
Day 2						
Day 3						
Day 4						
Day 5						
Day 6						
Day 7						
WEEK 2						
Day 8						
Day 9						
Day 10						
Day 11						
Day 12						
Day 13						
Day 14						

NOTES

CHAPTER 6 · DAY 15

Find Your Range

Put the fourteen numbers in order, from lowest to highest. The middle of the list, between the seventh and eighth values, is your typical value. Set aside the single highest and the single lowest; the remaining extremes mark the edges of your normal range.

1	2	3	4	5	6	7	8	9	10	11	12	13	14
SET ASIDE					YOUR RANGE · 12 VALUES								SET ASIDE

LOW EDGE _____ TYPICAL VALUE _____ HIGH EDGE _____

DAYS OUTSIDE THE RANGE, AND THE LINE BESIDE THEM

DAY _____

DAY _____

DAY _____

HOW TO READ YOUR TWO WEEKS

Inside the range

Nothing has changed. A single reading outside it, with a plausible reason beside it, is your system doing its job under load.

Several below, in a row

With a resting heart rate drifting up and poor sleep or the first signs of illness, it is a body carrying more than it can recover from. The useful response is rest, not alarm.

Scattered everywhere

The problem is usually the measurement, not the body. Tighten the conditions and start again: a careless baseline makes real changes invisible and imaginary ones convincing.

KEEP THE LOG · NOTES FOR CHAPTERS 8 AND 9

NOTES



PART TWO · CHAPTER 7

Feeling Your Own Heartbeat

Interoception and Emotion

"Swing Bridge, Capilano Canyon," postcard, about 1909 · Library of Congress, no known restrictions

THE CHAPTER IN THREE LINES

Interoception is the sense of the body's interior, with the insula at its center. Many judgments that feel like thoughts are partly readings of the body.

Believing you are in touch with your body and actually being in touch with it are different things. Most people are more confident than accurate.

What you can practice now is a pause between the sensation and its story, and a better label: "this is my body getting ready."

TRY THIS NOW Without touching your wrist, neck, or chest, close your eyes for twenty seconds and try to feel your heartbeat. Where do you feel it, if anywhere? Keep the answer in mind; the practice at the end of the chapter will test it.

IN THIS WORKBOOK Practice · Listening Without Touching · Sheet · Listening Without Touching · Plate 5 · The Island Where the Body Is Mapped

CHAPTER 7 · PRACTICE

Listening Without Touching

The practices so far have measured the heart from outside. This one asks what you can perceive from inside, with no sensor, no pulse-taking, and no app, and then checks your perception against reality. You count only what you genuinely feel, and never estimate. A low score is a normal and informative result, not a failure.

WHAT YOU NEED

- ☐ A quiet room and an upright chair
- ☐ Three slips of paper: 25, 35, and 45 seconds, shuffled face down
- ☐ The sheet on the next page
- ☐ A friend with a stopwatch, or a timer you can hear without looking
- ☐ Optional: a chest strap or watch with live heart rate
- ☐ Three days, at the same time of day

1 · 2 MIN



SETTLE

Sit Still

Upright, hands in your lap or on your thighs, not touching your chest, neck, or wrist. Spend two minutes doing nothing in particular.

2 · 25 · 35 · 45 S



COUNT

Count What You Feel

Three intervals, in an order you do not know in advance. Count only the beats you actually feel, anywhere in the body. Zero is a valid answer. Do not estimate.

3 · AFTER EACH



RATE

Rate Your Confidence

After each interval, write down your count and, beside it, your confidence that it was right, from 0 to 10.

4 · CHECK



COMPARE

Check the Pulse

Best: a live heart rate during the count. Without a device, repeat the same intervals with two fingers on your pulse; your rate will have shifted a little, so treat it as approximate.

5 **3 DAYS** Repeat the whole sequence on three days at the same time of day, and keep the sheet.

WHY IT WORKS

The point is not to be accurate but to find out how accurate you are, and how your confidence compares. Expect to undercount: almost everyone does, and in the largest study more than 95 percent of errors were in that direction.

MODERATE the brain reads bodily signals in context, and can misread them

NOT SHOWN that anxiety goes with greater cardiac accuracy (meta-analysis)

PRELIMINARY interoceptive training reduces anxiety: one randomized trial

A NOTE OF CARE

If focusing on your heartbeat makes you anxious, stop, breathe normally, and let the attention go; the exercise is not for you today. If you have a history of panic, do this with a professional rather than alone. A score, high or low, says nothing about the health of your heart.

CHAPTER 7 · SHEET

Listening Without Touching

Count only the beats you actually feel. Write your confidence right after each count, before you check.

	SECONDS	BEATS FELT	CONFIDENCE 0–10	ACTUAL BEATS	FELT - ACTUAL	ACCURACY
DAY 1 · DATE _____						
Interval A	○ 25 ○ 35 ○ 45 s					
Interval B	○ 25 ○ 35 ○ 45 s					
Interval C	○ 25 ○ 35 ○ 45 s					
					AVERAGE ACCURACY, DAY 1	
DAY 2 · DATE _____						
Interval A	○ 25 ○ 35 ○ 45 s					
Interval B	○ 25 ○ 35 ○ 45 s					
Interval C	○ 25 ○ 35 ○ 45 s					
					AVERAGE ACCURACY, DAY 2	
DAY 3 · DATE _____						
Interval A	○ 25 ○ 35 ○ 45 s					
Interval B	○ 25 ○ 35 ○ 45 s					
Interval C	○ 25 ○ 35 ○ 45 s					
					AVERAGE ACCURACY, DAY 3	

HOW TO WORK IT OUT

Actual beats with a live display: the average of the rates at the start and end, times the seconds, divided by sixty. **Accuracy** = 1 − (difference between felt and actual ÷ actual). Average the three.

WHERE I FELT IT

- ☐ Chest
- ☐ Throat
- ☐ Ears
- ☐ Fingertips
- ☐ Somewhere else
- ☐ Nowhere

The gap is the result

High confidence beside low accuracy is common, and that belief deserves a lighter grip. Low confidence beside decent accuracy suggests you can trust your body a little more.

Expect to undercount

Almost everyone does. Near zero on all three days? Your heart, at rest, is largely silent to you, and a sudden sense of it is more likely a change in attention than in your heart.

NOTES

PART THREE

What Works, and How Well

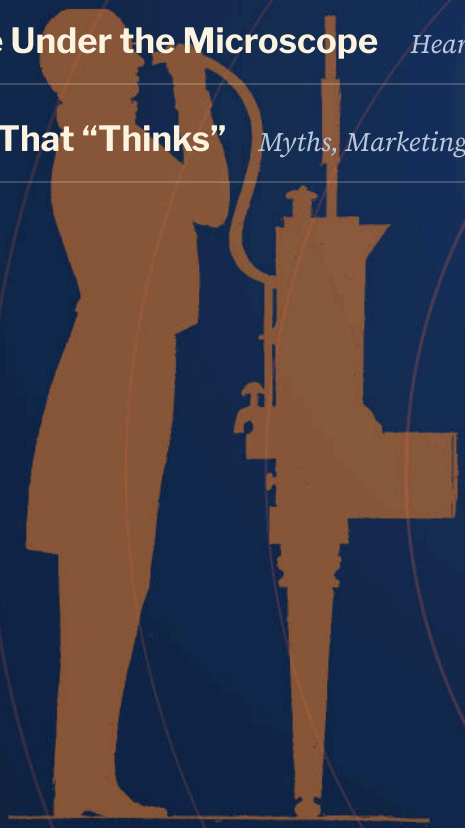
The methods on trial: slow breathing at resonance, biofeedback, coherence training, and the most popular myths about the heart.

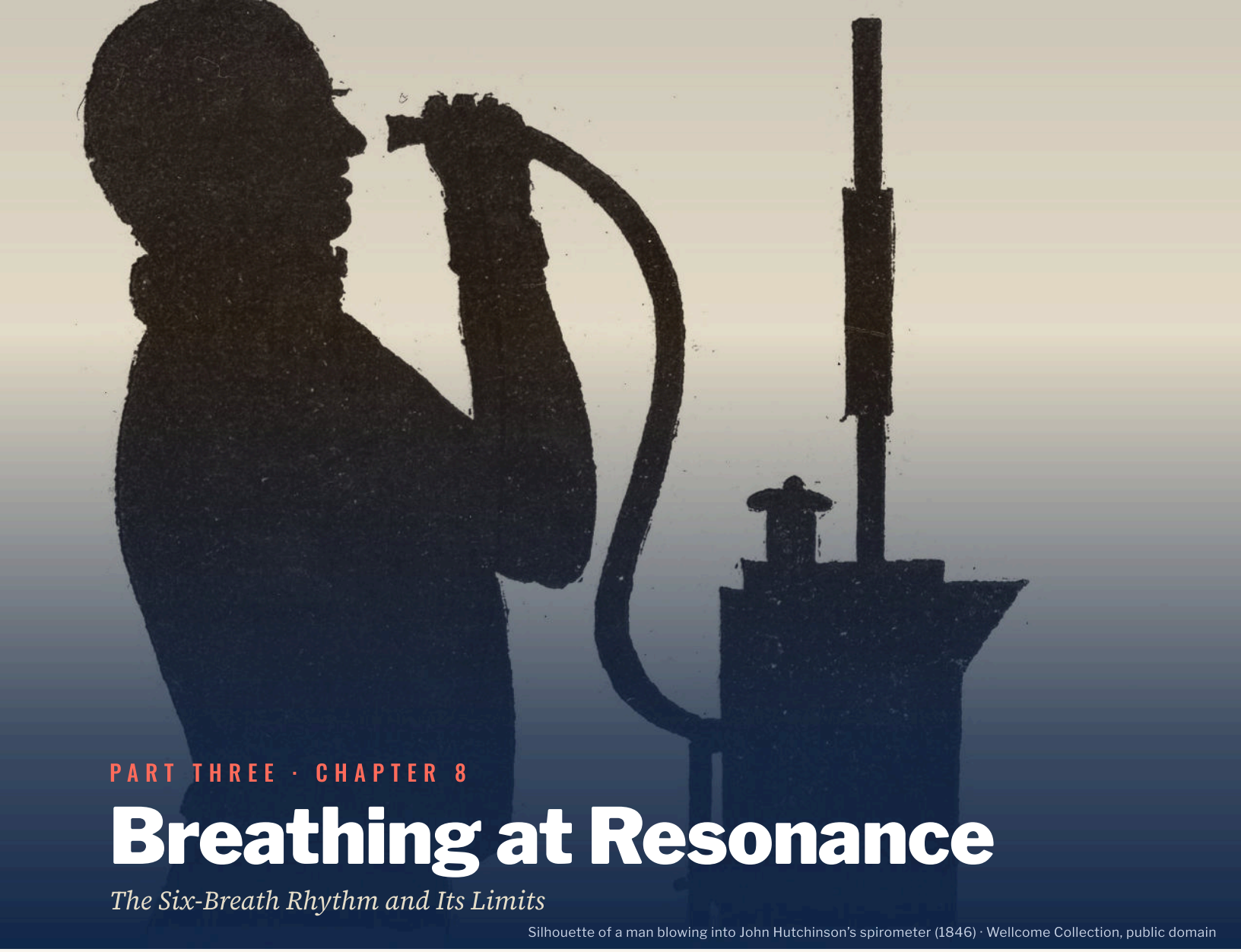
8 **Breathing at Resonance** *The Six-Breath Rhythm and Its Limits*

9 **Biofeedback on Trial** *What Fifty-Eight Studies Actually Show*

10 **Coherence Under the Microscope** *HeartMath's Science, Claims, and Gaps*

11 **The Heart That "Thinks"** *Myths, Marketing, and How to Check a Claim*





PART THREE · CHAPTER 8

Breathing at Resonance

The Six-Breath Rhythm and Its Limits

Silhouette of a man blowing into John Hutchinson's spirometer (1846) · Wellcome Collection, public domain

THE CHAPTER IN THREE LINES

Breathing near six breaths a minute lines up the breath with the baroreflex's own ten-second rhythm, and the swings in heart rate and blood pressure become several times larger.

