

Drink the water

A short book about going through the day slightly dry and reaching for coffee and biscuits instead

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First edition

Written by AI with human guidance. It can contain mistakes, which later editions correct.

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Before you start

This is a short book and you can read it in two sittings. It's about a habit so ordinary that it barely counts as one. You get up, you have a coffee, you have another at your desk, and then you have nothing much until the evening. Somewhere after lunch you go flat, and a headache arrives, and you reach for a third coffee or a biscuit or both, and the flatness lifts a little and comes back. Your pee is dark yellow most of the day. You've noticed that, and then you've stopped noticing.

I'm going to argue three things. The first is that the habit makes sense from the inside. Water is dull, thirst is a quiet signal that's easy to talk over, coffee is what the day has to hand, and the flat feeling at three doesn't announce what it is. The second is that the gap matters more than it looks, and there's research on why. In laboratory studies, losing as little as one or two per cent of your body's water made people more tired, more headachy, less able to concentrate and lower in mood, while barely touching how well they could think. Thirst runs steadily all day while hunger comes in two waves, and most of what people drink is drunk around meals. And the coffee and the biscuit at three are relief for a state that a glass of water would have addressed, which is why they keep being needed. The third is practical. A glass of water with every hot drink and every meal, and a glass first when the afternoon goes flat, checked once a day by the colour of your pee. That's all of it, and chapters 16 to 19 cover how.

The book doesn't tell you to give up coffee, carry a two-litre bottle, or drink eight glasses. Chapter 5 is about where that number came from, and chapter 13 is about the bottle. The NHS says six to eight cups or glasses of fluid a day, that tea and coffee count, and that pale yellow pee is the sign you're getting enough. I'm not going to add to that.

Three cautions.

If you've been sick or had diarrhoea, or you've been in the heat, or you feel dizzy when you stand up and it doesn't pass, that's not a dry day, that's dehydration, and the NHS says to ask for an urgent GP appointment or call 111. Chapter 20 has the full list.

If you have a heart or kidney condition and you've been told to limit how much you drink, follow that advice and not this book.

And if you're older, or looking after someone who is, thirst gets less reliable with age. Chapter 20 covers that too.

The notes at the back give my sources and their limits. Where I'm giving my own reasoning and not a finding, I'll say so.

Two coffees and a headache at three

Seven o'clock, a coffee. The first one is the good one. Ten o'clock, at your desk, another, because someone's going to the machine and it would be odd not to. Lunch, a sandwich, and if there's a drink it's a can of something or nothing, because you're eating at the desk and getting up is a thing. Two o'clock, a biscuit from the tin because there's a tin. Three o'clock, a headache, dull, at the front, and a heaviness that makes the screen harder to read than it was at eleven. You go for a third coffee, and it helps for twenty minutes, and then it doesn't. Four o'clock, another biscuit. Half five, you're home, and the first thing you drink that isn't coffee is a glass of wine or a cup of tea. When you go to the loo before bed, what's in the bowl is dark yellow.

That's a day of about a litre of fluid, most of it coffee, and one of those days is nothing. The trouble is that it's every day. The headache at three has been there so often that it's become "my afternoon headache", a fact about you rather than a thing with a cause. The flatness after lunch is "the post-lunch dip", which everyone gets, so it can't be helped. The biscuits are a separate problem you'll deal with separately. The coffee is a separate problem again.

These are invented, but I'd guess yours is close, give or take the biscuit. Some words. **The dry day** is a day like that one, where what you drink is mostly coffee and mostly before eleven. **The quiet signal** is thirst, which turns out to be steadier and quieter than hunger, and easier to ignore. **The flat hour** is the stretch after lunch when the headache and the heaviness arrive. **The stand-in** is

whatever you reach for at the flat hour instead of a drink, the third coffee, the biscuit, the crisps. **The pair** is a glass of water alongside every hot drink and every meal, which chapter 16 is about. **The glass first** is what happens at the flat hour, a glass before the coffee or the biscuit, which chapter 17 is about. And **the pale check** is looking at the colour of your pee once a day, which the NHS uses and chapter 18 explains.

Before you go on, do one thing. Write down everything you drank yesterday, with rough amounts, and the time of each. Coffee, tea, cans, the glass with dinner, the wine, all of it. Then next to the list, write what colour your pee was the last time you looked. Don't change anything yet. Most people who do this find that the list is shorter than they thought and stops earlier in the day than they thought, and that the second question is harder to answer than it should be.

Why the day goes dry

Nobody decides to spend the day dry. The day goes dry because of five things that are each reasonable, and I want to give them their due before I take them apart, because they're not silly and a book that treats them as silly won't help you.

The first is that water is dull. Coffee has a smell and a ritual and a warm cup and, if you're honest, a lift. Tea has most of that. Water has none of it. Nobody's ever looked forward to a glass of water at their desk the way they look forward to the ten o'clock coffee. The wanting isn't there, so the drinking isn't.

The second is that thirst is quiet. Hunger arrives and interrupts. It growls, it makes you irritable, it makes the sandwich shop visible from across the road. Thirst mostly doesn't do that. It sits at a low level and waits to be noticed, and if you're busy, it isn't. Chapter 3 is about this, and there's a study that measured it.

The third is that coffee is what's there. The kettle's in the kitchen, the machine's on the corridor, the person going to the café asks what you want, and the answer is coffee. Water isn't offered. You'd have to get it yourself, from a tap you've stopped seeing, in a glass you'd have to find.

The fourth is that the flat hour doesn't say what it is. If the heaviness at three came with a label, you'd act on the label. It doesn't. It feels like tiredness, or a sugar dip, or the meeting you've just sat through, and the reach that follows is the reach for whatever fixes tiredness, which is the coffee and the biscuit.

The fifth is the loo. If you drink more, you'll go more, and going more is a nuisance, in meetings, on the train, in the night. This is the objection people are least likely to say out loud and most likely to be acting on, and chapter 10 takes it seriously.

Each of those is a real reason, and a solution that ignores them, drink two litres a day, carry a bottle everywhere, will fail on the first busy Tuesday. The one in this book doesn't ask you to want water, to hear thirst better, or to stop drinking coffee. It attaches the water to things you already do.

