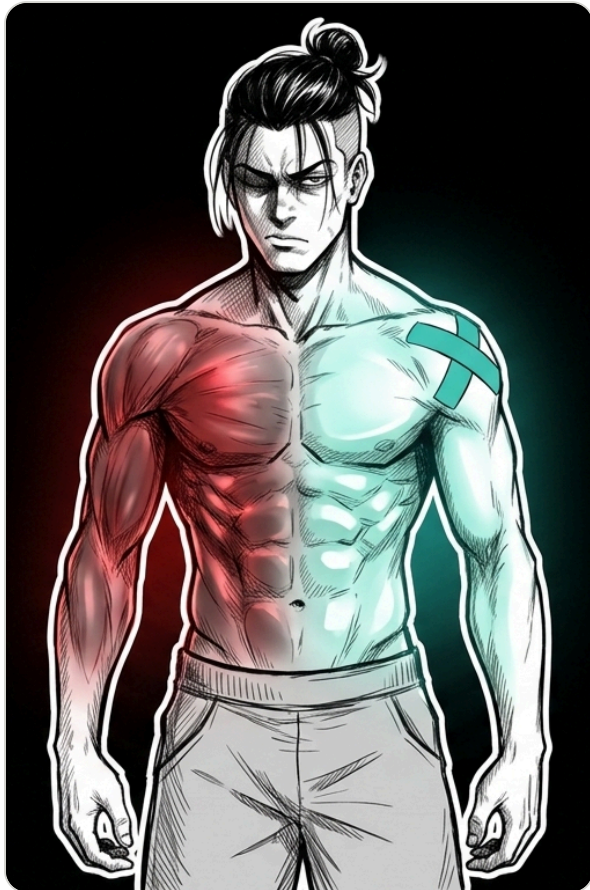


KAI'S RECOVERY CLOCK

YOUR GAINS HAPPEN AFTER THE GYM. HERE'S THE CLOCK.



HOURL 0 · YOU WALK OUT WEAKER

Hard sets pull some of the tiny structures inside your muscle fibres out of line, and fatigue stacks on top. The workout is only the signal.

HOURS 0-24 · CLEAN-UP CREW AND BUILDERS

Your immune system clears out the damaged bits while muscle protein synthesis (your body making new muscle protein) shoots up: more than double by hour 3.

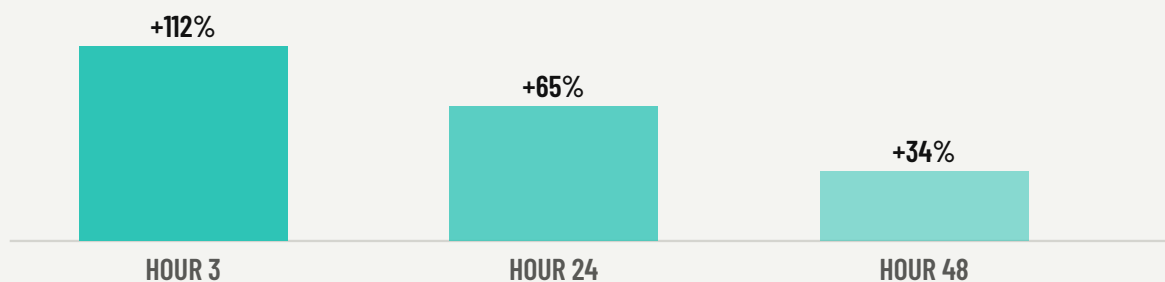
HOURS 24-48 · THE BEGINNER'S WINDOW

Still up by about a third at hour 48. That's where the "48-hour window" comes from. It was measured in people who had never lifted, and early on, a lot of the building goes into repairs, not growth.

THE TRAINED CLOCK · ABOUT 28 HOURS

After eight weeks of training, one study found building back to normal by 28 hours in the trained leg, while the untrained leg was still going.