The rate varies from about 4.5 to 7 breaths a minute, but finding your exact frequency is a refinement, not a requirement. 5.5 or 6 puts you at or near the peak.

Keep the breath small and never hold it at resonance; tingling or dizziness means the breath is too big.

TRY THIS NOW Breathe in for a slow count of five and out for a slow count of five, six times over; it takes about a minute. Then breathe normally and notice the difference. You have just pushed the swing at roughly its own period.

IN THIS WORKBOOK Practice · Find Your Rhythm · Sheet · The Search for Your Rhythm · Log · Fourteen Days at Your Rhythm · Plate 6 · Where Slow Breathing Happens · Audio 2 · *Slow to Six*

Audio 2 · *Slow to Six*

Find Your Rhythm

The long exhale slowed your breath; this practice tunes it. Over three days you search for the rate at which your own system swings most, and for the following two weeks you breathe at that rate for ten minutes a day, measuring each morning against your two-week baseline.

WHAT YOU NEED

- ☐ A breath pacer set in breaths per minute: an app, a metronome with a visual cue, or the guided audios
- ☐ A chair, feet on the floor, hands in your lap
- ☐ Ten minutes a day, for fourteen days
- ☐ Optional: a sensor that shows heart rate beat by beat, ideally a chest strap
- ☐ Your two-week baseline range, from Chapter 6
- ☐ The search sheet and the log that follow

1 DAY 1



PREPARE

Set a Pacer

Sit upright. Inhale a little shorter than you exhale, through the nose if you can, without holding the breath at either end, keeping the breath small and easy.

2 2 MIN EACH

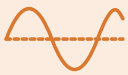


SEARCH

Try Six Rates

7, 6.5, 6, 5.5, 5, and 4.5 breaths a minute, with one minute of normal breathing between rates. With a sensor, note the size of the swing and how smooth the wave looks.

3 DAYS 2–3



CHOOSE

Pick Your Wave

The largest, most regular wave or, without a sensor, the rate that feels most comfortable with no hunger for air (5.5 or 6 if two tie). Repeat on day 2; confirm on day 3 with ten minutes.

HIGH CONSENSUS

4 DAYS 4–17



PRACTICE

Practice and Compare

Ten minutes a day at your rate, at a time apart from your morning measurement. Measure every morning as in your baseline; on day 17, compare the last seven mornings with your range.

MODERATE

WHY IT WORKS

During practice the effect is large; the lasting change in resting variability after weeks of training is small on average and uncertain in any one person. Read, beside the numbers, how the ten minutes feel and what the hour after them is like: that is where the larger, better-documented effect lives.

HIGH CONSENSUS large oscillations and higher baroreflex sensitivity during practice; resonance differs between people

NOT SHOWN that a personally measured rate beats a fixed six

MODERATE a course raising resting HRV afterward: small and variable

A NOTE OF CARE

If the breath ever becomes effortful, make it smaller, not faster. Never hold it at resonance; tingling or dizziness means the breath is too big. With severe lung or heart disease, or in pregnancy, check with your doctor before breathing exercises.

Audio 2 · *Slow to Six*

The Search for Your Rhythm

With a sensor, note the size of the swing from the top of a breath to the bottom. Without one, go by comfort, and by whether you are left with any hunger for air.

RATE	SWING (BPM)	THE WAVE	COMFORT 1–5	HUNGER FOR AIR
DAY 1 · TWO MINUTES AT EACH RATE, ONE MINUTE OF NORMAL BREATHING BETWEEN				
7 / min		○ smooth ○ ragged	① ② ③ ④ ⑤	○ none ○ some
6.5 / min		○ smooth ○ ragged	① ② ③ ④ ⑤	○ none ○ some
6 / min		○ smooth ○ ragged	① ② ③ ④ ⑤	○ none ○ some
5.5 / min		○ smooth ○ ragged	① ② ③ ④ ⑤	○ none ○ some
5 / min		○ smooth ○ ragged	① ② ③ ④ ⑤	○ none ○ some
4.5 / min		○ smooth ○ ragged	① ② ③ ④ ⑤	○ none ○ some
DAY 2 · TWO MINUTES AT EACH RATE, ONE MINUTE OF NORMAL BREATHING BETWEEN				
7 / min		○ smooth ○ ragged	① ② ③ ④ ⑤	○ none ○ some
6.5 / min		○ smooth ○ ragged	① ② ③ ④ ⑤	○ none ○ some
6 / min		○ smooth ○ ragged	① ② ③ ④ ⑤	○ none ○ some
5.5 / min		○ smooth ○ ragged	① ② ③ ④ ⑤	○ none ○ some
5 / min		○ smooth ○ ragged	① ② ③ ④ ⑤	○ none ○ some
4.5 / min		○ smooth ○ ragged	① ② ③ ④ ⑤	○ none ○ some

DAY 3 · CONFIRM

MY RHYTHM (BREATHS / MIN) _____

TEN MINUTES · HOW IT FELT _____

IF DAYS 1 AND 2 DISAGREE

Take the one nearer 5.5. If two rates feel the same, choose 5.5 or 6. Finding your exact frequency is a refinement, not a requirement.

NOTES

Audio 2 · *Slow to Six*

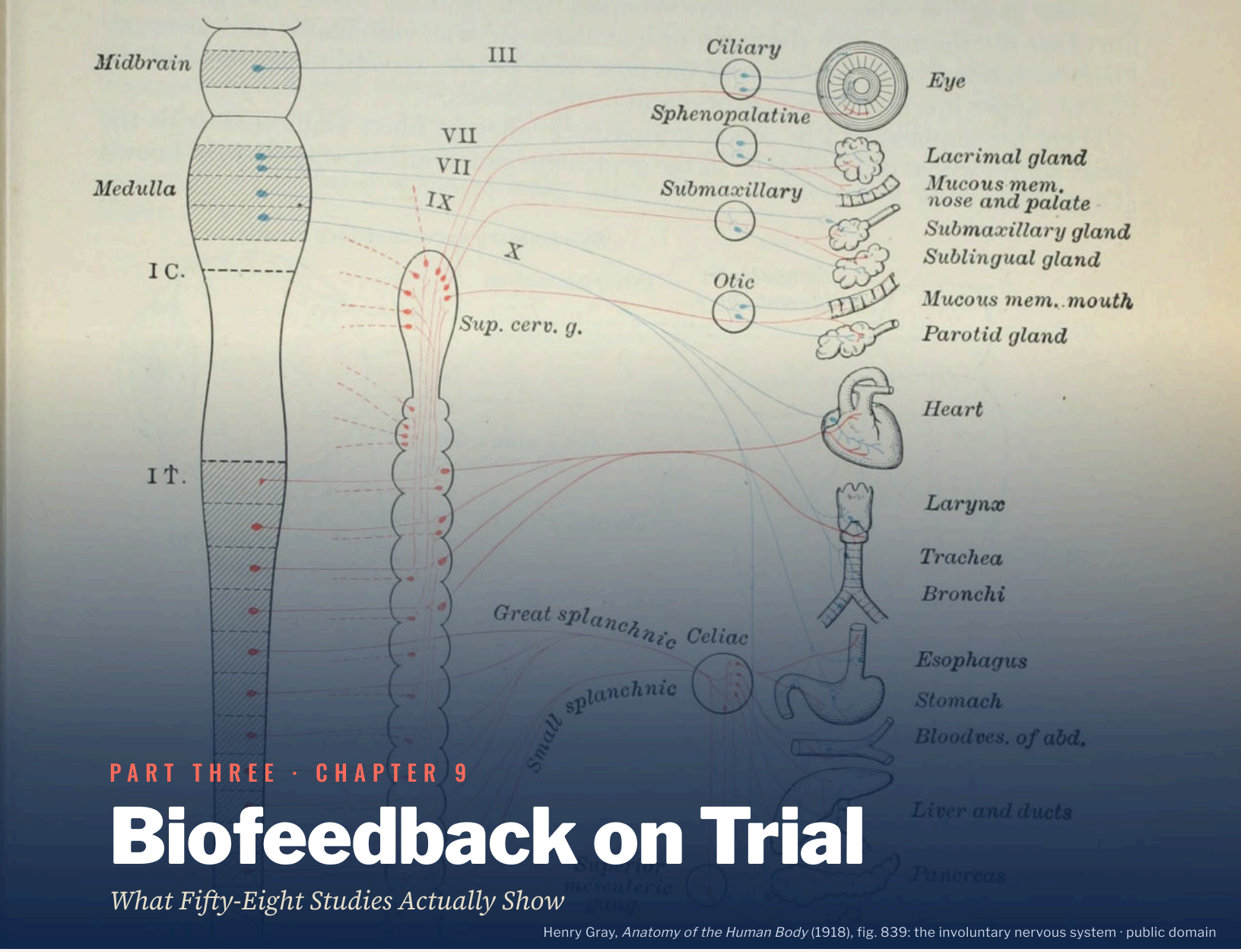
Fourteen Days at Your Rhythm

MY RATE _____ MY RANGE (CHAPTER 6) _____ TIME OF DAY _____

DAY	10 MIN DONE	MORNING READING	AGAINST MY RANGE	HOW THE TEN MINUTES FELT	THE HOUR AFTER
DAYS 4–10					
Day 4			○ below ○ in ○ above		
Day 5			○ below ○ in ○ above		
Day 6			○ below ○ in ○ above		
Day 7			○ below ○ in ○ above		
Day 8			○ below ○ in ○ above		
Day 9			○ below ○ in ○ above		
Day 10			○ below ○ in ○ above		
DAYS 11–17 · THE SEVEN MORNINGS YOU COMPARE					
Day 11			○ below ○ in ○ above		
Day 12			○ below ○ in ○ above		
Day 13			○ below ○ in ○ above		
Day 14			○ below ○ in ○ above		
Day 15			○ below ○ in ○ above		
Day 16			○ below ○ in ○ above		
Day 17			○ below ○ in ○ above		

HOW TO READ IT · Mornings inside your range are the expected result, not a failure: the lasting effect of two weeks on resting variability is small. Several mornings at or above the top, with nothing in the context to explain them, are your own version of the average, and yours to keep.

NOTES



Henry Gray, *Anatomy of the Human Body* (1918), fig. 839: the involuntary nervous system · public domain

PART THREE · CHAPTER 9

Biofeedback on Trial

What Fifty-Eight Studies Actually Show

THE CHAPTER IN THREE LINES

Pooled across fifty-eight randomized trials, HRV biofeedback has a small-to-medium benefit, about equal to other treatments that work, not better.

Ask what any claim was compared with. Beating a waiting list is easy; beating a sham or another treatment is hard.

The breath is the ingredient that has been shown to work; the screen's own contribution is unproven. A device is a mirror for a breathing practice.

TRY THIS NOW Think of the last product you bought to feel calmer, sleep better, or track your health. What was it shown to beat: nothing, a waiting list, a sham, or a cheaper way of doing the same thing? If you cannot tell, that is your answer for now.

IN THIS WORKBOOK Practice · Put Your Device on Trial · Sheet · Ask Before You Pay · Log · Four Weeks, Two Conditions

CHAPTER 9 · PRACTICE

Put Your Device on Trial

This practice asks whether a device would add anything, and it does so the way the trials should have and mostly did not: by comparing the screen with the breath alone, in the same person, with the same measure, decided in advance. First, a set of questions to ask of any product before you pay for it. Then, a four-week experiment on yourself.