"I'm not thirsty"

If you're not thirsty, you can't be short of fluid. That's the belief, and it's a fair one, because thirst is what the body has for the job, and if the body wanted water it would say so. The belief has two problems, and one of them is measurable.

Fiona McKiernan, Jenny Houchins and Richard Mattes collected hourly ratings of hunger and thirst from 50 adults for seven days in a row, along with what they ate and drank. Hunger came in two clear waves a day. Thirst was stronger than hunger and roughly level across the day, and about three quarters of all fluid was drunk around meals. That's a description, not an instruction, but it tells you something about the quiet signal. It's not that thirst is absent between meals. It's there all day at a steady level, which is exactly the kind of signal you stop noticing, the way you stop noticing the hum of a fridge. Hunger interrupts. Thirst waits.

The second problem is that "not thirsty" doesn't mean "fine". In a study by Nathalie Pross and colleagues, 20 healthy women went without fluid for about 24 hours in a controlled setting. Increased thirst and darker pee were among the earliest signs, well before anything showed in the blood. That's the useful part. The quiet signal and the colour in the bowl arrive first, and if you've trained yourself to talk over the first, the second is still there, which is why chapter 18 uses it.

There's an honest objection here. Some people say they're never thirsty, and mean it, and a few of them are right that their signal is weak. Thirst does get less reliable with age, which chapter 20

comes back to. But for most adults under sixty, "I'm never thirsty" means "I've never listened", and the pale check will tell you which you are within a week.

The practical implication isn't to try harder to notice thirst. Noticing a steady quiet signal against a busy day is a skill most people won't learn and shouldn't have to. The implication is to stop relying on the signal at all, and drink on a schedule that's built into things that already happen, which is what the pair is for.

"Coffee counts, so I'm fine"

This one is half right, and the half that's right matters, so I'll give it first. The NHS says that water, lower-fat milk and sugar-free drinks, including tea and coffee, all count towards your daily fluid intake. Sophie Killer, Andrew Blannin and Asker Jeukendrup took 50 men who normally drank three to six cups of coffee a day and had them drink either four cups of coffee or the same volume of water each day for three days, with everything else controlled. Total body water didn't differ, and neither did the volume of pee over 24 hours or any of the blood markers. If you drink coffee regularly, a cup of coffee is a cup of fluid.

So the two coffees before eleven are two cups towards the six to eight the NHS mentions. The trouble is what comes after eleven, which in the day in chapter 1 was a can at lunch and a third coffee at three. That's four cups, at most, across a whole working day, most of them before mid-morning. The coffee counts. It just doesn't add up to enough, and it stops early.

There's a second thing, which is what the coffee is for. The ten o'clock coffee isn't reached for because you're thirsty. It's reached for because someone's going to the machine, and because of the lift. The three o'clock one is reached for because of the flat hour. Coffee is being drunk for its effect, and happens to bring fluid with it. An earlier book in this series, *The second coffee*, is about the effect, and about what a habitual dose does and doesn't give you, and I won't repeat it here. For this book the point is simpler. If you drink coffee for the lift, you'll stop drinking it when the lift stops being wanted, at about eleven, and nothing takes its place.

The honest objection is that some people drink tea all day, six or seven mugs, and for them the count is fine and this chapter doesn't apply. It's worth checking that you're one of them and not one of the people who think they are and had two.

The pair, in chapter 16, doesn't take the coffee away. It puts a glass of water next to it, so that the drinks you already have for their effect bring a second drink with them, and the count carries on past eleven whether you feel like it or not.

"I'd never manage eight glasses"

Eight glasses of water a day, and coffee doesn't count. Everyone's heard it, most people have failed at it, and the failure is a reason to do nothing, because if eight is the standard and you're managing two, why bother with three.

Heinz Valtin, a kidney physiologist, went looking for where the eight-glasses advice came from and whether anything supported it. He searched the scientific literature, the older paper records, and asked specialists in thirst and drinking. He found no scientific studies in support of it. What he found instead were surveys of thousands of healthy adults' food and fluid intake that suggested such large amounts weren't needed, along with studies showing that caffeinated drinks could be counted towards the total. His review was published in 2002, and the rule has outlived it comfortably, the way rules do.

What the NHS says now is smaller and easier. Aim for six to eight cups or glasses of fluid a day. Water, lower-fat milk, sugar-free drinks, tea and coffee all count. It's a guide, not a target, and you may need more if you're pregnant, in a hot place, active for long periods, or ill. And most people should aim to drink enough that their pee is a clear pale yellow. That last line is the one to keep, because it replaces counting with looking. A number tells you what you should have done. The colour tells you where you are.

The honest objection is that "six to eight cups of anything" sounds like nothing, and if it's nothing, how can the dry day be a problem. The answer is in chapter 1's exercise. Count yesterday. If you're at

six with tea and coffee included and your pee is pale, you're fine, and this book is short and you can give it to someone. If you're at three, mostly before eleven, and your pee is dark, then the gap between three and six isn't large, and it's made of ordinary drinks you can attach to things you already do.

I think the eight-glasses rule has done harm in a specific way. It set a bar high enough that most people gave up on the whole idea, and it excluded the drinks people actually drink. The result is a lot of people who believe hydration is a project for other people, and who go through the day at three cups because six sounds like eight and eight is impossible.

"The afternoon is just like that"

The heaviness after lunch, the headache, the screen that's harder to read at three than it was at eleven. Everyone gets that, you've been told, and it's the body's rhythm, or the lunch, or the meeting. It's just the afternoon.

Part of it is. There's a natural dip in alertness in the early afternoon that people get whether or not they've drunk anything, and a book that blamed the whole thing on water would be lying. But two studies from the same laboratory measured what mild dehydration on its own does, and the list is familiar.

Lawrence Armstrong, Matthew Ganio and colleagues had 25 young women spend three eight-hour days in a laboratory. On two of the days they were made mildly dehydrated through exercise without overheating, losing on average about one and a third per cent of their body mass in water. On the third day they were kept hydrated. Mood, thinking and symptoms were measured at rest and during exercise. Dehydration made them feel less vigorous and more tired, raised their total mood disturbance score, and made tasks feel harder, made concentration feel harder, and produced headache. Most measures of how well they actually thought weren't affected. In a companion study, Ganio, Armstrong and colleagues did the same with 26 young men, at about one and a half per cent, and found fatigue and tension rose at rest, fatigue rose during exercise, and two specific measures of attention and working memory got slightly worse.

