A Beginners Guide to Tracking Bar Speed in Your Training

By Jacob Tober

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Metric on iOS →

Metric on Android →

If you're reading this, you've probably heard of VBT. But maybe you haven't quite known how to start, or how to make it actually matter in your training and programming.

Hopefully this guide can help.

This guide will show you what velocity tracking looks like in practice, what the numbers mean, and exactly how to use them in your next session. No rigid, confusing zones with arbitrary cut-off values. No overhauling your program or training style.

Just a new tool to better track your recovery and adaptations, make real-time loading decisions, and ultimately: make bigger strength gains and faster progress.

VBT doesn't have to be so complicated

I get the confusion when it comes to integrating bar speed tracking into your training and programming.

The way velocity based training (VBT) has been explained in the past is confusing, overcomplicated, and seemingly so disconnected from how the rest of the world actually trains that it required a sports science degree just to get started.

Here's the thing: most of what you might have heard as "VBT essentials" is far more complicated than it needs to be — and honestly, not all that useful.

I've spent the last decade coaching athletes with velocity data, building the Metric app, and publishing research on bar speed tracking. The single most important thing I've learned is that doing only what is required and keeping it simple has almost always led to the best results when incorporating velocity into my strength and power programs.

How barbell tracking can help

You don’t have to track your bar speed to make gains in the gym. But it is a high leverage way to accelerate progression, give you confidence and allow you to be more responsive and adaptive in your daily training decisions.

At its core, velocity data gives you four insights that nothing else in the gym can give you objectively:

1. **Intent** — The quality of effort and output you're applying to every rep
2. **Exertion** — The proximity to failure across a set or session
3. **Readiness** — how recovered you are today and your adaptation to training stress
4. **Adaptation** — A way to measure strength and power progression every single workout

Everything in this guide builds on those four insights. The practical and programming examples below will be built around one or some of these insights.

VBT is to lifting what GPS is to running

I like to think about velocity tracking in the gym the same way GPS watches have transformed running and endurance training.

Runners and coaches didn't throw out their training plans when GPS watches came along. They still looked at heart rate and listened to their bodies. But the precision with which they could plan and execute their interval work, tempo runs, and long runs has never been better, thanks to precise pace, distance, and elevation data.

And despite almost universal adoption, runners and coaches still don't call their workouts "GPS-based training," and coaches aren't advertising their services around GPS as some separate philosophical lens. The technology is simply a powerful tool that provides useful, objective data to help them train smarter and track progress with incredible precision.

Velocity tracking is the same. It isn't about revolutionising your approach to lifting weights — it's a useful, objective data source. Bar speed has the power to be just as useful to strength and power training as GPS data has been to endurance training.

You still train and program with smart exercise selection, load, reps, sets, RPE, and percentages. Tracking bar speed adds a layer of objective data to every rep and set, giving you more context, better real-time insight, and more opportunities to make smart, informed decisions — and ultimately get stronger and more powerful.

And just like most runners today wouldn't dream of going for a run without their watch, once you start seeing the results your velocity data can drive, training without it starts to feel a lot like guessing.

Key Theory Worth Knowing

Before we get into the practical stuff, there are four core ideas at the centre of velocity tracking that will make everything else in this guide click.

1. Strength is about producing force, not just lifting load

Strength is the skill of generating force. We develop strength by training our nervous system and muscles to create that force in a coordinated and directed way.

One of the best ways to get stronger is to lift heavier weights, but the amount of weight you lift is only half the equation. Force is mass times acceleration (F = ma). That means both the load on the bar AND how hard you accelerate it contribute to the training stimulus and strength gains.

We call this application of acceleration in lifting *intent to move*, or just **intent** for short.

Even when the bar moves slowly because the weight is heavy, the *intention* to accelerate it as fast as your nervous system allows is key to training your body to produce more force and build strength. Intent is about the effort you put in regardless of the speed that comes out.

Two lifters can squat the same weight for the same reps, but the one who is locked in and pushing with more intent on every rep gets a superior training stimulus.

The problem is that without velocity tracking, intent is invisible. You can't see it and you can't measure it. Velocity tracking gives you an objective score for your effort on every single rep, surfacing one of the most important variables in gym success. By trying to increase the speed of your lifts, you are now directly working on both sides of the force equation.