MUSCLE BUILDING AFTER ONE SESSION (UNTRAINED LIFTERS)



EVERY LEVER PUSHES ON THE SAME CLOCK

HOURL 0

Soreness: the damage signal you shouldn't chase

HOURS 0-24

Protein and sleep: what the builders need

HOURL ~28 ON

Frequency: opening the next window

BETWEEN SESSIONS

Easy week and life load: how well you recover overall

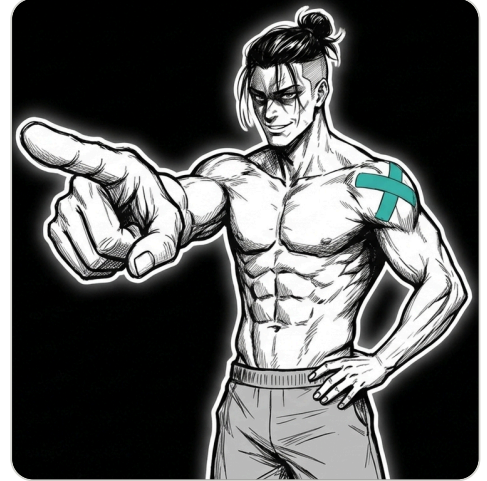
Turn the page to find your weak spot.

Phillips et al., Am J Physiol Endocrinol Metab, 1997 · Damas et al., J Physiol, 2016 · Tang et al., Am J Physiol Regul Integr Comp Physiol, 2008. Bars show one study in untrained people. Full list on the last page.

STEP 1

WHERE ARE YOU STUCK?

Six quick questions. Tick every one that sounds like you. No scoring, no diagnosis, just a nudge toward the one thing to fix first.

☐

I usually sleep less than 7 hours a night.

LEVER 1 · SLEEP

☐

I don't know my daily protein, or I'm eating under about 1.6 g per kg of bodyweight.

LEVER 2 · PROTEIN

☐

I train each muscle once a week or less.

LEVER 3 · FREQUENCY

☐

I judge a session by how sore I am the next day.

LEVER 4 · SORENESS

☐

I haven't had an easier week in two to three months, and I'm feeling it.

LEVER 5 · EASY WEEK

☐

I often start sessions already tired: long desk days, stress, or a body that's slower to bounce back than it used to be.

LEVER 6 · LIFE LOAD

Ticked more than one? Start with the one that's highest on this list. It runs from the most evidence-backed lever to the least: sleep, protein, frequency, then the rest. Fix one thing for one week, then come back.

Ticked none? Then your basics are in decent shape. Go to Lever 3 and space your sessions on purpose.

TURN THE PAGE: YOUR ONE-WEEK PLAN IS NEXT →

How to use this guide. It's fillable: click a box to tick it, click a white field to type. Prefer paper? Print this version and write in the white boxes.

LEVER 1

SLEEP

One all-nighter cut muscle building by about 18% in one study. One night. And the sleep experts' consensus for adults is seven or more hours a night, regularly.

THIS WEEK

MON	Pick a wake-up time you can keep every day this week:	☐
TUE	Count back 7 hours or more from it. That's your latest bedtime:	☐
WED	Set an alarm for 30 minutes before bedtime as your wind-down cue.	☐
THU	Make your room as dark and quiet as you can. Notice what changes.	☐
FRI	Keep the same wake-up time, even tomorrow.	☐
SAT	Note how you feel at your first set.	☐
SUN	How many nights did you hit your bedtime? / 7	☐

LOG IT Hours slept: M T W T F S S

Next: the Playbook turns this into a 4-week routine with a tracker.

Lamon et al., *Physiol Rep*, 2021 · Watson et al., *Sleep*, 2015 (AASM/SRS consensus)

LEVER 2

PROTEIN

Without enough protein the builders show up to an empty site. In a pooled analysis of 49 studies, the benefit levelled off around 1.6 g per kg of bodyweight a day, and about 2.2 g/kg is a sensible upper aim.

THIS WEEK

MON	Weigh yourself in the morning: kg. Your range: to g/day ($\times 1.6$ and $\times 2.2$).	☐
TUE	Add up yesterday's protein roughly, by label:	☐
WED	Put some protein in every meal.	☐
THU	Find your gap: your range minus Tuesday's number.	☐
FRI	Fill the gap with one extra protein-rich food:	☐
SAT	Repeat Wednesday on a weekend. Weekends are where this slips.	☐
SUN	Average of the days you tracked: g/day. Inside your range?	☐

LOG IT Protein each day: M T W T F S S

If you have kidney disease or a medical diet, check with your doctor or a dietitian before changing your protein.