One and a half per cent of body mass for a person of 70 kilograms is about a litre. That's a plausible gap for someone who's had two coffees and a can since seven in the morning and it's now three in the afternoon, particularly in a warm office. I want to be careful here. These studies produced dehydration through exercise in a laboratory, not through sitting at a desk, and nobody has measured your Tuesday. What they show is that the level of dryness a dry day can reach is enough, on its own, to produce tiredness, headache, difficulty concentrating and low mood, while leaving your ability to think mostly intact. That's the flat hour, described from the outside.

So the afternoon is partly just like that, and partly a state you're contributing to. You can't do much about the first part. The second part is a glass of water, and you'll know within a fortnight how much of your afternoon it was.

"I'm hungry, not thirsty"

The two o'clock biscuit and the four o'clock one. You reach for them because you're peckish, and being peckish is being hungry, and hungry people eat. There's a popular claim that hunger is often thirst in disguise. I'm not going to make it, because I haven't found good evidence for it in that form and I think it's the kind of tidy sentence that sounds like science and isn't.

What the evidence does say is more useful. In McKiernan, Houchins and Mattes's week of hourly ratings, hunger came in two waves, around the usual meal times, while thirst ran steadily all day. So at two o'clock and four o'clock, between the waves, hunger should be low for most people, and what's there is more likely to be the steady quiet signal plus the flat hour. The biscuit doesn't answer either of those. It answers the reach, which is what the hand does when the body is uncomfortable and something is in reach.

I'd add an interpretation. The feeling at the flat hour is a general one. Heavy, dull, a bit low, wanting something. It doesn't come with a label, and the mind supplies the label that has the nearest remedy. In an office with a biscuit tin, the label is "peckish". In an office with a coffee machine, it's "tired". In neither office is the label "dry", because there's no water in sight and nobody's ever taught you that dryness feels like that.

There's a small piece of evidence that drinking water before eating changes how much gets eaten, at least in older adults. Elizabeth Dennis, Kevin Davy and colleagues had 48 overweight adults aged

55 to 75 follow a reduced-calorie diet for twelve weeks, half of them drinking half a litre of water before each main meal. The water group lost about two kilograms more. A systematic review by Rebecca Muckelbauer and colleagues found the same pattern in people dieting and no consistent effect in people who weren't. This isn't a book about weight and I don't want to lean on it. I mention it only because it suggests water does something at mealtimes beyond being wet.

The practical implication is chapter 17's glass first. At the flat hour, before the biscuit or the coffee, a glass of water and ten minutes. If you're still hungry after that, eat, and an earlier book, *Eat when you're hungry*, is about telling hunger from the rest. Most afternoons, the biscuit turns out to have been optional.

"Water doesn't actually do anything"

You've drunk a glass of water before and felt nothing. Nothing lifted, nothing cleared. So whatever the studies say about laboratories, in your experience water is just water, and the coffee at least does something you can feel.

The comparison is unfair to the water, and it's worth seeing why. The coffee does something you can feel because caffeine acts on the brain within twenty minutes or so and produces a lift you notice. Water doesn't produce a lift. What it does is stop something, and stopping something is much harder to feel than starting something. If the headache at three doesn't arrive, you don't notice it not arriving. If the flat hour is shorter and shallower, there's no moment where you think "ah, water". The absence of a cost is invisible in a way that the presence of a lift isn't.

There is a study that tried to catch the effect directly. Caroline Edmonds and colleagues gave 47 adults either a drink of water or nothing, and separately told half of them that water would help their thinking and told the other half nothing. Twenty and forty minutes later, the people who'd drunk water rated themselves less thirsty and did better on a letter-cancellation task, a simple attention test, regardless of what they'd been told to expect. Memory span and reaction time didn't change. So the effect isn't placebo, and it's on attention rather than on intelligence, which fits the flat hour. Natalie Masento and colleagues reviewed the field in 2014 and concluded that certain aspects of thinking and mood do respond to water, while pointing out that the studies are inconsistent in how they measure things and often don't measure

hydration properly. I'd take that as a fair summary. The effect is real, modest, and mostly about attention and mood, not about being cleverer.

The honest objection is that a modest effect on attention isn't going to change your life, and that's right. This book isn't promising a transformed afternoon. It's suggesting that the afternoon you have contains a headache and a dullness that are partly self-supplied, and that the supply can be stopped with a glass at eleven and a glass at one.

The practical implication is not to judge the water by how it feels going down. Judge it by the afternoon a fortnight later. Chapter 1's exercise gives you a baseline, and the flat hour is the thing to compare.

"I don't like the taste"

Some people don't, and it's not an affectation. Water from a tap in a hard-water area has a taste, water from a plastic bottle that's been on a desk all day has a different one, and if you grew up drinking squash, plain water can seem like a punishment. The belief that follows is that drinking more fluid means drinking more of a thing you don't like, so it won't last.

It doesn't have to be water. This is the NHS's position and I'd repeat it as often as needed. Tea and coffee count, sugar-free drinks count, lower-fat milk counts, and the NHS suggests sparkling water, no-added-sugar squash, or a slice of lemon or lime if you don't like the taste of plain water. The fluid is the point. The water is just the cheapest way to get it.

So the pair in chapter 16 can be a mug of tea next to the coffee, if that's what you'll drink. It can be a glass of diluted squash with lunch. It can be sparkling water, which some people who dislike still water find fine. The rule is a glass of something without sugar in it, alongside things you already do, and taste is allowed to decide what's in the glass.

There are two limits. Sugary drinks and fruit juice do count as fluid, but the NHS says to limit juice and smoothies to one small glass a day with a meal, and not to have drinks high in sugar too often, because of teeth and calories. A day of cola is hydrated and paying for it elsewhere. And an all-tea approach runs into the caffeine question in the evening, which an earlier book, *You were tired at ten*, covers, and which chapter 12 touches on.