2. Your velocity is most meaningful when compared over time

There are no universal velocity standards, and no "perfect bar speed" to do all your reps at.

A "good" velocity for an exercise, weight, or athlete will vary. Your height, limb lengths, range of motion, experience level, and technique all affect the velocity one lifter produces versus another.

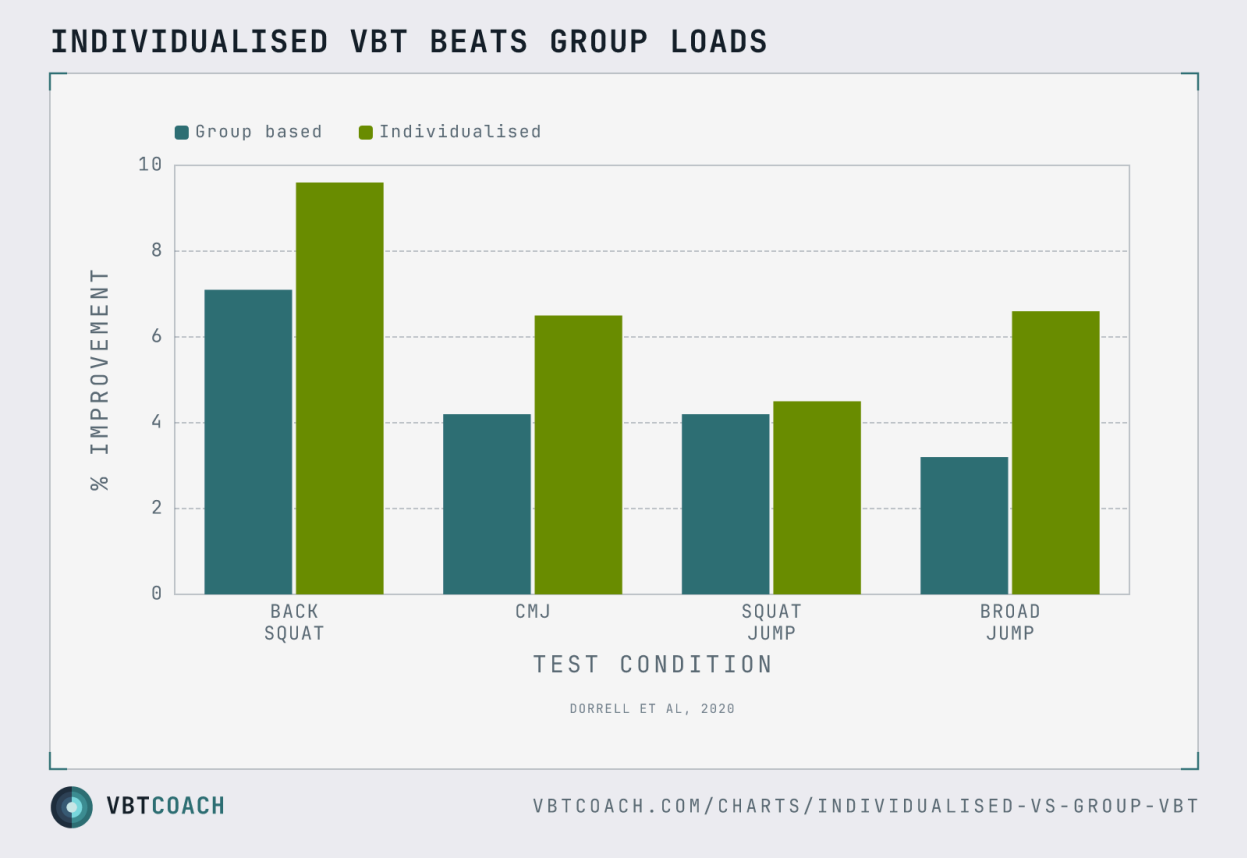
The lifter next to you squatting the same weight 0.1 m/s faster or slower isn't better or worse than you in any meaningful sense.