WHAT YOU NEED

- ☐ The breathing rate you found in Chapter 8
- ☐ The device, or its free or trial version
- ☐ Ten minutes a day, at the same time, for four weeks
- ☐ A pacer with no heart-rate display
- ☐ One measure and one rule, written before you start
- ☐ The question sheet and the four-week log

1 BEFORE BUYING



ASK

Ask Before You Pay

The five questions of Chapter 11, plus four that only a device raises: beat by beat or a score? chest strap, fingertip, or wrist? a pace from 4.5 to 7? what happens to your data?

2 IN ADVANCE



DECIDE

Set One Rule

One measure (your morning number, tension at bedtime from 0 to 10, nights slept through) and one specific rule of success, both written down before you begin.

3 WEEKS 1 & 3



BREATHE

Breath Alone

Ten minutes a day at your rate, using only a pacer, with no heart-rate display. Record your measure daily, with the context line.

4 WEEKS 2 & 4



COMPARE

Add the Screen

The same ten minutes, at the same rate and time, with the device's feedback on. Alternating the weeks keeps the device from taking credit for improvement that would have come with practice anyway.

5 **END OF WEEK 4** Put the two pacer weeks together and the two device weeks together, and compare each pair with your baseline range and with each other, using the rule you wrote in step 2 and no other.

WHY IT WORKS

Almost no trial has compared the screen with slow breathing alone. Whatever your result, you will have done something no app can do for you: test the product against its own cheapest ingredient.

MODERATE improves symptoms against inactive controls: small to medium

NOT SHOWN beats slow breathing at resonance without feedback

PRELIMINARY beats ordinary paced breathing; remote as good as supervised

A NOTE OF CARE

A few weeks are a small sample, and expectation plays a part too. If neither set of weeks moves your measure, that is also an answer, consistent with the small lasting effects in the literature. Use a free or trial version, if there is one, so the experiment costs nothing.

CHAPTER 9 · SHEET

Ask Before You Pay

PRODUCT _____ FREE OR TRIAL VERSION? _____

1. **Who paid for the studies it cites?** · Chapter 11
2. **What was it compared with?** · Chapter 11
3. **In how many people?** · Chapter 11
4. **Has anyone repeated the result?** · Chapter 11
5. **Did it change a number, or a life?** · Chapter 11
6. **Heart rate beat by beat, or a score of its own invention?** · Chapter 9
7. **A chest strap or fingertip clip, or a wrist device reading light through skin?** · Chapter 9
8. **Can you set a breathing pace anywhere from 4.5 to 7 a minute?** · Chapter 9
9. **What does it do with your data?** · Chapter 9

WRITTEN BEFORE I BEGIN · MY MEASURE AND MY RULE

MEASURE _____

RULE OF SUCCESS _____

For example: “the average of the last seven days is above the top of my range,” or “bedtime tension averages two points lower than in the baseline.”

NOTES

CHAPTER 9 · LOG SHEET

Four Weeks, Two Conditions

Ten minutes a day at your rate, same time of day. Your measure goes in each box; anything else that changed goes in the context lines.

WEEK	DAY 1	2	3	4	5	6	7	AVERAGE
Week 1 PACER ONLY								
Week 2 DEVICE ON								
Week 3 PACER ONLY								
Week 4 DEVICE ON								

CONTEXT · ANYTHING ELSE THAT CHANGED BETWEEN THE WEEKS

MY BASELINE RANGE

PACER WEEKS (1 + 3)

DEVICE WEEKS (2 + 4)

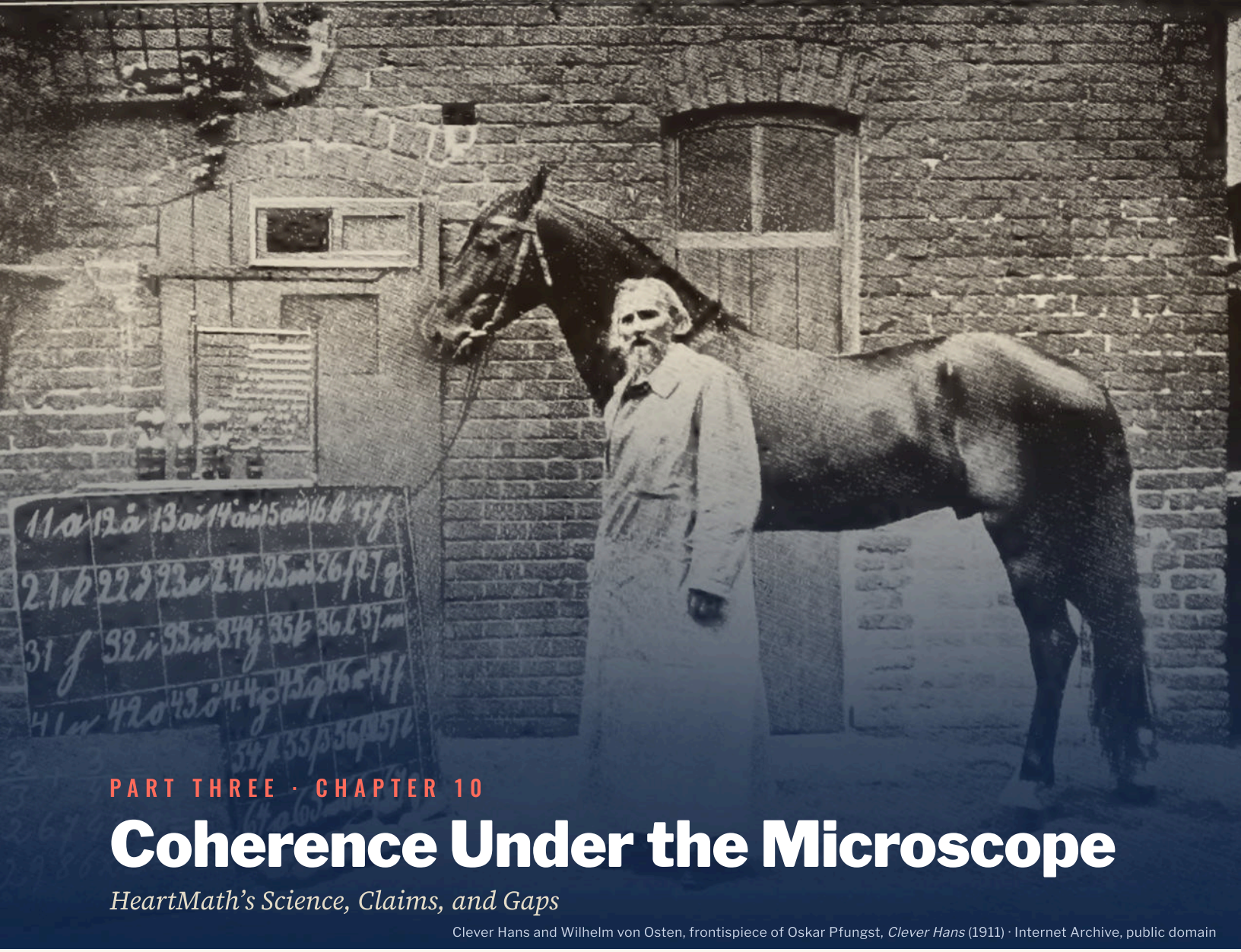
RULE MET?

Both beat the baseline, device no better
You have reproduced, in yourself, what the five head-to-head trials found: the breath is doing the work, and the device is a mirror you may enjoy but do not need.

Device weeks clearly better by your rule
The feedback is helping you, and it is reasonable to keep it, remembering that a few weeks are a small sample and that expectation plays a part too.

Neither moves your measure
That is also an answer. The practice may still be worth ten minutes a day for what the minutes themselves feel like, a judgment only you can make.

NOTES



PART THREE · CHAPTER 10

Coherence Under the Microscope

HeartMath's Science, Claims, and Gaps

Clever Hans and Wilhelm von Osten, frontispiece of Oskar Pfungst, *Clever Hans* (1911) · Internet Archive, public domain

THE CHAPTER IN THREE LINES

Clever Hans was not a fraud, and he still could not count. A real ability, an accurate measurement, and a sincere belief can add up to a false conclusion.

A coherence score measures a single tall spike near 0.1 hertz, and breathing at about six breaths a minute produces exactly that spike.

The breathing carries the evidence; no trial has held the breath constant to test whether the feeling adds anything of its own.

TRY THIS NOW For one minute, breathe slowly, at about six breaths a minute, while you think of a chore you dislike. For the next minute, keep exactly the same rhythm and think of someone you appreciate. A score built on the spike near 0.1 hertz has no way to tell those two minutes apart if your breathing stays the same. Notice whether you can.

IN THIS WORKBOOK Practice · Separate the Ingredients · Log · Six Days, Two Versions

CHAPTER 10 · PRACTICE

Separate the Ingredients

You cannot run a clinical trial at home, but you can do what Pfungst did with the horse: hold everything constant except the one ingredient in question, and see whether it matters to you. Six days, five minutes a day, at the breathing rate you found in Chapter 8. No device is needed; if you use one, cover the coherence score until the end.

WHAT YOU NEED

- ☐ One time of day and one chair, for six days
- ☐ Five minutes a day
- ☐ Someone or something you genuinely appreciate
- ☐ Your resonance rate from Chapter 8, and a pacer
- ☐ The six-day log on the next page
- ☐ A rule decided now: one point or less means “no real difference”

1 · 6 DAYS



SET UP

Same Time

Choose one time of day and one chair, and keep both the same for all six days.

2 · BEFORE & AFTER



RATE

Rate Your Calm

Before each session, rate your calm from 0 (not calm at all) to 10 (completely calm). Afterward, rate it again and write down the difference.

3 · DAYS 1 · 3 · 5



BREATHE

Breath Alone

Five minutes at your resonance rate, with nothing else added. Do not hold your breath; if you feel dizzy or short of breath, return to normal breathing and stop.

MODERATE

4 · DAYS 2 · 4 · 6



ADD

Add the Feeling

The same rate, plus attention on the area of your chest around your heart and a genuine feeling of appreciation for something or someone, staying with it as you breathe.

NOT SHOWN

5 · DAY 7 · COMPARE Average the three differences for the breathing-only days and the three for the breathing-plus-feeling days, and compare the two numbers.

WHY IT WORKS

Coherence training has three ingredients: slow breathing, attention on the chest, and a positive feeling. A rising score is mainly a sign that you are breathing slowly and regularly, not a sign of a particular emotion. This week tests, in you, the one comparison the trials have not made.

MODERATE raises the score and vagal measures during practice, largely as slow breathing

PRELIMINARY HeartMath programs improving clinical outcomes

NOT SHOWN positive emotion adding to slow breathing: untested

KEEP IT FAIR

You know which version you are doing, you are not blinded, and your expectations count. That is exactly why you decide now, before you begin, that a difference of one point or less means “no real difference.”

CHAPTER 10 · LOG SHEET

Six Days, Two Versions

TIME OF DAY _____ CHAIR _____ MY RESONANCE RATE _____

DAY	VERSION	CALM BEFORE 0–10	CALM AFTER 0–10	DIFFERENCE
Day 1	Breath alone			+ / −
Day 2	Breath + feeling			+ / −
Day 3	Breath alone			+ / −
Day 4	Breath + feeling			+ / −
Day 5	Breath alone			+ / −
Day 6	Breath + feeling			+ / −

DAY 7 · BREATH ALONE
Average of days 1, 3, and 5
_____

DAY 7 · BREATH + FEELING
Average of days 2, 4, and 6
_____

THE GAP
More than one point?
_____

More than a point
The emotional ingredient seems to add something for you, and it makes sense to keep it.

A point or less
The ingredient doing the work in you is probably the breath. Use whichever version you prefer; you are not missing the active part by leaving the feeling out.

Neither raises your calm
Three short sessions of each are not much. Chapter 12 shows what can reasonably be expected from these practices for different problems.