The honest objection is that even squash gets dull. What I'd say to that is that dull is the point. The drink in the pair isn't meant to be looked forward to. It's meant to be there, next to the thing you do look forward to, and drunk without ceremony. Dullness in a drink is a feature when the drink's job is to be had six times a day.

"I'd be in the loo all day"

This is the objection people don't say and act on, and it deserves a straight answer, because it's true for a while.

If you go from three cups a day to six, you'll pee more, and for the first week or so you'll notice. In a meeting, on a train, at the cinema, the extra visits are a real cost, and nobody's wrong to weigh it. In Erica Perrier and colleagues' pooled analysis of 238 adults, lightening 24-hour pee colour by two shades on the standard eight-shade chart went with about a litre more fluid a day and about a litre more pee. The fluid you add comes out. There's no version where it doesn't.

Two things soften it. The first is timing. Most of the extra visits come from fluid drunk in the two or three hours before, so the pair, which puts the water at breakfast, mid-morning, lunch and mid-afternoon, produces visits during the working day, when there's a loo, and not at night. If the night is your worry, stop the pair after the evening meal, and have the last glass with dinner rather than at ten. I think that's the one adjustment most people need and the one they don't make, and it's why they give up.

The second is that the body adjusts, a little. I'm giving you my observation here and not a finding. People who move from a dry day to a paired one usually report that the frequency in the first week is the worst it gets and that it settles somewhat, though not to where it was, because it can't. The visits in week three are more than in the dry days and fewer than in week one.

The honest objection is that some people have jobs where a visit to the loo isn't easy, teachers, drivers, people on tills, and for them the timing matters more than for someone at a desk. For those jobs the pair moves to the breaks that exist, and the working stretch stays as it is. A glass at each break is still more than nothing after eleven.

What I'd ask is that you weigh the visits against the headache. Both are costs. One of them is a minute in a room with a door. The other is the afternoon.

"I haven't got time to think about it"

The last of the reasonable objections is that hydration is one more thing. There are apps that remind you to drink, bottles with hours marked on the side, and the whole thing has become a small industry of nagging. You've got enough to think about, and adding "have I drunk enough" to the list is a cost in itself.

I agree with all of that, and the method in this book is built to need no thinking. The pair isn't a reminder. It's a glass that stands next to the coffee. When you make the coffee, you pour the glass. When lunch is on the table, the glass is on the table. You don't have to remember anything, because the coffee and the lunch already happen and they carry the glass with them. A habit attached to an existing one doesn't need to be tracked. It needs a fortnight of doing the two things together until the second one stops being a decision.

The apps and the marked bottles fail, I think, for a reason worth naming. They ask you to drink at times chosen by a clock, which have nothing to do with what you're doing, so every reminder arrives as an interruption and gets dismissed. The pair asks you to drink at times chosen by your day, which is when you were already stopping for a drink. Nothing new is scheduled. Something existing is doubled.

There's one piece of thinking left, and it's ten seconds once a day, which is the pale check in chapter 18. That's the whole overhead. No counting, no log, no target in millilitres. A glass with each hot drink and each meal, and a glance at the bowl.

The honest objection is that even the pair needs a glass, and a glass needs finding and filling and carrying, and on a bad day that's enough friction to stop it. Fair. The fix is to leave one glass or one bottle where the coffee gets made and one where you sit, and never put them away. The friction isn't the drinking. It's the fetching, and the fetching can be removed once.

"Coffee dehydrates you anyway"

You may have come to this book believing the opposite of chapter 4. Coffee is a diuretic, everyone knows that, so the two coffees before eleven aren't just failing to count, they're taking fluid out. On that view the dry day is worse than it looks and the coffee is the villain.

The evidence is more specific than the folk version. Maughan and Griffin reviewed the literature on caffeine and fluid balance in 2003. Large single doses of caffeine, at least 250 to 300 milligrams, roughly two or three cups of coffee taken at once, do produce a short-term increase in pee output, but mainly in people who've had no caffeine for days or weeks. In regular tea and coffee drinkers, a profound tolerance develops and the effect is much diminished. Killer, Blannin and Jeukendrup's three-day study in chapter 4 is the direct test. In habitual drinkers, four cups a day of coffee and the same volume of water produced the same total body water and the same 24-hour pee volume. If you drink coffee every day, it isn't drying you out.

You may then notice that the NHS dehydration page says to avoid caffeinated drinks and alcohol if you have symptoms of dehydration, because both will dehydrate you, while the NHS fluids page says tea and coffee count. Both pages are right in their place. If you're already dehydrated, from being sick or from heat, the safe advice is water or rehydration solution and nothing that might add to the loss. On an ordinary day for an ordinary coffee drinker, the coffee counts. This book is about ordinary days. Chapter 20 is about the others.

So coffee isn't the villain of the dry day. The dry day's problem isn't what the coffee takes out. It's that the coffee stops at eleven and nothing follows it, and that the third one at three is drunk for the lift rather than the fluid, which brings its own cost in the evening. The second coffee, the earlier book, covers that cost in full. Here I'll say only that a glass of water at three is the one drink that addresses the flat hour without charging you for it at bedtime.

There's a fair objection, which is that if coffee counts, why not just have more coffee. The answer isn't hydration. It's caffeine, and what caffeine after about lunchtime does to the night. Water has no cut-off time. That's its only advantage over coffee, and in the afternoon it's the one that matters.

"It's a fad"

Hydration has become a look. People carry two-litre bottles with encouraging phrases printed at intervals down the side. There are electrolyte sachets for sitting at a desk, and reminders on watches, and a general sense that drinking water is something done ostentatiously by people with more time than you. The belief that follows is that the whole thing is marketing, and that a sensible person ignores it.

I think the sensible person is half right. The bottle culture is marketing, and most of what it sells is unnecessary. Barry Popkin, Kristen D'Anci and Irwin Rosenberg reviewed water and health in 2010 and were plain that there are major gaps in knowledge about how much people need, no long-term randomised trials, and little to support precise targets. Nobody has shown that two litres beats six cups for a person at a desk. The sachets are for people who've been sweating for hours, not for people who've been in a meeting. The watch reminding you to drink at eleven forty is a nuisance.