But just like adding weight to the bar is a sign of progression, moving the *same* weight *faster* over time is a clear indication of increasing strength. **A good velocity is simply lifting the same weight faster than you did in the past.**

I call this comparing against your **contextual velocity history**, and it's where all the good stuff lives: progress tracking, fatigue monitoring, and the motivation of competing with a past version of yourself. Increasing bar speed over time can show up in a few ways:

- Lifting the same weight as last week, faster — on a warm-up or a working set (e.g. 100kg @ 0.65 m/s → 100kg @ 0.68 m/s)
- Setting a velocity personal record (PR) for an exercise and load
- Keeping a positive velocity trend, where today's velocity is above your 6-week average — a single number that's a great indication of being well recovered

Don't stress about doing any of this manually. Metric handles and surfaces all of this comparative data for you automatically while you lift.



Dorrell, 2020. Programming with individualised velocity data leads to better training results.

3. One number does the heavy lifting: mean velocity

Metric tracks over a dozen data points on every single rep, and there's value in all of them. But when you're starting out, you only need one: **mean velocity**.

Mean velocity is the average speed of the bar during the concentric (upward) phase of a rep, measured in metres per second (*m/s*). I use mean velocity for almost everything — even Olympic lifting — and I strongly recommend you do the same when starting out.

One number, consistently tracked, will always be more useful than five metrics you only half understand.

With just mean velocity, you can measure intent and exertion, estimate your 1RM, track recovery and readiness, set training targets, optimise weight selection, and track progress. That's a lot of value from a single data point.

And don't panic about missing out: apps like Metric log and save every metric on every rep regardless of what's displayed. When you're ready to explore advanced

metrics like peak velocity, power, and tempo, you'll already have a great historical dataset waiting.

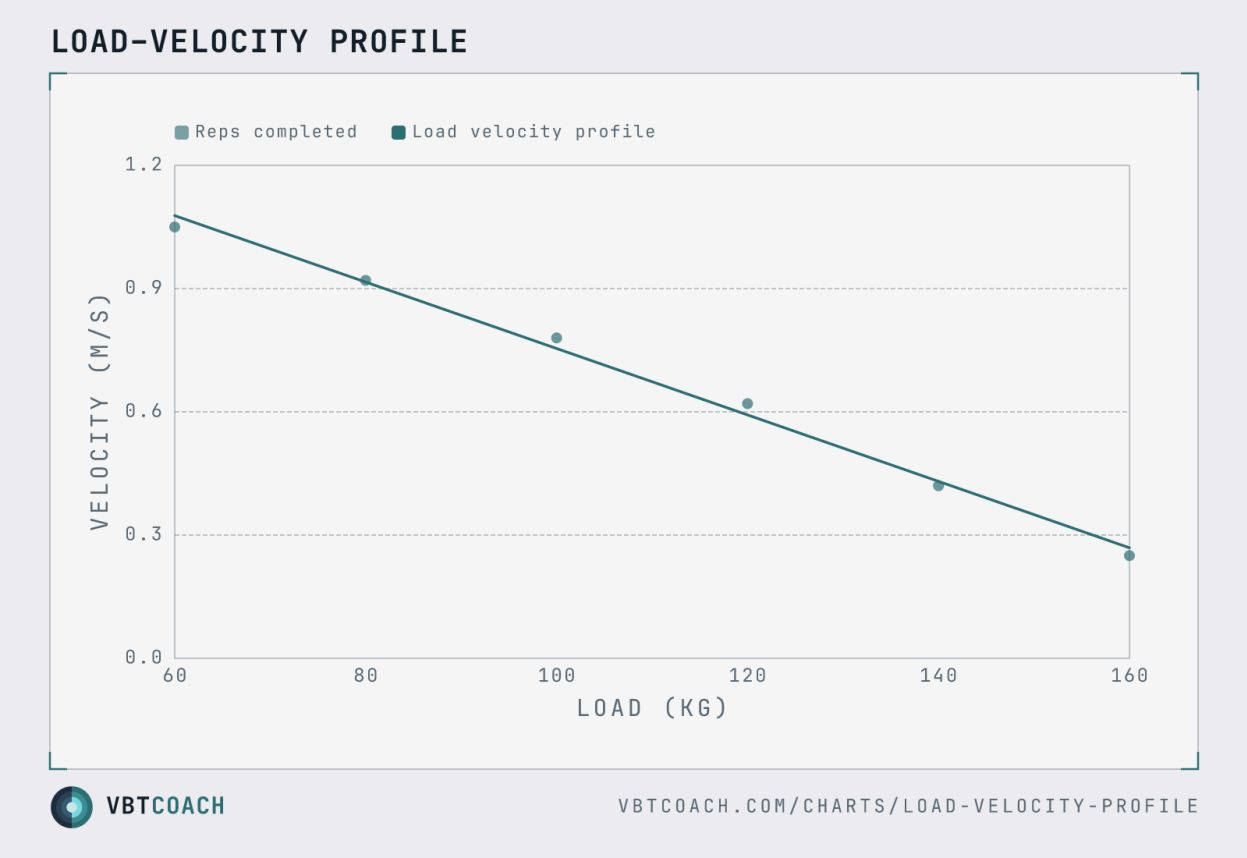
4. The load-velocity profile and estimated 1RM