Next: the Playbook adds a protein tracker and meal-by-meal targets.

Phillips et al., *Am J Physiol Endocrinol Metab*, 1997 · Morton et al., *Br J Sports Med*, 2018

LEVER 3

FREQUENCY

Once you're trained, the window runs about a day. Hit a muscle once a week and it builds for roughly a day, then mostly waits. When researchers pooled the studies, training a muscle **twice a week beat once a week** for growth, with the same total work.

THIS WEEK

- 1 List the muscle groups you train. Example: chest, back, legs, shoulders, arms. ☐
- 2 Give each group two slots this week, with at least 2-3 days between them. ☐
- 3 Fill the grid below. Keep your total weekly work about the same: spread it, don't pile on. ☐
- 4 Put an easy day (a walk, mobility, whatever you enjoy) between the heavy ones. ☐

	MON	TUE	WED	THU	FRI	SAT	SUN
Chest (example)	☒	☐	☐	☒	☐	☐	☐

LOG IT Which muscle did you hit twice? How did the second session feel?

Next: the Playbook has a full 4-week template by experience level.

Tang et al., Am J Physiol Regul Integr Comp Physiol, 2008 · Schoenfeld et al., Sports Med, 2016

LEVER 4

SORENESS IS NOT A SCORE

Soreness mostly tells you how new a session was. In one study, people who eased in to avoid damage and soreness grew as much muscle and got as strong as people who started with a damaging session. A review of the research reached the same conclusion: soreness is a poor measure of whether you're growing.

THIS WEEK

- MON Pick what you'll judge this week by, instead of soreness: more reps, more weight, or better control:
- TUE-SAT After each session, write one number: your top set, weight × reps.
- SUN Compare with last week. Up, flat or down? Put the soreness next to it and see if they match.

LOG IT Soreness (0-10) and top set, side by side:

Next: the Playbook has a progress check-in log that does this every week.

Flann et al., J Exp Biol, 2011 · Schoenfeld & Contreras, Strength Cond J, 2013

LEVER 5

THE EASY WEEK

Most experienced lifters build in an easy week. In a survey of 246 competitive lifters, the typical one lasted about 6 days, came every 5-6 weeks, and mostly meant fewer sets with the same exercises. The main reason they gave was managing fatigue. The research on easy weeks is still young, so treat this as your own test. One trial found that taking a full week completely off cost some leg strength (muscle size didn't change), so the plan below trims volume instead of stopping.

THIS WEEK · AN EXPERIMENT, NOT A PRESCRIPTION

MON	Check how the last 4-6 weeks felt. Rate 1-10:	☐
TUE	Choose your trigger: a planned week in the next 4-6 weeks, or "when my lifts stall and I feel run down":	☐
WED	Decide what "easy" means for you. A common version: fewer sets, same exercises, same days:	☐
THU	If planned, put the week in your calendar like an appointment.	☐
FRI-SUN	Note your energy at the start of each session, 1-10:	☐

LOG IT After the easy week, did your first hard session feel better, the same or worse?

Next: the Playbook has deload rules: when to take one, how, and how to come back.

Coleman et al., PeerJ, 2024 · Rogerson et al., Sports Med Open, 2024

LEVER 6

LIFE LOAD

Stress outside the gym follows you in. In one study of 31 students, those with higher everyday stress recovered their leg strength more slowly in the four days after a hard session. In another, 135 students over 12 weeks, the low-stress group gained more strength. These show a link, not proof, and the students were young. None tested whether lowering stress helps. But it's one more reason a tired week isn't a weak one.