But the fad has grown around a small, dull truth, which is the one in chapters 6 and 8. Mild dryness makes people tired and headachy and less able to concentrate, and drinking enough that your pee is pale stops that. The truth doesn't need a bottle with times on it. It needs a glass next to the kettle. The fad has made the truth look like a lifestyle, and the reaction against the fad has thrown the truth out with it.

The honest objection is that "a glass next to the kettle" is also advice, and you've had enough advice. What I'd say is that this advice is smaller than the fad in every direction. Less water, no equipment, no target, no app. Six cups of whatever, most of them things you already drink, checked by the colour in a bowl you were going to look at anyway.

I'd put it this way. The fad is a way of doing an ordinary thing in a way that shows. The dry day is a way of not doing it at all. Between them is the ordinary thing done quietly, and that's where this book is.

What the dry day costs

Put the pieces together and look at the bill. Not because you don't know it, but because it's paid in small amounts across the day and the total never gets added up.

There's the headache at three. Armstrong and Ganio's studies list headache among the symptoms that mild dehydration produced in the laboratory. Yours may have another cause, but if it arrives most afternoons and you've drunk nothing since ten, it's worth suspecting the obvious one.

There's the flat hour itself. Tiredness, low vigour, tasks feeling harder, concentration feeling harder. In the studies those were the clearest effects, clearer than any effect on thinking. That's an hour or two of every working day spent heavier than it needs to be, which over a year is a great deal of afternoon.

There's the stand-in, which is the next chapter, but the bill goes here. A third coffee at three brings caffeine into the evening. The earlier book about coffee covers what that does to the night, and the earlier book about the biscuit tin covers what the four o'clock biscuit does to the six o'clock one. The dry day feeds both habits, because both are answers to a state the dry day creates.

There's mood. Both laboratory studies found mood worse under mild dehydration, and one found tension and anxiety rose at rest. I'd be cautious about the size of that in real life. But a low, slightly irritable afternoon that's partly self-supplied is a cost to the people around you as well as to you.

And there's the night. If the first proper drink of the day is a glass of wine at six, or a large glass of water at ten because you suddenly feel it, you get the visits at night that chapter 10 was trying to spare you. The dry day pushes drinking to the end of the day and then charges you for it at two in the morning.

None of these is large on its own. That's the point. A day of them is nothing, and a decade of them is your afternoons.

What the stand-in does

The third coffee helps. So does the biscuit. I'm not going to pretend they don't, because you can feel them helping and a book that argues with your own senses loses. What I want to show is what they help with and for how long, because that's where the habit lives.

At the flat hour you're heavy, dull, headachy and wanting something. Part of that is the natural afternoon dip, part of it is the dryness. The coffee addresses the dip. Caffeine lifts alertness for a while, and it lifts it regardless of what caused the low. The biscuit addresses the wanting, briefly, and gives you something to do with your hands and a small pleasure. Neither addresses the dryness at all. The coffee brings a cup of fluid with it, which is something, and the biscuit brings nothing.

So an hour later the lift has gone, the dryness is where it was, and you're back at the flat hour, wanting something, with the tin still there. This is my interpretation, not a finding, but I think the structure is clear. The stand-in relieves the symptom of a state and leaves the state in place, so the symptom comes back, so the stand-in is needed again. That's how a third coffee becomes a fourth, and a biscuit at two becomes one at four.

There's a fair objection. If you drank the water and skipped the coffee, you'd lose the lift, and the lift is real. Yes. You'd also lose the flat hour's dryness, which the coffee wasn't touching, and you'd keep your evening. Whether the lift is worth the evening is a

question for the coffee book. For this one, the question is whether you want to keep needing the lift, and the answer to that is partly in a glass.

The glass first, in chapter 17, doesn't ban the stand-in. It puts a glass and ten minutes in front of it. If you still want the coffee after that, have it. Most afternoons, I'd expect you to want it less, because part of what it was standing in for has been dealt with.

The pair

Here's the method, and it's small enough to fit in a sentence. Every time you have a hot drink or a meal, you have a glass of water with it.

The hot drink. When you make or fetch the coffee at seven and the one at ten, you fill a glass of water at the same time and it goes where the coffee goes. You drink it whenever, before, during, after. It doesn't matter. If you're at a café, you ask for a glass of water with the coffee, which every café will give you. If someone's fetching for you, they can fetch a water too. Two coffees become four drinks, and the count for the morning is done without anyone feeling thirsty.

The meal. A glass on the table at breakfast, lunch and dinner. If you eat at your desk, a glass on the desk. If lunch is a sandwich walking between places, a bottle in the other hand. This is the easiest part, because most people already drink something with meals, and McKiernan's study found three quarters of fluid was drunk around them. The pair just makes sure the something is there and isn't a can of sugar.

The count. Two hot drinks and three meals is five glasses, plus the two coffees, which is seven drinks, which is inside the six to eight the NHS mentions, and you haven't done anything except pour. If you have a third hot drink, that's eight. Nobody's counting, and you don't have to.

The glass. One at the kettle, one at your desk, one at the table. Left out. The friction in this method is entirely in fetching a glass, so remove it once and it's gone.

Taste. Whatever you'll drink, without sugar. Tap water, sparkling, a squeeze of lemon, weak squash. Chapter 9 is the whole discussion.

Evenings. The pair stops after dinner unless you want it. If the night is a concern, the dinner glass is the last one, and a hot drink at nine goes without a partner.

That's all of it. The pair takes about a fortnight to stop feeling like an instruction, and after that the glass appears next to the cup without a decision, which is the only kind of habit that survives a busy week.

The glass first

The pair handles the morning. The flat hour needs one more thing, because the flat hour is where the stand-in lives and the stand-in is the reach.

The moment. Somewhere after lunch you'll notice the heaviness, the dull head, the urge to get up and go to the machine or the tin. That moment is the trigger, and the good news is that you already notice it, because it's the moment you currently act on.

The glass. Before anything else, a glass of water. Not instead of anything, before. You drink it where you are, or you get up and get it, which is the same walk you were about to make to the coffee.

The ten minutes. Then you wait ten minutes and do whatever you were doing. Ten minutes is long enough for the water to do the small thing it does and for the wanting to change shape if it was going to.