NOTES



PART THREE · CHAPTER 11

The Heart That "Thinks"

Myths, Marketing, and How to Check a Claim

The heart, engraving after Senac, late eighteenth century · Wellcome Collection, public domain

THE CHAPTER IN THREE LINES

Repetition makes a statement feel true, even when you already know better. Treat the familiarity of a claim as information about how often you have heard it.

Five questions sort almost any claim: who paid, compared with what, how many for how long, repeated by whom, and a number or your life.

"Not shown" does not mean false; it means a claim has not yet earned your money, time, or hope.

TRY THIS NOW Think of one claim about your health that you have heard at least three times this month. Can you name where you first heard it, and whether anyone has tested it? If you cannot, you have just felt the tiger.

IN THIS WORKBOOK Practice · The Five Questions · Worksheet · One Claim, Five Questions

CHAPTER 11 · PRACTICE

The Five Questions

Ten minutes, once, and then a habit. Choose one claim about health that reached you this week: a headline, an advertisement, a post, a product description, or a piece of advice from a friend. The more confident it sounds, the better it will serve. Put it through the five questions in writing, using only what you can find in ten minutes, and give it a verdict on the same scale this book uses for its own claims.

WHAT YOU NEED

- ☐ One health claim that reached you this week
- ☐ The worksheet on the next page
- ☐ One rule decided now: fewer than three answers means “Not shown”
- ☐ Ten minutes and a search engine
- ☐ The book’s four verdicts
- ☐ A pen

1 THIS WEEK



CHOOSE

Pick a Claim

A headline, an ad, a post, a product description, or advice from a friend. The more confident it sounds, the better it will serve.

2 10 MIN



ASK

Ask in Writing

Who paid, and who profits? Compared with what? How many, for how long, and who? Repeated by whom? A number or a life?

3 COUNT



COUNT

Count Answers

How many of the five could you answer from the information available in ten minutes? Fewer than three?

4 VERDICT



JUDGE

Give a Verdict

High consensus, Moderate, Preliminary, or Not shown. If you could not answer at least three, the provisional verdict is “Not shown,” however convincing the claim sounds.

WHY IT WORKS

After you have done this a few times on paper, you will find yourself doing it automatically, in the few seconds it takes to read a headline, and you will notice that most of the claims that reach you are tigers made by repetition.

HIGH CONSENSUS the principles behind the questions: sponsorship bias, failed replications, the value of comparison and blinding

SELF-OBSERVATION a reading tool, not a treatment

KEEP IT FAIR

“Not shown” is not a verdict of “false.” It means the claim has not yet earned your money, your time, or your hope, and that you can return to it if better evidence appears. The same five questions apply to this book.

NOTES

CHAPTER 11 · WORKSHEET

One Claim, Five Questions

THE CLAIM, WORD FOR WORD, AND WHERE I MET IT

1 **Who paid, and who profits?** ☐ answered
Who makes the claim, who funded the research, and does either gain if you believe it?

2 **Compared with what?** ☐ answered
Nothing, a waiting list, a sham, or an established treatment? If none, write "none found."

3 **How many, for how long, and who?** ☐ answered
The number of people, how long they were followed, and how similar they are to you.

4 **Repeated by whom?** ☐ answered
Has any group without a stake in the result found the same thing?

5 **A number or a life?** ☐ answered
What was measured, and is it the thing you care about or a stand-in for it?

ANSWERED

__ / 5

MY VERDICT

☐ HIGH CONSENSUS ☐ MODERATE ☐ PRELIMINARY

☐ NOT SHOWN

Fewer than three answers: the provisional verdict is "Not shown," however convincing the claim sounds.

Not shown
Not "false." It has not yet earned your money, time, or hope; return to it if better evidence appears.

Preliminary
May be worth trying if it is cheap, safe, and easy to stop, with your eyes open.

Moderate or High consensus
Solid enough to act on, within the limits the evidence itself describes.

NOTES

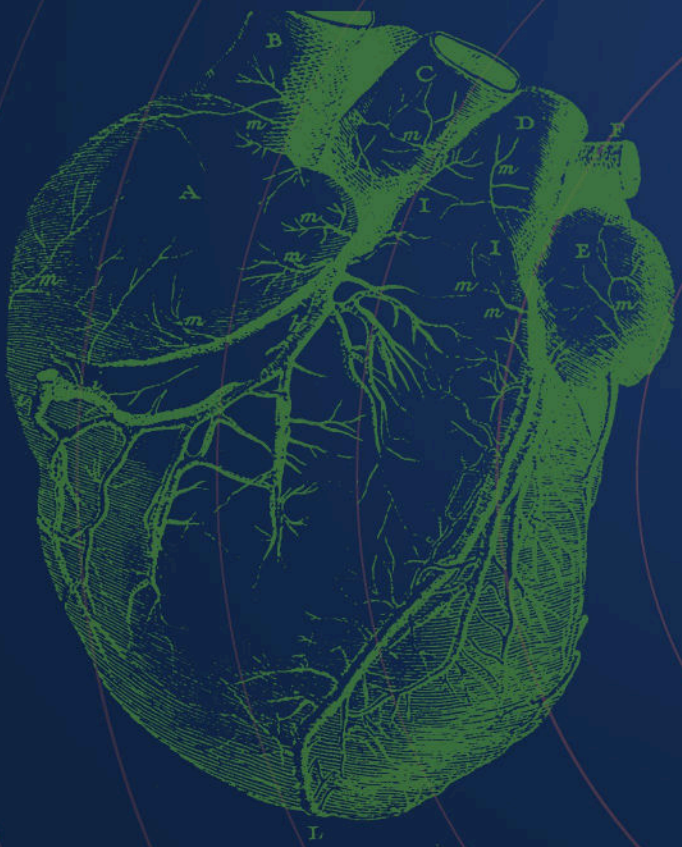
PART FOUR

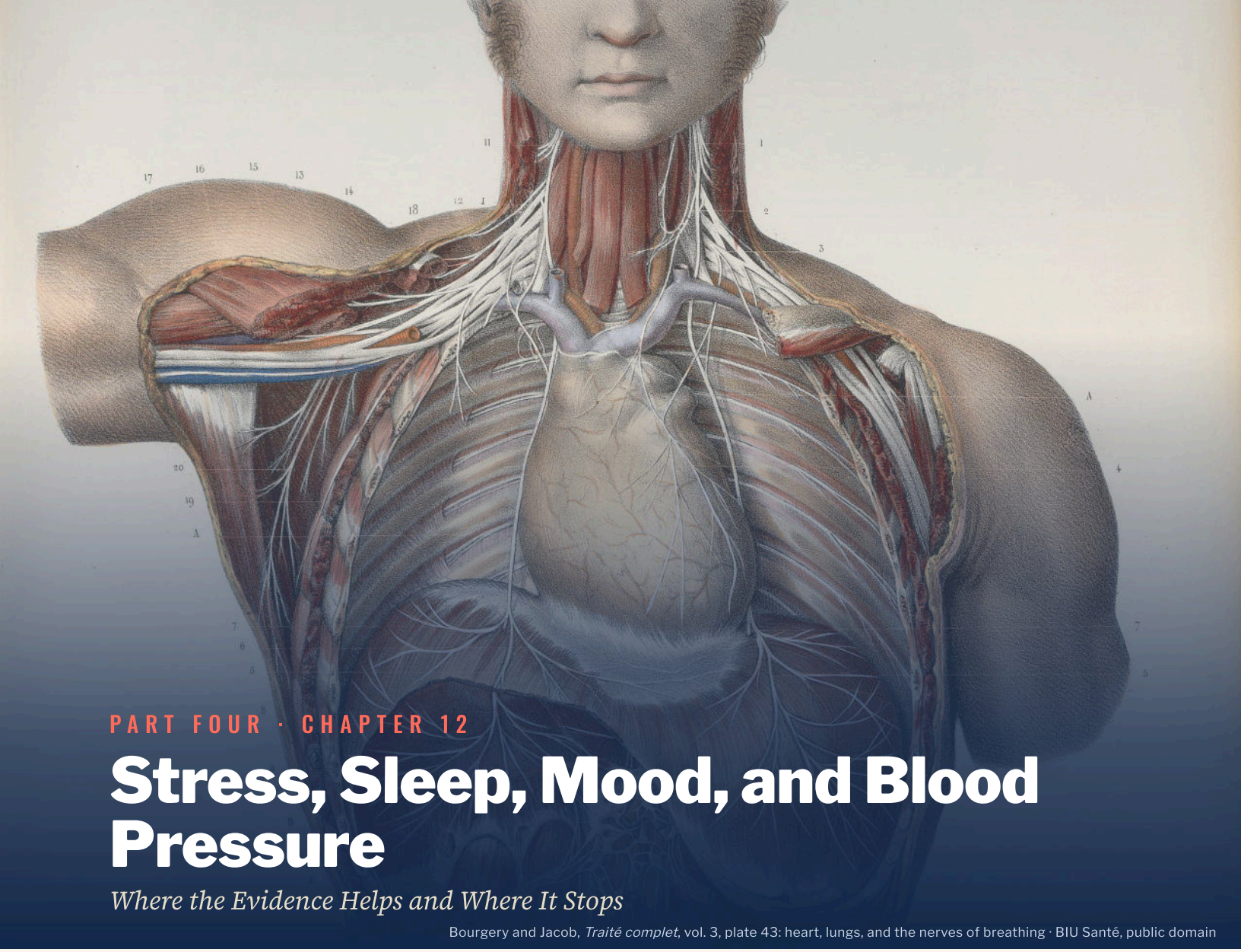
Living Regulated

Everything brought home: the evidence for specific problems, and a protocol built week by week from the practices of the earlier chapters.

12 **Stress, Sleep, Mood, and Blood Pressure** *Where the Evidence Helps and Where It Stops*

13 **Eight Weeks** *Building a Practice That Outlasts the Book*





PART FOUR · CHAPTER 12

Stress, Sleep, Mood, and Blood Pressure

Where the Evidence Helps and Where It Stops

Bourgery and Jacob, *Traité complet*, vol. 3, plate 43: heart, lungs, and the nerves of breathing · BIU Santé, public domain

THE CHAPTER IN THREE LINES

The relaxation response is real, and as a treatment it is a small tool. A small tool is not a weak one; it is one whose job is specific.

For stress and everyday anxiety, slow breathing has small to moderate effects. Regular slow breathing lowers blood pressure by a few points on average.

Judge a practice after about four weeks of regular use, and if nothing you care about has moved after a fair month, respect that result.

TRY THIS NOW Before reading on, write down in one line the problem that brought you to this book, in your own words rather than in the vocabulary of any app. Keep the line; the practice at the end of the chapter starts from it.

IN THIS WORKBOOK Practice · Your Problem, Your Plan · Entries · Choose Your Entry, 1–4 · Entries · Choose Your Entry, 5–8 · Plan sheet · My Problem, My Plan

Your Problem, Your Plan

This practice turns the chapter into a plan for your own situation. Choose one problem, the one that matters most to you right now, read its entry on the next two pages, and write down your answers to its four parts. The entries use the long exhale from Chapter 4, resonance breathing from Chapter 8, and the measures from Chapter 6, and each pairs the breath with regular movement.

WHAT YOU NEED

- ☐ The one line you wrote at the start of Chapter 12
- ☐ The eight entries on the next two pages
- ☐ The plan sheet that follows
- ☐ One problem, the one that matters most now
- ☐ Your Chapter 6 measures
- ☐ One sentence, decided now, that you will not change later

1 ONE ONLY



CHOOSE

One Problem

The one that matters most to you right now. Adding a second measure later is easy; changing several things at once makes it impossible to know what helped.

2 PRACTICE



MATCH

Match the Practice

The long exhale of Chapter 4 or the resonance breathing of Chapter 8, at the dose the entry gives, paired with regular movement.

3 4 WEEKS



TRACK

Track One Measure

The measure the entry names, and one sentence decided now: what result after four weeks would make you continue, and what would make you stop or seek something else.