One of the best starting places for your velocity data is creating a **load-velocity profile** for your key exercises. The profile is a useful way to visualise your lifting each session and track progress over time — but more importantly, it can be used to estimate your 1RM with impressive accuracy, letting you run autoregulated training and track your strength progression every single session.

The load-velocity profile

The load-velocity profile takes your performance on a single exercise and charts the velocities you achieve across all your weights.

The more weight on the bar, the slower it moves. Even with high intent, this creates a clean linear relationship — velocity on the Y axis, load on the X axis. That line is your load-velocity profile.



Every weight you lift falls on a line — your personal load-velocity profile for that exercise

What's really useful for coaches and lifters is that the profile is remarkably consistent and repeatable, giving us a powerful tool for tracking progress, optimising training in real time, and planning programs in advance.

How to collect a load-velocity profile

You can do this two ways. Either (a) perform a dedicated profiling session, or (b) just track your normal workouts and collect a profile every session, in the normal flow of training.

To collect your profile, record your **best rep mean velocity across 3–5 different loads**, spread from roughly 40% up to 80%+ of your max, with at least one set at or above 75%. For most lifters that's just your normal warm-up progression plus your first working set. Lift every rep — including warm-ups — with high intent.

For an intermediate lifter's back squat, that might look like:

Load	Reps	Mean Velocity	Feel
20kg	12	NA	Always start with the bar
60kg	8	0.93 m/s	Light, fast warm-up
80kg	6	0.71 m/s	Moderate, fast warm-up
100kg	4	0.60 m/s	Around the 75% range
110kg	2	0.48 m/s	Ramp-up double

Your numbers will be different to this example, but they'll follow a similar linear pattern.

NOTE: Don't stress about having to build the profile manually. Metric creates it for you automatically as you train, and there's a free load-velocity calculator on the VBTcoach website if you want to do it yourself.