Then. If you still want the coffee, have the coffee. If you still want the biscuit, have the biscuit. The glass first isn't a rule against the stand-in. It's a rule about order. Water, then whatever. What you'll find, I'd guess, is that on a fair number of afternoons the whatever gets forgotten, and on the rest you have it and the afternoon is still better than it was, because the dryness has been dealt with and the coffee is only having to do its own job.

The second flat hour. Some people get one at eleven as well, before lunch. Same thing. Glass, ten minutes, then.

The honest objection is that ten minutes is an age when you're heavy and the tin is there. It is. But you were going to spend a minute walking to the machine and three minutes waiting for it, and ten minutes doing your work with a glass of water inside you is not a hardship, it's an afternoon. Try it for a week and compare the three o'clocks.

The pale check

The pair and the glass first need no counting. They do need one check, and it's the one the NHS uses. Once a day, look at the colour of your pee.

What to look for. The NHS says most people should aim to drink enough during the day so that their pee is a clear pale yellow. Dark yellow, strong-smelling pee is on the NHS list of signs of dehydration. Pale, and you're fine. Dark, and you need more, that day, not in general.

When. Not first thing in the morning, which is dark for everyone because you've been asleep for seven hours. Mid-afternoon is the useful one, because it tells you about the working day, which is where the dry day happens. If it's dark at three, that's the flat hour telling you what it is.

What it means. Perrier and colleagues' pooled analysis found that lightening 24-hour pee colour by two shades on the standard eight-point chart went with roughly a litre a day more fluid. You don't need the chart. Pale or not pale is enough. But it tells you that the colour moves with what you drink, quickly, which makes it an honest gauge of the day you've just had.

What it isn't. It's not a diagnosis. Some vitamins and some foods colour pee, some medicines do, and if it's dark and you're drinking well, or it's a colour that isn't yellow at all, that's a GP question and

not a water one. And if it's dark and you're also unusually tired or dizzy on standing, that's the urgent list in chapter 20, not this chapter.

The habit. The pale check is ten seconds and it replaces every app, log and bottle marking. It also removes the question "am I drinking enough" from your head, because the answer is in the bowl, and you can look, and then stop thinking about it.

I'd add one thing. For the first fortnight, do the check every afternoon and write down pale or dark, next to the count from chapter 1. That's your evidence, and it will be more convincing than anything in this book, because it's about you.

The decision

Here's the rule, in one sentence. I have a glass of water with every hot drink and every meal, and at the flat hour I have a glass first and wait ten minutes before anything else.

That's it. It doesn't ask you to drink eight glasses, give up coffee, carry a bottle, count millilitres or want water. It asks you to double the drinks you already have and to change the order of one reach. If you follow it, you'll be at six or seven drinks a day by lunchtime plus the afternoon, your pee will be pale by mid-afternoon most days, and the flat hour will be shorter and the headache rarer. I'm giving you my expectation, not a finding. The rule hasn't been tested as a package. Its parts rest on the studies in chapters 3, 6, 8 and 12, and on NHS guidance, and the package is my arrangement of them.

Plans that name the moment work better than plans that name the goal. Peter Gollwitzer and Paschal Sheeran's meta-analysis of 94 studies found that "when X, then I'll do Y" plans had a medium-to-large effect on whether people did what they intended, across many kinds of behaviour. So here are three, and you can write your own.

When I make or fetch a hot drink, then I fill a glass of water and it goes where the cup goes.

When food is in front of me, then there's a glass on the table before I start.

When I notice the flat hour and feel the reach for the machine or the tin, then I drink a glass of water and give it ten minutes.

What to expect. The first week, more visits to the loo and a glass that feels like an instruction. The second week, fewer visits than the first and the glass appearing without a thought at least half the time. Somewhere in the second or third week, an afternoon where you get to four o'clock and realise the headache didn't come. Don't wait for that afternoon. Do the pale check, keep the count, and let the evidence arrive.

And decide it now, while it's clear, and not at three o'clock, when the tin is open and the flat hour is making the case for the biscuit.

Heat, illness, older relatives, pregnancy, hearts and kidneys, and when it's more than a dry day

The rule is for an ordinary adult on an ordinary day. Here are the days and the people it isn't for, and what the NHS says instead.

Heat, exercise and illness. The NHS says you need more if you're in a hot environment, physically active for long periods, ill or recovering, and that water is the best way to replace fluid lost through sweat. If you've been sick or had diarrhoea, you may need to put back salts and sugars as well, and a pharmacist can recommend an oral rehydration solution. On those days the pair isn't enough and you should drink beyond it, and avoid caffeine and alcohol while you're symptomatic, as the dehydration page advises.

The urgent list. The NHS says to ask for an urgent GP appointment or call 111 if you're feeling unusually tired, if you feel dizzy when you stand up and it doesn't go away, if you have dark yellow pee or are peeing less than normal, or if you're breathing quickly or have a fast heart rate. And call 999 or go to A&E if there are signs of dehydration together with cold skin, blue, grey, pale or blotchy skin or lips, difficulty breathing, confusion or unusual sleepiness. That's dehydration and not a dry day, and a glass of water is not the response.

Older relatives. Thirst gets less reliable with age. Phillips, Rolls and colleagues deprived seven healthy men aged 67 to 75 and seven aged 20 to 31 of water for 24 hours. The older men were less thirsty and drank less afterwards, even though their blood showed a

bigger deficit. The NHS lists older adults among the people most at risk and gives the practical advice. Make sure they drink at mealtimes, make drinking a social thing, offer food with water in it, soup and melon and jelly, and keep fluid within reach at all times. If you're the older adult, the pair matters more for you than for anyone else in this book, because your quiet signal has got quieter.

Pregnancy and breastfeeding. More fluid is needed, the NHS says, and caffeine should be kept under 200 milligrams a day in pregnancy. The pair works, with the hot drinks counted.

Hearts and kidneys. Some people with heart failure or kidney disease are told by their doctors to restrict fluid. If that's you, this book doesn't override that, and the pair is not for you unless your doctor says so.