4 ALWAYS



SAFETY

Know When

Each entry says when to see a professional. Read that line first, not last.

WHY IT WORKS

Each entry pairs the breath with regular movement, because aerobic exercise is the strongest lever there is on resting heart rate variability and the most strongly graded recommendation for blood pressure.

MODERATE stress, and modest reductions in blood pressure

PRELIMINARY depression as a treatment, sleep, pain, trauma, and inflammation

NOT SHOWN palpitations: breathing practices have not been tested

A NOTE OF CARE

Never change your medication on your own. If low mood comes with thoughts of self-harm, seek help immediately. New or frequent palpitations go to a doctor first, and at once if they come with chest pain, fainting, or breathlessness.

NOTES

Choose Your Entry

Read the entry for your problem, tick it, and copy its four parts onto your plan. Each verdict is the book's, for that problem.

☐ Stress and everyday anxiety — MODERATE

PRACTICE Resonance breathing, ten minutes once or twice a day, and the long exhale in tense moments; pair it with regular movement.

EXPECT A modest reduction in tension over two to four weeks.

TRACK A 0-to-10 rating of tension at the same time each day, alongside your morning baseline.

SEE A PRO If anxiety stops you from working, sleeping, or leaving the house, or if you have panic attacks.

☐ Palpitations and fear of your own heartbeat — NOT SHOWN

PRACTICE **First:** have new or frequent palpitations checked by a doctor; the practice begins only once you know the rhythm is harmless. Then the long exhale when you notice the beat, instead of checking your pulse again; pair it with regular movement.

EXPECT No randomized trial of breathing practices for palpitations themselves was found: expect help with the fear and the arousal around the beat, not a change in the beat.

TRACK How often each day you check your pulse or look for reassurance, and a 0-to-10 rating of the fear.

SEE A PRO Always first, and at once with chest pain, fainting, or breathlessness. If the fear persists after a normal checkup, ask about psychological treatment for health anxiety.

☐ Low mood — PRELIMINARY

PRACTICE Resonance breathing daily, ideally with activities that matter to you and contact with other people; pair it with regular movement.

EXPECT A small lift in mood over several weeks, not a resolution.

TRACK A 0-to-10 rating of mood each evening.

SEE A PRO If low mood lasts more than two weeks, interferes with daily life, or comes with thoughts of self-harm, in which case seek help immediately.

☐ Sleep — PRELIMINARY

PRACTICE Ten to fifteen minutes of slow breathing before bed every night for a month; pair it with regular movement.

EXPECT Better reported sleep quality in about four weeks, with less certainty about measured sleep.

TRACK A 0-to-10 rating of sleep quality each morning, and the times you went to bed and got up.

SEE A PRO If poor sleep has lasted three months or more, ask about cognitive behavioral therapy for insomnia; if you snore loudly or stop breathing in your sleep, ask about sleep apnea.

Choose Your Entry, Continued

☐ Blood pressure

MODERATE

PRACTICE	Slow breathing at ten breaths a minute or slower, daily, for at least four weeks; pair it with regular movement.
EXPECT	A reduction of a few points on average, if any.
TRACK	Blood pressure measured the way your doctor recommends.
SEE A PRO	Before starting, if you take medication, and never change your medication on your own.

☐ Chronic pain

PRELIMINARY

PRACTICE	Slow diaphragmatic breathing, about fifteen minutes a day; pair it with regular movement.
EXPECT	Possible improvement in pain and in coping, with uncertain size.
TRACK	A 0-to-10 rating of pain and of how much it interferes with your day.
SEE A PRO	If the pain is new, severe, or changing, or comes with other symptoms.

☐ Trauma

PRELIMINARY

PRACTICE	Short sessions of the long exhale, with your eyes open if that feels safer; pair it with regular movement.
EXPECT	Help with arousal in the moment, as support for treatment.
TRACK	How often you feel overwhelmed each week.
SEE A PRO	Always, because trauma has effective specific treatments; stop the practice if it brings up distressing memories.

☐ Chronic illness or inflammation

PRELIMINARY

PRACTICE	Resonance breathing daily, as an addition to your treatment; pair it with regular movement.
EXPECT	An uncertain effect on inflammation; possible benefits for stress and well-being.
TRACK	Whatever your medical team already measures, plus a 0-to-10 rating of how you feel.
SEE A PRO	Before starting, and continue all prescribed treatment.

NOTES

CHAPTER 12 · PLAN SHEET

My Problem, My Plan

THE ONE LINE I WROTE AT THE START OF THE CHAPTER

MY PROBLEM

PRACTICE

EXPECT

TRACK

SEE A PROFESSIONAL

DECIDED NOW, NOT TO BE CHANGED LATER

AFTER FOUR WEEKS, I CONTINUE IF

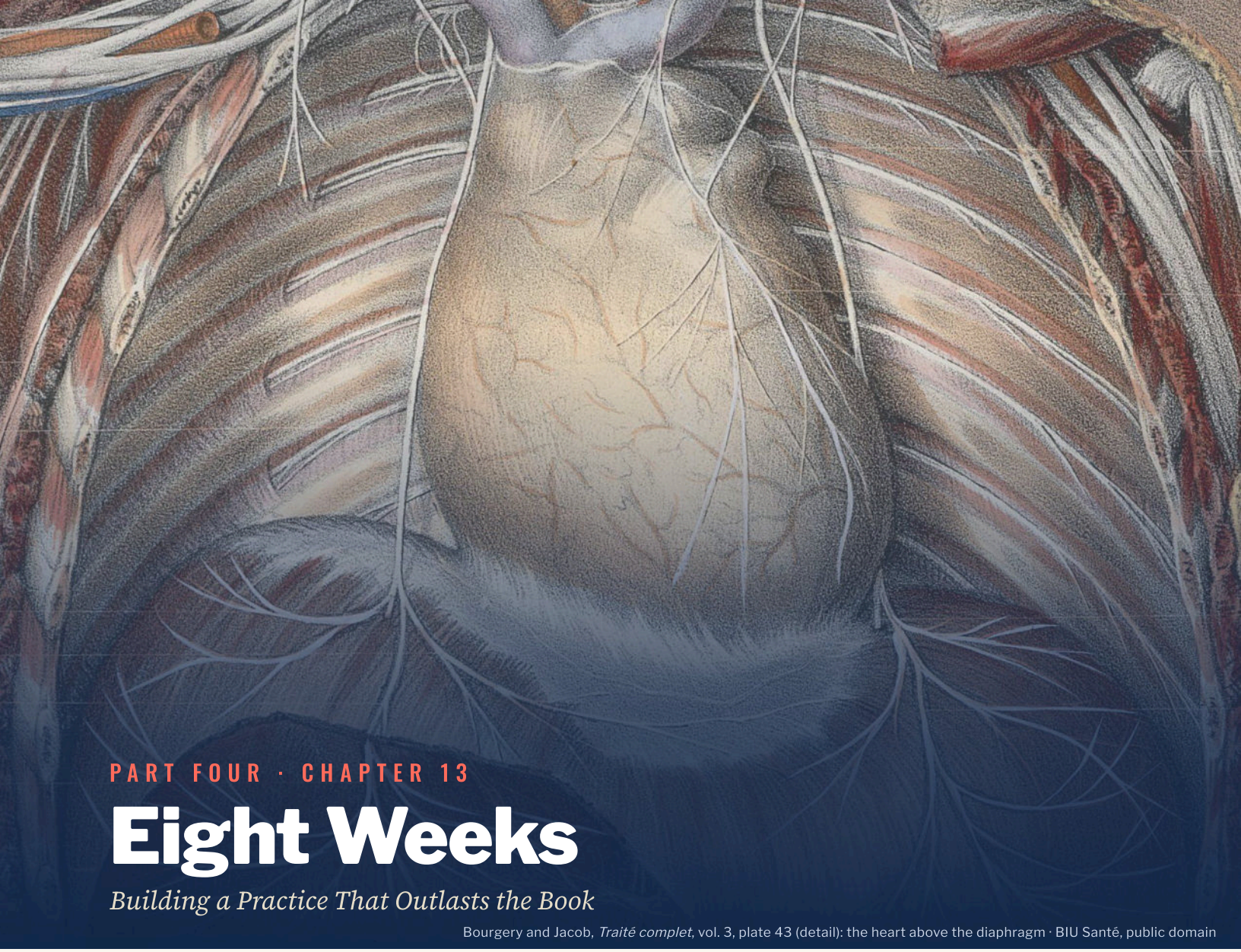
I STOP, OR SEEK SOMETHING ELSE, IF

START DATE

CHECK DATE (+ 4 WEEKS)

More than one problem? Start with one. Adding a second measure later is easy, but changing several things at once makes it impossible to know what helped. Bring this page to Chapter 13, which turns it into an eight-week program.

NOTES



PART FOUR · CHAPTER 13

Eight Weeks

Building a Practice That Outlasts the Book

Bourgery and Jacob, *Traité complet*, vol. 3, plate 43 (detail): the heart above the diaphragm · BIU Santé, public domain

THE CHAPTER IN THREE LINES

The twenty-one-day habit rule was never measured. In Lally's study the median was sixty-six days, and missing a single day barely mattered.

Measure for two weeks before you change anything, add one step at a time, decide in advance what counts as success, and test before you pay.

Count practice days, not streaks, and keep a five-minute fallback for days that fall apart.

TRY THIS NOW Finish this sentence on paper: "After I ___, I will sit in ___ and breathe." If you cannot fill in the first blank, you have found the first job of the next two weeks.

IN THIS WORKBOOK Practice · The Eight-Week Plan · Plan · Eight Weeks, One Change at a Time · Sheet · Your If-Then Plan · Tracker · Fifty-Six Days · Audio 1 · *Lengthen the Exhale* · Audio 2 · *Slow to Six* · Audio 3 · *Resonance*

Audio 1 · *Lengthen the Exhale* Audio 2 · *Slow to Six* Audio 3 · *Resonance*

The Eight-Week Plan

This is the whole book's practice in one plan. You need the sheet you wrote in Chapter 12, the printable 30-Day Heart-Brain Plan and its three guided audios (or a breath pacer app set by breaths per minute), the measuring routine you built in Chapter 6, and a notebook. The pages that follow hold the plan, your if-then lines, a tracker for all fifty-six days, and your two decision days.

WHAT YOU NEED

- ☐ Your Chapter 12 sheet and its decision sentence
- ☐ Your Chapter 6 measuring routine
- ☐ The plan, if-then lines, tracker, and decision sheet that follow
- ☐ The 30-Day Heart-Brain Plan and its three audios, or a pacer app
- ☐ A time, a place, and an anchor you already do every day
- ☐ A five-minute fallback for days that fall apart

1 WEEKS 1–2



MEASURE

Measure First

Two weeks with no practice: the alarm log, a stair test, the morning pulse, a wearable reading, and your Chapter 12 measure. Skip them if your baseline is less than six weeks old.

2 WEEKS 3–6



BUILD

One Step a Week

Week 3, the long exhale; week 4, six breaths a minute; week 5, your resonant rhythm; week 6, the session that suited you. Each week adds one element and keeps the last.

3 DAY 42



DECIDE

Decide

Compare your last two weeks with your range and apply the decision sentence you wrote before you began: continue, adjust one thing, or stop.

4 WEEKS 7–8



KEEP

Keep It Going

Settle your maintenance dose, the smallest you will keep. Optional: the ingredient test of Chapter 10 and the questions before buying anything.

WHY IT WORKS

Your body and your habit run on two clocks. You will probably know whether the practice helps after about four weeks, well before it becomes automatic, so the weeks after the verdict are when the habit is actually built.

MODERATE if-then planning, and attaching a practice to an existing routine

PRELIMINARY the eight-week program as a package, not tested as a whole

A NOTE OF CARE

Count practice days, not streaks. If the day falls apart, five minutes of the long exhale at any time before bed counts as a practice day. Take a new baseline after a new device, a change in medication, or a large change in your life.