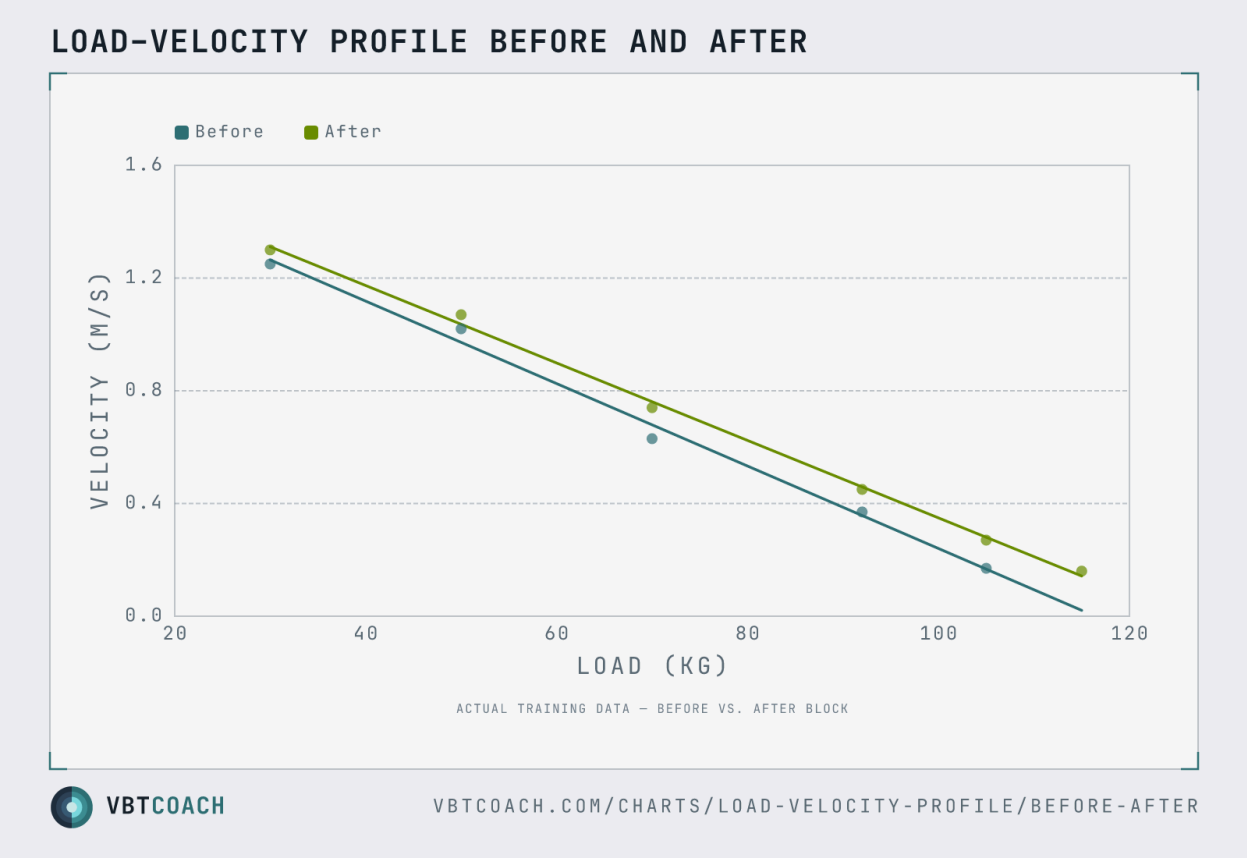
Applications of the load-velocity profile

There are three core use cases for the profile, all with some overlap: tracking progress and flagging fatigue between sessions, estimating your 1RM, and applying autoregulated, percentage-style load prescription.

Track progress and fatigue over time

By collecting a profile every workout, it becomes easy to compare the literal shape of your training week to week. To get stronger we want to lift heavier weights or aim to lift the *same* weight *faster* over time (by increasing acceleration: the other half of the force equation).

This shifts your entire profile up and to the right: bigger profile, more force, more strength (and more power). As a rule of thumb, a 0.05 m/s improvement in mean velocity at a given load doesn't sound like much, but it corresponds to roughly a 2.5-5% increase in your 1RM on that exercise.



Two load-velocity profiles, week 1 vs week 8. The whole line shifts up and to the right is what getting stronger looks like in your data.

So with this in mind, this list below is now all of the ways you can track increasing strength in your training thanks to barbell tracking:

- **Lift heavier:** 100kg at 0.60 m/s → 105kg at 0.60 m/s
- **Lift faster:** 100kg at 0.60 m/s → 100kg at 0.65 m/s (best rep velocity OR set average)
- **Lift more reps:** 100kg for 3 reps → 100kg for 5 reps