Diabetes and diuretics. Both make dehydration more likely, the NHS says. The rule still applies, and the pale check matters more, and dark pee plus thirst plus tiredness is a GP conversation and not just a dry day.

When the afternoon isn't the water. If you've done the pair and the glass first for a month, your pee is pale, and the headache and the flatness are still there most days, then the water wasn't the cause, and it's worth ruling out the other ordinary ones, sleep, caffeine timing, eyesight, and if those don't answer it, a GP. This book is one cheap thing to try first, not a diagnosis.

When the day went dry again

It will. A week of travel, a run of early meetings, a cold, a house move, and you'll look up on a Thursday and realise the glass hasn't been next to the cup since Monday and the headache is back at three. The question is what happens next, and the habit's survival depends on it.

The first thing is that a week off isn't the habit gone. Phillippa Lally and colleagues followed 96 volunteers building a daily habit and found that missing one opportunity didn't materially affect how the habit formed. Three or four days off will set you back a little and not to zero. The glass next to the kettle is still there and the pouring still comes back faster than it did the first time.

The second is not to make it a project again. The mistake after a lapse is to decide that this time you'll really do it, buy the bottle with the hours on it, set a reminder, and drink two litres on Friday. That's the fad, and it's what fails on the following Tuesday. The recovery is the same as the method. Next hot drink, a glass with it. Next meal, a glass on the table. Nothing to make up.

The third is to ask which chapter the lapse came from. If you stopped because of the loo, chapter 10, move the last glass earlier. If you stopped because of the fetching, chapter 11, put the glasses back where they live. If you stopped because you were somewhere with no water in sight, ask for it, because it's always there and always free. Most lapses have one cause, and it's usually one of these three and usually small.

And don't wait for pale pee before you count yourself back. The pale check is a gauge and not a judge. A dark afternoon after a dry week is information, and the answer to it is the next glass, not a verdict on you.

Three o'clock, with a glass

Seven o'clock, a coffee, and a glass of water next to it, drunk while the kettle cools. Ten o'clock, someone's going to the machine, and you say coffee and a water, and they bring both because it's normal now. Lunch at the desk, and there's a glass on it because there's always a glass on it. Half past two, the heaviness, and you feel the reach, and you drink the glass that's there and give it ten minutes. Three o'clock arrives and it's just three o'clock. You notice at four that there wasn't a headache, and that the tin is still closed, and you go to the loo and it's pale.

That's the whole book in a day. Nothing in it needed wanting water, hearing thirst, or giving anything up. The coffee is still there. The lift, if you want it, is still there. What's gone is the dry stretch between eleven and six that was making the afternoon heavier and the evening later than they had to be.

One action, before you put this down. Get a glass, fill it, and put it where you make your hot drinks. Leave it there. The next cup you make, fill it. That's the pair started, and everything else follows from a glass that's already in the right place.

Notes

These notes give the sources behind each chapter and say where the book is giving my own reasoning rather than a finding. This book is not medical advice. The NHS guidance quoted was read on 26 September 2026, and its pages give review dates. If you have a health condition that affects how much you should drink, follow your doctor's advice and not this book. The day in chapter 1, the office with the tin and the machine, and the people in the examples are invented.

Before you start. NHS, "Water, drinks and hydration", [nhs.uk](https://www.nhs.uk), page last reviewed 17 May 2023, which gives the Eatwell Guide figure of six to eight cups or glasses of fluid a day, says water, lower-fat milk and sugar-free drinks including tea and coffee all count, and says to aim for pee that's a clear pale yellow. NHS, "Dehydration", [nhs.uk](https://www.nhs.uk), page last reviewed 1 May 2026, for the urgent and emergency lists repeated in chapter 20.

Chapter 1. The terms are mine. The exercise is mine.

Chapter 2. The five reasons are my observation. The claim about the loo being the unspoken objection is mine.

Chapter 3. McKiernan, Houchins and Mattes, "Relationships between human thirst, hunger, drinking, and feeding", *Physiology and Behavior* 94, 2008, pages 700 to 708. 50 adults, hourly appetite ratings and dietary recalls for seven days. Hunger bimodal, thirst stronger and more stable, about 75 per cent of fluid intake around meals. Read as an abstract. Pross, Demazières, Girard, Barnouin,

Santoro, Chevillotte and colleagues, "Influence of progressive fluid restriction on mood and physiological markers of dehydration in women", British Journal of Nutrition 109, 2013, pages 313 to 321. 20 healthy women, crossover, about 24 hours without fluid. Increased thirst, darker pee and raised urine specific gravity were early markers, plasma osmolality unchanged, alertness fell and sleepiness, fatigue and confusion rose. Read as an abstract. The comparison of thirst to a fridge's hum is mine, and the claim that "never thirsty" usually means "never listened" is my interpretation.

Chapter 4. NHS, "Water, drinks and hydration", as above. Killer, Blannin and Jeukendrup, "No evidence of dehydration with moderate daily coffee intake: a counterbalanced cross-over study in a free-living population", PLoS ONE 9, 2014, e84154. 50 male habitual coffee drinkers, four 200 ml coffees a day at 4 mg caffeine per kilogram against the same volume of water, three days each. No difference in total body water, 24-hour urine volume, or blood markers. Read as an abstract. The earlier book on coffee is The second coffee. The claim that coffee drunk for effect stops at eleven is my observation.

Chapter 5. Valtin, "'Drink at least eight glasses of water a day.' Really? Is there scientific evidence for '8 x 8'?", American Journal of Physiology, Regulatory, Integrative and Comparative Physiology 283, 2002, R993 to R1004. Review, no studies found in support. Read as an abstract. NHS as above. The claim about the harm the rule has done is my interpretation.

Chapter 6. Armstrong, Ganio, Casa, Lee, McDermott, Klau and colleagues, "Mild dehydration affects mood in healthy young women", Journal of Nutrition 142, 2012, pages 382 to 388. 25

women, three eight-hour placebo-controlled days, mean dehydration 1.36 per cent of body mass. Adverse effects on vigour, fatigue, total mood disturbance, task difficulty, concentration and headache. Most cognitive measures unaffected. Ganio, Armstrong, Casa, McDermott, Lee, Yamamoto and colleagues, "Mild dehydration impairs cognitive performance and mood of men", British Journal of Nutrition 106, 2011, pages 1535 to 1543. 26 men, mean 1.59 per cent. Visual vigilance errors and working memory latency worse, fatigue and tension raised at rest, fatigue during exercise. Both read as abstracts, both produced dehydration by exercise. The litre arithmetic for a 70 kg person is mine and approximate. The claim that a desk day reaches this level is my interpretation, not a finding. The existence of a natural early-afternoon dip is stated as general knowledge and not sourced here, and The second coffee discusses it.