NOTES

Eight Weeks, One Change at a Time

The plan from the book, row by row, with a box to tick as you go. Weeks 3 to 6 are the 30-Day Heart-Brain Plan and its three guided audios.

WHEN	DO	RECORD	DONE
Before day 1	Choose your time and anchor; write your if-then plan; copy the decision sentence from your Chapter 12 sheet into your notebook.	—	☐
Days 1–14	No practice. Alarm log in week 1 (Chapter 1); stair test once in week 2 (Chapter 3). Skip if your baseline is less than six weeks old.	Waking pulse (Ch. 2); wearable reading under baseline conditions, if you use one (Ch. 6); your Chapter 12 measure.	☐
Day 15	Work out your own range from the baseline (Chapter 6).	Your range.	☐
Week 3	Long exhale (Chapter 4), 5 minutes a day at your anchor. ▶ Audio 1 · *Lengthen the Exhale*	Morning pulse; Chapter 12 measure.	☐
Week 4	Six breaths a minute, 10 minutes a day. If it feels strained, breathe a little faster. ▶ Audio 2 · *Slow to Six*	The same.	☐
Week 5	Your resonant rhythm (Chapter 8): 10 minutes at your own rate, or 15 minutes with the audio. ▶ Audio 3 · *Resonance*	The same.	☐
Week 6	Keep the session that suited you; the long exhale in tense moments; heartbeat exercise once (Chapter 7); stair test at the end.	The same.	☐
Day 42	Compare your last two weeks with your range and apply your decision sentence: continue, adjust one thing, or stop.	Three numbers per measure.	☐
Weeks 7–8	Optional: the ingredient test (Chapter 10) in week 7; the questions before buying anything (Chapters 9 and 11). Settle your maintenance dose; alarm log in week 8; stair test at its end.	The same.	☐
Day 56 and after	Baseline, day 42, and day 56 side by side; one sentence on what you will keep, at what dose and anchor. Check every four weeks; a new baseline after a new device, a change in medication, or a large change in your life.	Your measure against your range, every four weeks.	☐
Throughout	Regular movement alongside the breath. The fallback counts as a practice day.	Practice days, not streaks.	☐

NOTES

CHAPTER 13 · SHEET

Your If-Then Plan

Write four lines and keep them where you will see them. A habit forms when an action is welded to a cue, so attach the practice to something you already do every day.

TRY THIS NOW, FROM THE CHAPTER

After I _____, I will sit in _____ and breathe.

WHEN

If it is (a time) and I have just (an existing routine: poured my coffee, brushed my teeth, sat down at my desk, turned off the light), then I (sit in a specific place and start the audio).

WHERE

The chair or place you will use every time.

FALLBACK

If the day falls apart, then I do one round of the long exhale, five minutes, at any time before bed. It counts as a practice day.

AFTER A MISS

If I miss a day, then I simply practice at the next anchor, without making up for it and without starting over.

MY TIME _____ MY ANCHOR _____ MY DOSE _____

NOTES

Audio 1 · *Lengthen the Exhale* Audio 2 · *Slow to Six* Audio 3 · *Resonance*

Fifty-Six Days

A tick for every practice day, an F for a fallback day, and your measure in the corner of the box if you like. Practice days, not streaks: a gap is a gap, not a reason to start over.

WEEK	DAY 1	2	3	4	5	6	7
Week 1 **Baseline** Alarm log · pulse							
Week 2 **Baseline** Stair test · pulse							
Week 3 **Long exhale** 5 min ▶ AUDIO 1							
Week 4 **Six a minute** 10 min ▶ AUDIO 2							
Week 5 **Resonant rhythm** 10–15 min ▶ AUDIO 3							
Week 6 **What suited you** stair test at the end							
Week 7 **Maintenance** ingredient test (optional)							
Week 8 **Maintenance** alarm log · stair test							

PRACTICE DAYS, WEEKS 3–6 _____

FALLBACK DAYS _____

PRACTICE DAYS, WEEKS 7–8 _____

NOTES

Day 42 and Day 56

On each of these days, write three numbers for each measure: your baseline range, your average for the last week or two, and the difference. Then answer two questions in a sentence each. Keep the answer even if it is "stop." A clear negative result is information, and it frees your time for something that might work better.

Day 42

NAME	BASELINE RANGE	LAST WEEK OR TWO	DIFFERENCE
Measure 1			
Measure 2			
Measure 3			

DID THE RESULT MEET THE RULE I WROTE BEFORE I BEGAN? _____

WHAT I WILL DO NOW ☐ Continue as I am ☐ Change one thing ☐ Stop

Day 56

NAME	BASELINE RANGE	LAST WEEK OR TWO	DIFFERENCE
Measure 1			
Measure 2			
Measure 3			

DID THE RESULT MEET THE RULE I WROTE BEFORE I BEGAN? _____

WHAT I WILL DO NOW ☐ Continue as I am ☐ Change one thing ☐ Stop

WHAT I WILL KEEP, AT WHAT DOSE AND ANCHOR _____

BEYOND THE BOOK

Four New Exercises

They are not in the book, but they grow out of it. Each one uses only what the book already says, with its evidence level and its note of care.

A **The Claim Card**
Cut-out cards with the questions of Chapters 9 and 11, for ads, apps, and headlines.

B **The In-the-Moment Card**
What the book says works in a tense moment, each with its evidence level and its limit.

C **Your If-Then Map**
Your triggers from the week of noticing, turned into if-then lines.

D **After Week Eight: Monthly Check-In**
Six months of four-weekly checks, against your range and your rule.

BEYOND THE BOOK · A

The Claim Card

Cut out the cards along the dashed lines and keep one in your wallet or beside your screen. They hold the five questions of Chapter 11 and the four more that only a device raises, from Chapter 9.

Five Questions

THE HEART-BRAIN WORKBOOK

For any health claim: a headline, an ad, a post, a friend's advice.

1. **Who paid, and who profits?**
2. **Compared with what?**
3. **How many, for how long, and who?**
4. **Repeated by whom?**
5. **A number or a life?**

Fewer than three answered? The provisional verdict is **Not shown**, however convincing it sounds.

Before You Pay

THE HEART-BRAIN WORKBOOK

For any device or app, after the five questions.

1. **Beat by beat, or a score of its own invention?**
2. **Chest strap or fingertip, or wrist and light?**
3. **A pace anywhere from 4.5 to 7 a minute?**
4. **What does it do with my data?**

Then test it against its cheapest ingredient: weeks with a pacer only against weeks with the screen.

CLAIMS I CHECKED THIS MONTH

DATE	THE CLAIM, IN A FEW WORDS	WHERE I MET IT	ANSWERED	VERDICT
			/ 5	○ HC ○ M ○ P ○ NS
			/ 5	○ HC ○ M ○ P ○ NS
			/ 5	○ HC ○ M ○ P ○ NS
			/ 5	○ HC ○ M ○ P ○ NS
			/ 5	○ HC ○ M ○ P ○ NS
			/ 5	○ HC ○ M ○ P ○ NS

KEEP IT FAIR

"Not shown" does not mean false; it means the claim has not yet earned your money, time, or hope. And the same questions apply to the book, which is why every chapter shows its sources.

The In-the-Moment Card

Everything the book says can help in a tense moment, on one page, each with its evidence level and its limit. None of them is a reset; all of them are brief. The slow, unglamorous daily practice is what the evidence is behind.

The long exhale
CHAPTER 4

In gently for about three, out softly for about six. No big breaths, no holding, no pushing. Even one minute, before a difficult call or in bed when sleep will not come.

HIGH CONSENSUS the heart slows on the out-breath
MODERATE a longer exhale deepens it and the sense of calm

LIMIT · A modest effect, larger in some people than in others.

The cyclic sigh
CHAPTER 8

Two inhalations through the nose, the second a short top-up to fill the lungs, then a long, slow exhalation through the mouth.

PRELIMINARY and promising: one trial, against another active practice

LIMIT · Its senior author is the person who made it famous.

Cold water on the face
CHAPTER 11

Chilling the face triggers the diving response, which slows the heart through the vagus nerve while it lasts.

PRELIMINARY a real reflex that may soften the immediate response to a stressor

LIMIT · It is not a reset of anything; the effect does not outlast the cold.

A hum on the out-breath
CHAPTER 11

Humming slows the breath toward about six a minute, with a long exhale.

PRELIMINARY as a way to slow the breath
NOT SHOWN vibration as a stimulant of the vagus

LIMIT · It helps, as far as anyone has shown, because it slows the breath.

A better label
CHAPTER 7

When your heart speeds up before something that matters, tell yourself "this is my body getting ready" instead of "calm down," and notice what happens.

PRELIMINARY reappraisal of arousal: small laboratory studies

LIMIT · It changes the label, not the signal, and is no substitute for treatment.

SKIP, SAYS THE BOOK

NOT SHOWN ear-clip gadgets raising vagal measures
NOT SHOWN gargling as a vagus exercise
NOT SHOWN mouth taping, which may harm

A NOTE OF CARE

Chest pain after a shock is an emergency, never "just stress." If panic attacks or palpitations are new, or come with chest pain, fainting, or breathlessness, the first step is a medical one.

Your If-Then Map

Chapter 13 welds the daily practice to a cue. This map does the same for your alarms. Copy your most frequent triggers from the week of noticing, write where and when they usually come, and give each one an if-then line with a tool from the In-the-Moment Card.

#	TRIGGER, FROM MY WEEK OF NOTICING	WHERE AND WHEN	MY IF-THEN LINE	TOOL	HELPED? 1–5
1			If _____ then I _____	○ long exhale ○ sigh ○ other	① ② ③ ④ ⑤
2			If _____ then I _____	○ long exhale ○ sigh ○ other	① ② ③ ④ ⑤
3			If _____ then I _____	○ long exhale ○ sigh ○ other	① ② ③ ④ ⑤
4			If _____ then I _____	○ long exhale ○ sigh ○ other	① ② ③ ④ ⑤
5			If _____ then I _____	○ long exhale ○ sigh ○ other	① ② ③ ④ ⑤
6			If _____ then I _____	○ long exhale ○ sigh ○ other	① ② ③ ④ ⑤
7			If _____ then I _____	○ long exhale ○ sigh ○ other	① ② ③ ④ ⑤

An example of the form

"If I notice my jaw tight before a call, then I do the long exhale for one minute before I dial." The cue is the sign in your body, not the worry.

One line at a time

Start with the trigger that comes up most often. Adding a second line later is easy; changing several at once makes it impossible to know what helped.

Score it honestly

After a week, the "Helped?" column is your evidence. A line that never helps is information, and it frees you to try another tool.

A NOTE OF CARE

If a trigger is a trauma memory, work on it with a professional, and stop if the practice brings up distressing memories. The map is a tool for everyday alarms, not a treatment.

After Week Eight: Monthly Check-In

The plan ends on day 56, and the book's instruction for afterward is short: check every four weeks, and take a new baseline after a new device, a change in medication, or a large change in your life. This sheet holds six of those checks.

MONTH	DATE	MORNING PULSE (TYPICAL)	MY MEASURE VS RANGE	ONE-MINUTE RECOVERY	PRACTICE DAYS / 4 WK	DOSE AND ANCHOR	DECISION
1			○ below ○ inside ○ above				○ keep ○ adjust one ○ stop
2			○ below ○ inside ○ above				○ keep ○ adjust one ○ stop
3			○ below ○ inside ○ above				○ keep ○ adjust one ○ stop
4			○ below ○ inside ○ above				○ keep ○ adjust one ○ stop
5			○ below ○ inside ○ above				○ keep ○ adjust one ○ stop
6			○ below ○ inside ○ above				○ keep ○ adjust one ○ stop

NEW BASELINE NEEDED?