THIS WEEK

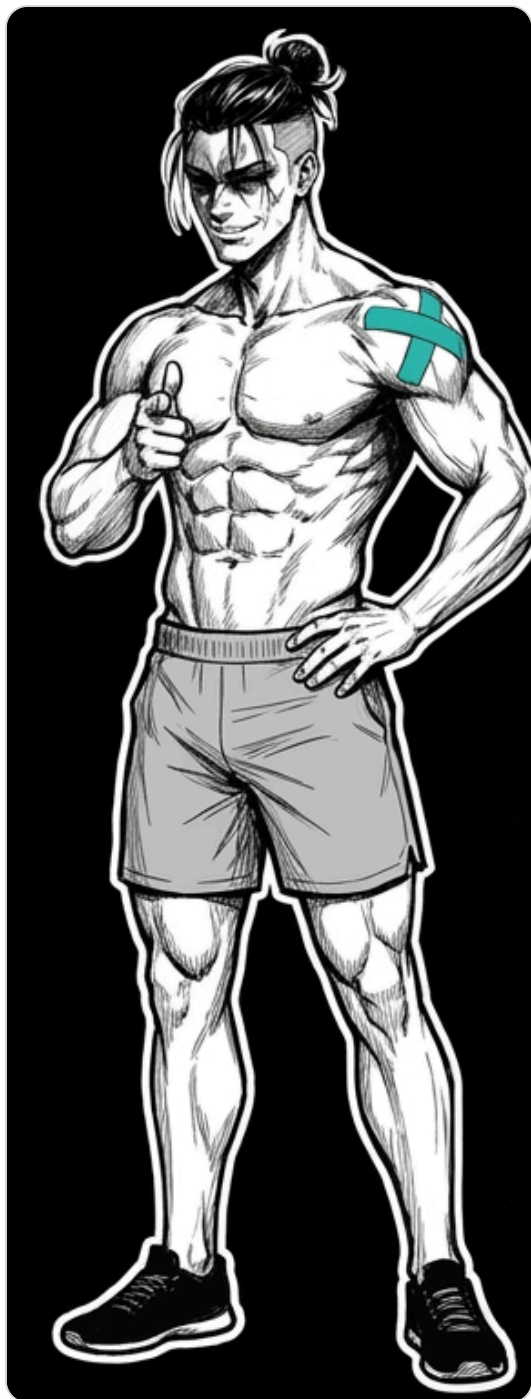
MON	Rate your energy before each session, 1-10, in the log below.	☐
TUE	Add one 5-minute movement break to your desk day.	☐
WED	Add one active-recovery day: an easy walk, stretching, yoga.	☐
THU	Move your hardest session to the day you feel best, not the day that's convenient.	☐
FRI	Wind down: choose one thing that tells your body the day is done:	☐
SAT-SUN	Review: on which days was energy lowest? What was going on?	☐

LOG IT Energy 1-10 before each session:

Next: the Playbook builds the recovery days into a 4-week plan.

Stults-Kolehmainen et al., J Strength Cond Res, 2014 · Bartholomew et al., J Strength Cond Res, 2008

WANT THE FULL PICTURE?



That was one lever for one week. The Recovery Playbook puts all six into a 4-week plan:

- A 4-week plan template across every lever
- Protein and sleep trackers
- Deload rules: when, how, and how to come back
- A weekly check-in log

GET THE PLAYBOOK

kairebuilds.com/playbook

**NEW VIDEOS EVERY WEEK ON @KAIREBUILDS.
TRAIN HARD. RECOVER SMARTER.**

— KAI

Sources

Phillips et al., 1997, Am J Physiol Endocrinol Metab 273(1):E99-E107 · Damas et al., 2016, J Physiol 594(18):5209-22 · Tang et al., 2008, Am J Physiol Regul Integr Comp Physiol · Schoenfeld, Ogborn & Krieger, 2016, Sports Med 46(11):1689-97 · Morton et al., 2018, Br J Sports Med 52:376-84 · Lamon et al., 2021, Physiol Rep 9(1):e14660 · Watson et al., 2015, Sleep 38(6):843-4 · Flann et al., 2011, J Exp Biol 214:674-9 · Schoenfeld & Contreras, 2013, Strength Cond J 35(5):16-21 · Coleman et al., 2024, PeerJ 12:e16777 · Rogerson et al., 2024, Sports Med Open · Stults-Kolehmainen et al., 2014, J Strength Cond Res 28(7):2007-17 · Bartholomew et al., 2008, J Strength Cond Res 22:1215-21.