Chapter 7. McKiernan, Houchins and Mattes as above. Dennis, Dengo, Comber, Flack, Savla and Davy, "Water consumption increases weight loss during a hypocaloric diet intervention in middle-aged and older adults", Obesity 18, 2010, pages 300 to 307. 48 adults aged 55 to 75, twelve weeks, about 2 kg greater loss in the water group. Muckelbauer, Sarganas, Grüneis and Müller-Nordhorn, "Association between water consumption and body weight outcomes: a systematic review", American Journal of Clinical Nutrition 98, 2013, pages 282 to 299. Eleven studies and two reviews, effect in dieters, none in short trials of non-dieters. Both read as abstracts. The claim that "hunger is often thirst" is deliberately not made. The account of the mind supplying the nearest label is my interpretation. The earlier book on eating without hunger is Eat when you're hungry.

Chapter 8. Edmonds, Crombie, Ballieux, Gardner and Dawkins, "Water consumption, not expectancies about water consumption, affects cognitive performance in adults", *Appetite* 60, 2013, pages 148 to 153. 47 adults, water against no water crossed with expectancy induction, effects on thirst ratings and letter cancellation at 20 and 40 minutes, none on digit span or reaction time. Masento, Golightly, Field, Butler and van Reekum, "Effects of hydration status on cognitive performance and mood", *British Journal of Nutrition* 111, 2014, pages 1841 to 1852. Review, identifies inconsistent measures and lack of objective hydration assessment. Both read as abstracts. The point that stopping something is harder to feel than starting something is mine.

Chapter 9. NHS, "Water, drinks and hydration", as above, for the tips on sparkling water, squash, lemon and lime, the limit on juice and smoothies, and the caution on sugary drinks. The earlier book on evenings is *You were tired at ten*.

Chapter 10. Perrier, Johnson, McKenzie, Ellis and Armstrong, "Urine colour change as an indicator of change in daily water intake: a quantitative analysis", *European Journal of Nutrition* 55, 2016, pages 1943 to 1949. Pooled data from 238 adults, a two-shade change in 24-hour urine colour went with about 1,110 ml a day of fluid and about 1,010 ml of urine. Read as an abstract. The claim that frequency settles after the first week is my observation and not a finding. The advice for jobs without easy loo access is mine.

Chapter 11. No sources. The account of why reminders fail is my interpretation.

Chapter 12. Maughan and Griffin, "Caffeine ingestion and fluid balance: a review", Journal of Human Nutrition and Dietetics 16, 2003, pages 411 to 420. Literature to March 2002. Acute large doses of at least 250 to 300 mg raise urine output short-term in people deprived of caffeine, profound tolerance in regular drinkers. Read as an abstract. Killer, Blannin and Jeukendrup as above. NHS, "Dehydration", for the advice to avoid caffeine and alcohol when symptomatic, and NHS, "Water, drinks and hydration", for tea and coffee counting. The claim that water has no cut-off time is mine, and the effect of afternoon caffeine on sleep is covered in The second coffee and You were tired at ten and not sourced here.

Chapter 13. Popkin, D'Anci and Rosenberg, "Water, hydration, and health", Nutrition Reviews 68, 2010, pages 439 to 458. Review, notes major gaps in knowledge and no long-term randomised trials. Read as an abstract. The characterisation of bottle culture is my observation.

Chapter 14. Armstrong and colleagues, and Ganio and colleagues, as above. The earlier books referred to are The second coffee and The biscuit tin. The claim about the night is my reasoning.

Chapter 15. No new sources. The loop, stand-in relieves the symptom and leaves the state, is my interpretation and is offered as such.

Chapters 16, 17 and 18. The method is mine. McKiernan and colleagues for fluid around meals. NHS, "Water, drinks and hydration", for pale yellow. NHS, "Dehydration", for dark, strong-smelling pee as a sign. Perrier and colleagues as above. The advice to check mid-afternoon rather than first thing is mine.

Chapter 19. Gollwitzer and Sheeran, "Implementation intentions and goal achievement: a meta-analysis of effects and processes", *Advances in Experimental Social Psychology* 38, 2006, pages 69 to 119, as cited in earlier books in this series. The rule hasn't been tested as a package, and what I say to expect is my expectation.

Chapter 20. NHS, "Dehydration", for causes, the urgent and emergency lists, and the advice for carers. NHS, "Water, drinks and hydration", for pregnancy, heat, activity, illness and the 200 mg caffeine limit in pregnancy. Phillips, Rolls, Ledingham, Forsling, Morton, Crowe and colleagues, "Reduced thirst after water deprivation in healthy elderly men", *New England Journal of Medicine* 311, 1984, pages 753 to 759. Seven men aged 67 to 75 and seven aged 20 to 31, 24 hours without water. Read as an abstract. Forenames are initials only in the record, so surnames are used. The advice about fluid restriction in heart and kidney disease is general and the reader's own doctor's instructions take precedence.

Chapter 21. Lally, van Jaarsveld, Potts and Wardle, "How are habits formed: modelling habit formation in the real world", *European Journal of Social Psychology* 40, 2010, pages 998 to 1009, as cited in earlier books in this series. 96 volunteers, missing one opportunity did not materially affect formation.

Chapter 22. No sources.

Looked up and not used. Juliano and Griffiths, "A critical review of caffeine withdrawal", *Psychopharmacology* 176, 2004, was checked and is cited in *The second coffee*, and this book leaves caffeine withdrawal to that one. Kavouras and colleagues 2016 on urine

colour in children, read as an abstract, not used because this book is for adults. No claim is made about how many people are mildly dehydrated on an ordinary day, because I found no figure I trusted. No claim is made that hunger is often thirst.