- ☐ A new device
- ☐ A change in medication
- ☐ A large change in my life

HOW TO USE IT

Measure the way you did for your baseline, same source and conditions. Compare with your own range, never with a chart. Keep the smallest dose that holds what you care about, and use the rule you wrote before you began.

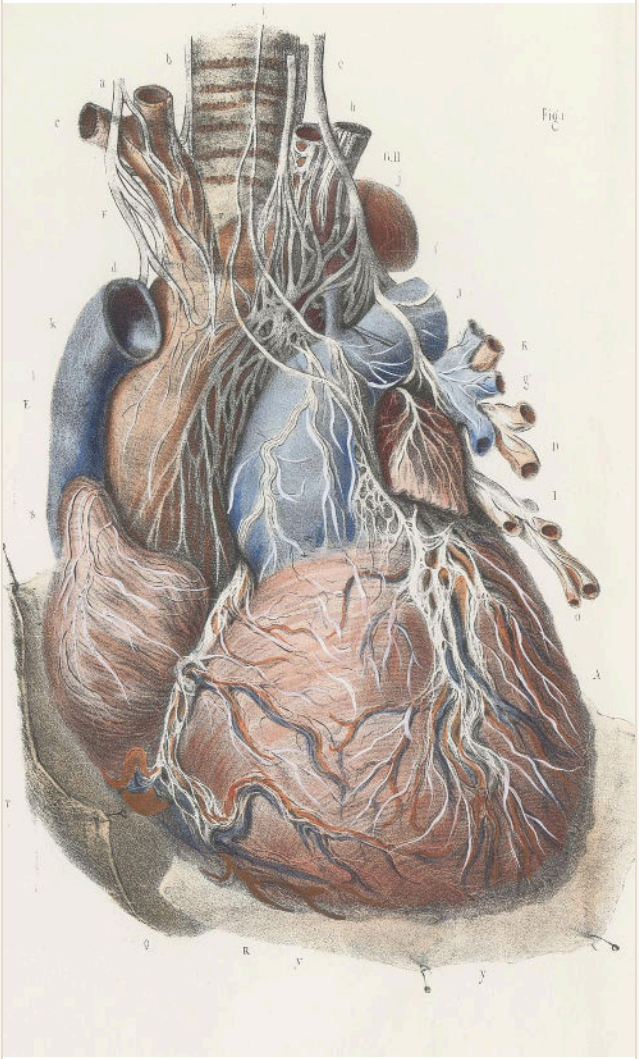
A NOTE OF CARE

An irregular-rhythm notification, or a resting pulse regularly above 100, or below 50 when you are not a trained athlete, goes to a doctor, not into this table.

PLATE 1 · CHAPTER 2 · FIGURE 2.2

Where the Downward Lane Reaches the Heart

The front of the heart and its great vessels, dissected to show the nerves, in a hand-colored lithograph from the nineteenth century. The nerves are the fine white threads.



FOLLOW THE WHITE THREADS, TOP TO BOTTOM

1. **Cardiac nerves from the sympathetic chain.** Down from the ganglia in the neck: the accelerator.
2. **Left vagus nerve.** Its cardiac branches carry the brake.
3. **Right vagus nerve.** The same brake, from the other side.
4. **Cardiac plexus.** Under the arch of the aorta, brake and accelerator fibers mingle before they reach the heart.
5. **Over the ventricles.** Fine branches follow the coronary vessels into the muscle.

> *Nineteenth-century anatomists could already trace the brake and the accelerator to the surface of the heart. What they could not see was how much traffic runs the other way.*

HOW IT WAS MADE

J.-M. Bourgery and N.-H. Jacob, *Traité complet de l'anatomie de l'homme*, vol. 3 (edition of 1866–1867), plate 43 bis, fig. 1, "Nerfs du cœur." Bibliothèque interuniversitaire de santé, Paris, via Internet Archive, public domain (Licence Ouverte). The book prints it in gray; here it keeps its original colors.

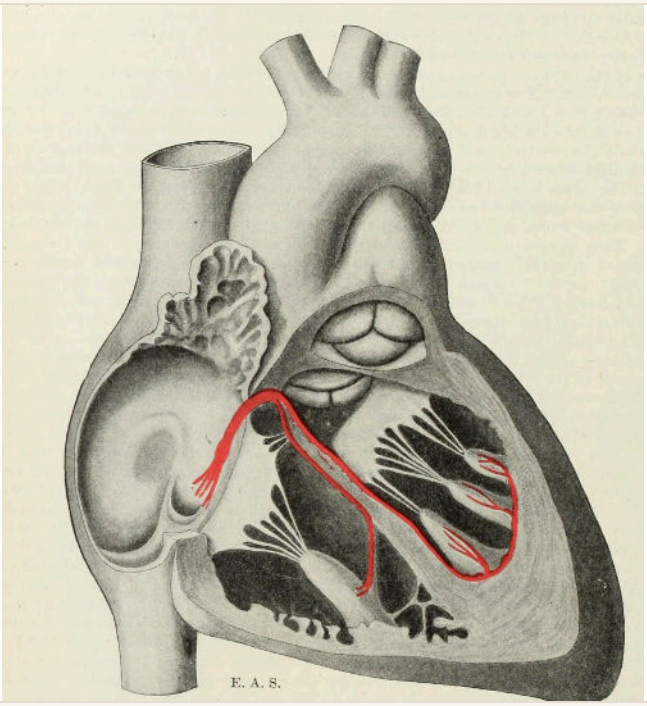
EVIDENCE

Anatomy, not a claim under test. The three lanes between heart and brain, and the brake and accelerator that reach the heart along them, are textbook physiology (Chapter 2).

PLATE 2 · CHAPTER 3 · FIGURE 3.1

Where the Beat Is Born

The heart opened from the right side. The red band is its wiring for rhythm, built from specialized muscle, not from nerves.



THE PATH OF EACH BEAT

1. **Sinoatrial node.** The pacemaker, where the great vein joins the right atrium. Not drawn in 1918: it sits at the top of the right atrium, beside the great vein.
2. **Atrioventricular node.** The gate between upper and lower chambers. It holds each impulse for a fraction of a second.
3. **Bundle of His.** The red band: the only electrical bridge to the ventricles.
4. **Its two branches.** Down both sides of the septum, spreading the beat through the ventricles.

≈104 · ≈90

beats a minute: the heart left to itself, at twenty-five and at fifty. A slower resting pulse means your brain is holding a brake.

This is why a heart cut loose from every nerve keeps beating. The rhythm starts inside the heart; the brain only speeds it up or slows it down.

HOW IT WAS MADE

Henry Gray, *Anatomy of the Human Body*, 20th ed. (1918), fig. 501, schematic representation of the atrioventricular bundle of His. Public domain; scan from archive.org. The book prints it in gray with the bundle darkened and the sinoatrial node marked; here the bundle keeps its original red.

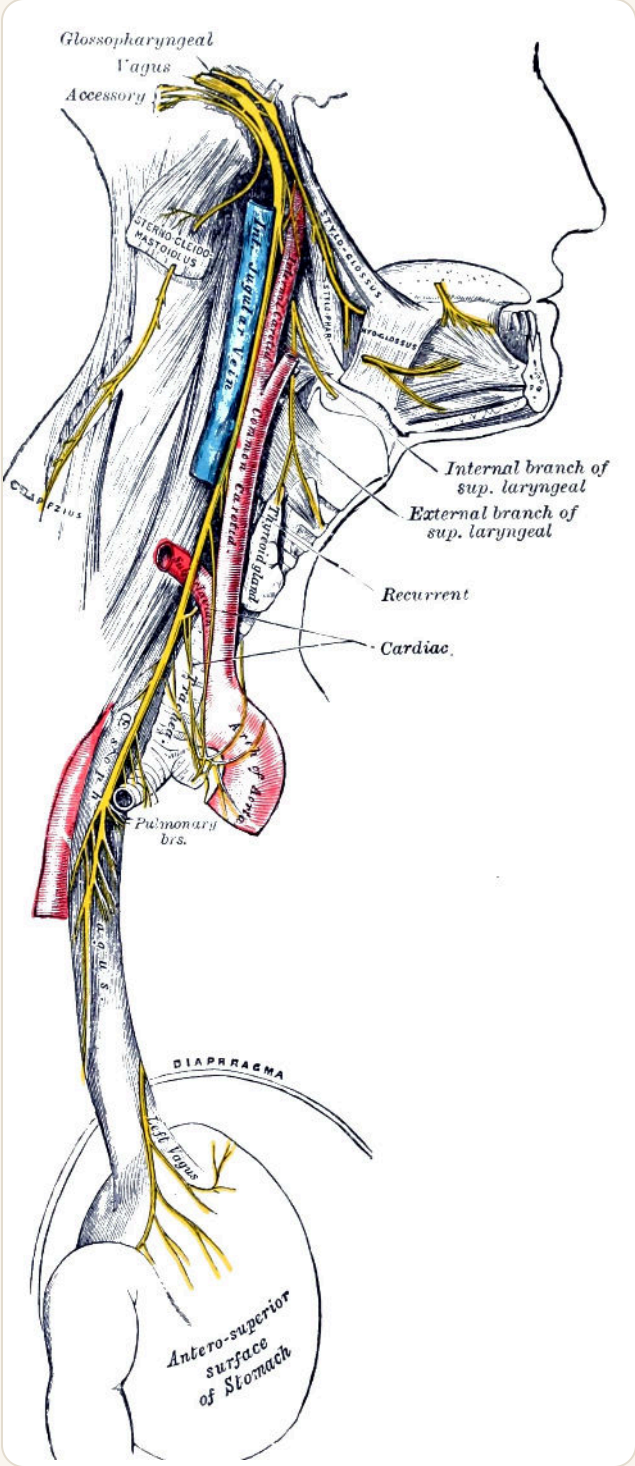
EVIDENCE

Anatomy and physiology. Intrinsic heart rate by age: Jose and Collison, 1970, with drugs blocking both the brake and the accelerator.

PLATE 3 · CHAPTER 4 · FIGURE 4.2

The Nerve That Wanders

One vagus nerve on each side runs from the brainstem down through the neck and chest to the abdomen. Here, the left one, on a plate from 1918, in its original colors: the nerves in yellow.



FOLLOW THE YELLOW NERVE, TOP TO BOTTOM

1. **Brainstem.** The nerve leaves the skull just behind the ear.
2. **Neck.** It runs beside the carotid artery and the jugular vein.
3. **Heart.** Cardiac branches carry the brake on your heart rate.
4. **Lungs.** Branches to the airways and lungs.
5. **Below the diaphragm.** On to the stomach and much of the gut.

> **80–90%**
>
> of its fibers carry signals **up**, from the body to the brain. Only 10 to 20 percent carry commands down. The brake nerve is, above all, a listening nerve.

HOW IT WAS MADE

Henry Gray, *Anatomy of the Human Body*, 20th ed. (1918), fig. 793: course and distribution of the glossopharyngeal, vagus, and accessory nerves. Public domain; scan from archive.org. The book prints it in gray with the nerves darkened; here it keeps its original colors.

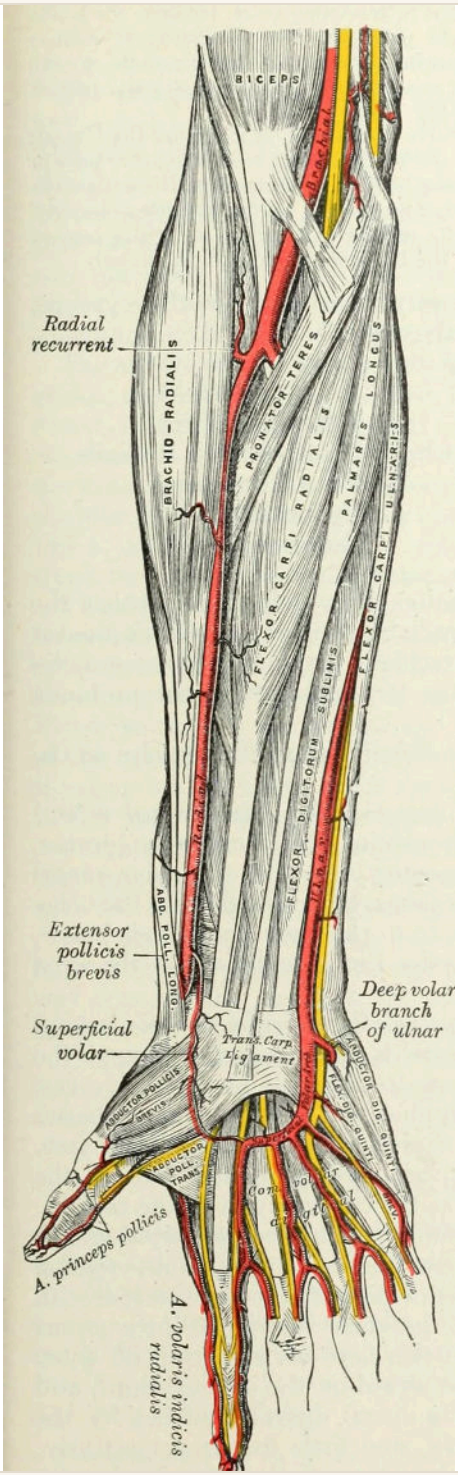
EVIDENCE

Anatomy, not a claim under test. The share of fibers running up comes from reviews of the nerve's anatomy: Breit et al., 2018, *Frontiers in Psychiatry*.

PLATE 4 · CHAPTER 6 · FIGURE 6.1

Where Your Watch Is Looking

The arteries of the right forearm, palm side, on a plate from 1918, in their original red, and what the sensor on the back of your wrist actually reads.



YOUR FINGERS, AND YOUR WATCH

1. **Brachial artery.** The main artery of the arm, at the elbow.
2. **Radial artery.** On the thumb side of the wrist: where your fingers find your pulse (Chapter 2).
3. **Ulnar artery.** The second branch, on the little-finger side.
4. **Palmar arch.** The two arteries join in the hand.

Light, not electricity

The watch sits on the back of the wrist, away from both big arteries. It times the pulse wave in the skin's small vessels, an echo of each beat that arrives a little later.

Your fingers feel the pulse in a large artery; your watch watches light in tiny vessels on the other side of the wrist. Both follow the heartbeat, at one remove.

HOW IT WAS MADE

Henry Gray, *Anatomy of the Human Body*, 20th ed. (1918), fig. 527, the radial and ulnar arteries. Public domain; scan from archive.org. The book prints it in gray, with numbers and a sensor diagram drawn for the book; here it keeps its original colors.

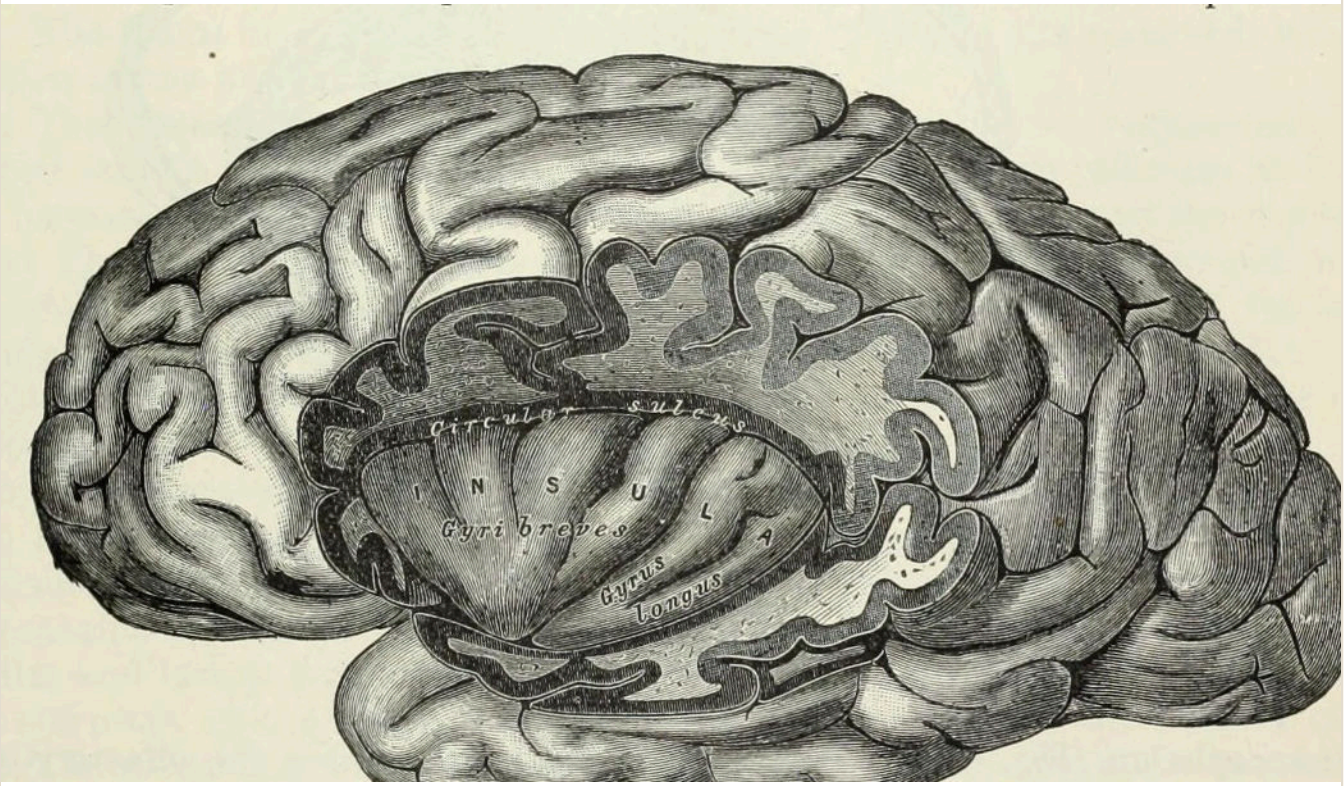
EVIDENCE

At rest, pulse and heart rhythm agree well enough to be useful; with movement the agreement breaks down: Schäfer and Vagedes, 2013; Yuda et al., 2020.

PLATE 5 · CHAPTER 7 · FIGURE 7.2

The Island Where the Body Is Mapped

The insula lies hidden in the deep fold on the side of each hemisphere. Here, on a plate from 1918, the overlying lips of cortex have been cut away. Front of the brain to the left.



THE ROUTE OF A HEARTBEAT INTO AWARENESS

1. **Heart.** Stretch and pressure sensors report each beat.
2. **Nerves.** Up the vagus and spinal nerves.
3. **Brainstem.** A reception center, then the thalamus.
4. **Back of the insula.** The long gyrus: a raw map of the body's interior.
5. **Front of the insula.** The short gyri: the map becomes a feeling you can notice and name.

> *The insula is not a heart center: it maps temperature, pain, hunger, the gut, and much else. And it does not work alone: attending to your heartbeat also recruits the cingulate and sensory cortex.*

HOW IT WAS MADE

Henry Gray, *Anatomy of the Human Body*, 20th ed. (1918), fig. 731, "The insula of the left side, exposed by removing the opercula." Public domain; scan from archive.org. The right insula, which the studies emphasize, is its mirror image.

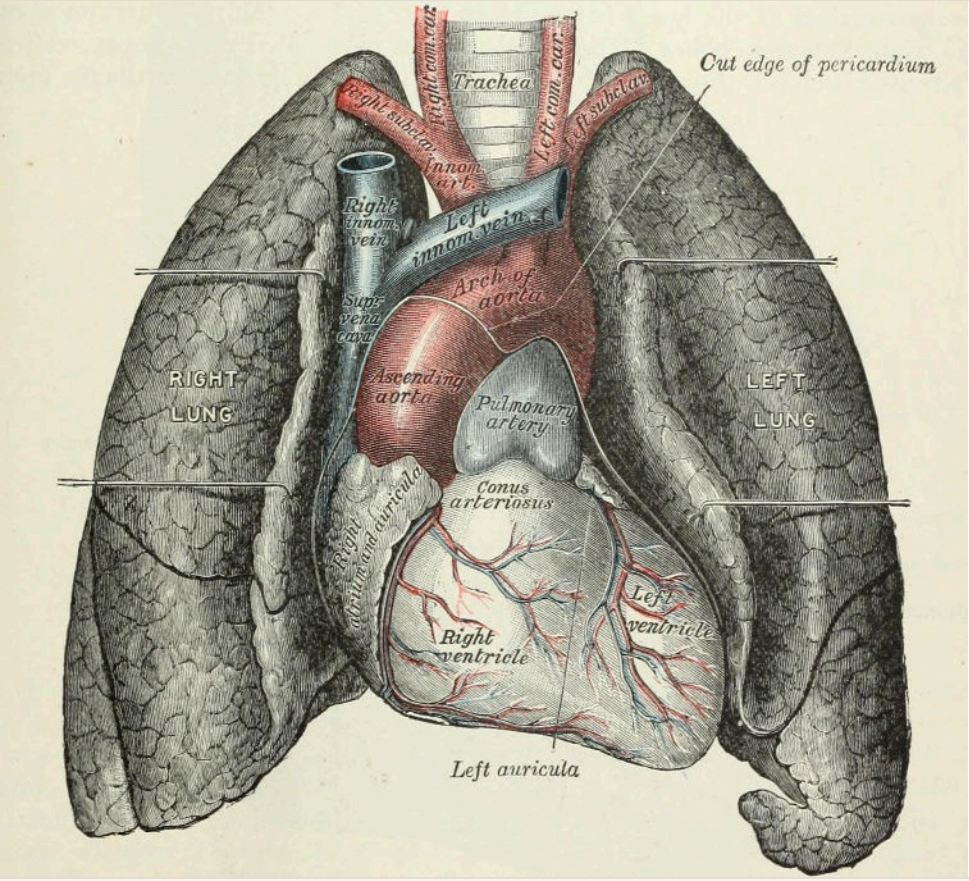
EVIDENCE

Route and roles: Craig, 2002; Critchley et al., 2004; Schulz, 2016, who pooled nine scanner studies of attention to the heartbeat.

PLATE 6 · CHAPTER 8 · FIGURE 8.3

Where Slow Breathing Happens

The heart sits between the lungs, and both rest on the diaphragm, which lies just below this plate. Every breath changes the pressure around the heart, and that change is what drives the wave.



WHAT EACH HALF OF A BREATH DOES

1. **Breathing in.** The diaphragm contracts and moves down. Pressure in the chest falls, the lungs fill, and the heart speeds up a little.
2. **Breathing out.** The diaphragm relaxes and rises. The vagal brake comes back on, and the heart slows.
3. **Breathe low, not high.** A breath that moves the belly moves the diaphragm and drives the reflex. A breath that lifts the shoulders mostly does not.

> *The stage for slow breathing is small: two lungs, one heart, and the muscle beneath them. Slow, low breathing works it from below.*

HOW IT WAS MADE

Henry Gray, *Anatomy of the Human Body*, 20th ed. (1918), fig. 490, "Front view of heart and lungs." Public domain; scan from archive.org. The same plate illustrates *The 30-Day Heart-Brain Plan*; here it keeps its original colors.

EVIDENCE

HIGH CONSENSUS Slow breathing near six a minute produces large swings in heart rate and blood pressure during practice (Chapter 8).

SOURCES

The Studies Behind These Pages

The main studies behind each practice, from the book's own notes. The full bibliography, with every reference in the book, is at the end of each chapter of *The Brain Listens to the Heart*.

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Christian Duarte, PhD
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