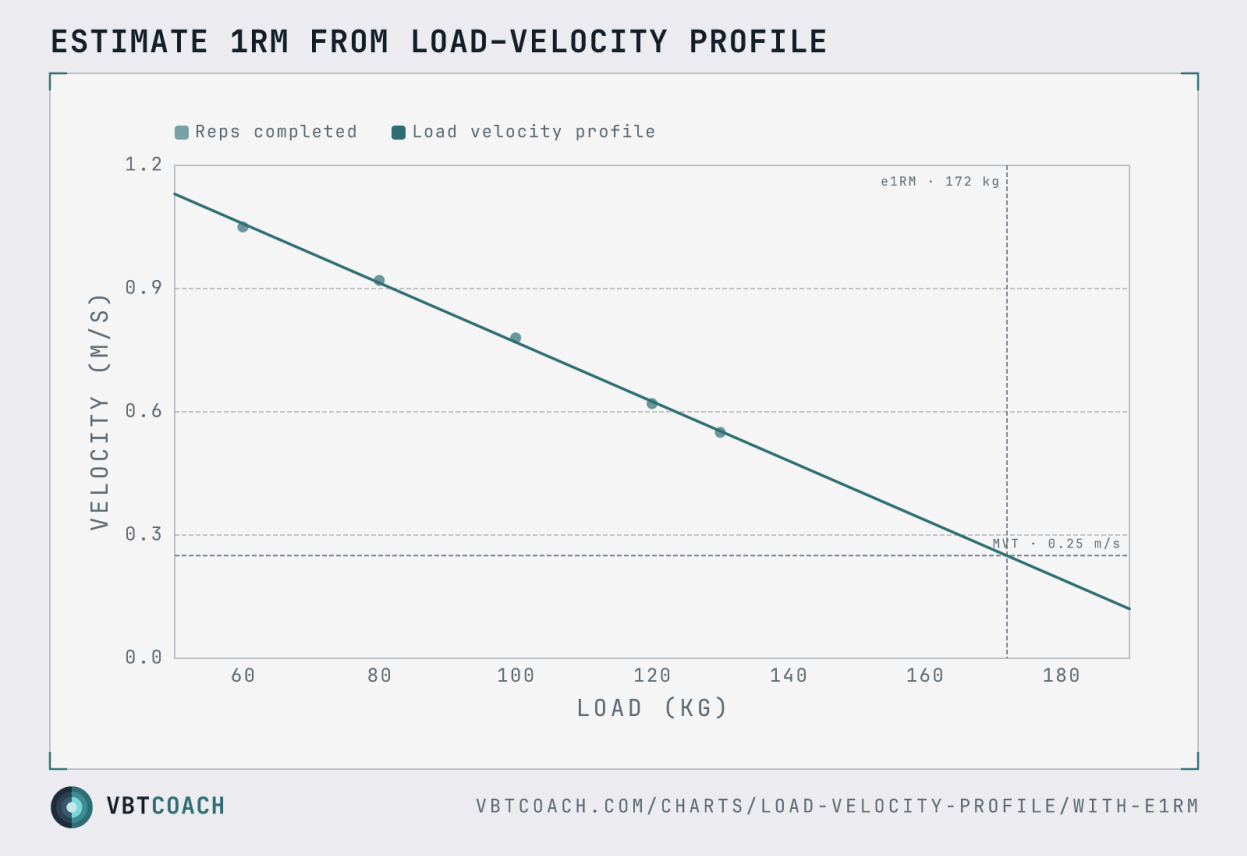
Calculate your estimated 1RM (e1RM)

The profile can also be used to estimate your 1RM, giving you a gauge on your true strength levels each and every session.

This matters because your actual 1RM fluctuates day to day. A test from three weeks ago might say 160kg, but today you might genuinely be capable of 168kg — or only 152kg — depending on recovery, sleep, accumulated fatigue, and a dozen

other factors. Your daily e1RM captures this fluctuation and helps you optimise every workout.

To find your e1RM, take your load-velocity profile and extend the line down until it intersects your **minimum velocity threshold (MVT)** — the predicted speed your 1RM would move at.



Extend your profile line down to your minimum velocity threshold and you've found today's estimated 1RM.

MVT varies between exercises (and experience levels) but is usually consistent and reliable in a tight range for individuals. Stronger, more experienced athletes usually have slightly slower MVTs because they can grind longer before failing.

Exercise	Novice 1RM speed	Advanced 1RM speed
Back Squat	0.40m/s	0.30m/s
Bench Press	0.27m/s	0.17m/s

Exercise	Novice 1RM speed	Advanced 1RM speed
Deadlift	0.30m/s	0.12m/s
Trapbar deadlift	0.45m/s	0.30m/s
Prone row	0.55m/s	0.45m/s

These numbers are a good starting place but the best approach is to build your own profile and tune your own numbers rather than relying on a universal table.

How to find your estimated 1RM

All you need is a load-velocity profile with at least one set at or above 75% of your max. Do your normal warm-up progression with high intent, and Metric charts every rep velocity and weight to show the line of best fit, finds where it crosses your MVT, and this gives you today's estimated max in real time. You can tune the MVT value for each exercise in the Metric app settings.

One honest caveat: treat any single day's e1RM as a strong estimate, not the hard truth. The *trend* in your 1RM estimate over time is the critical piece.

Four Ways to Train With Your Data

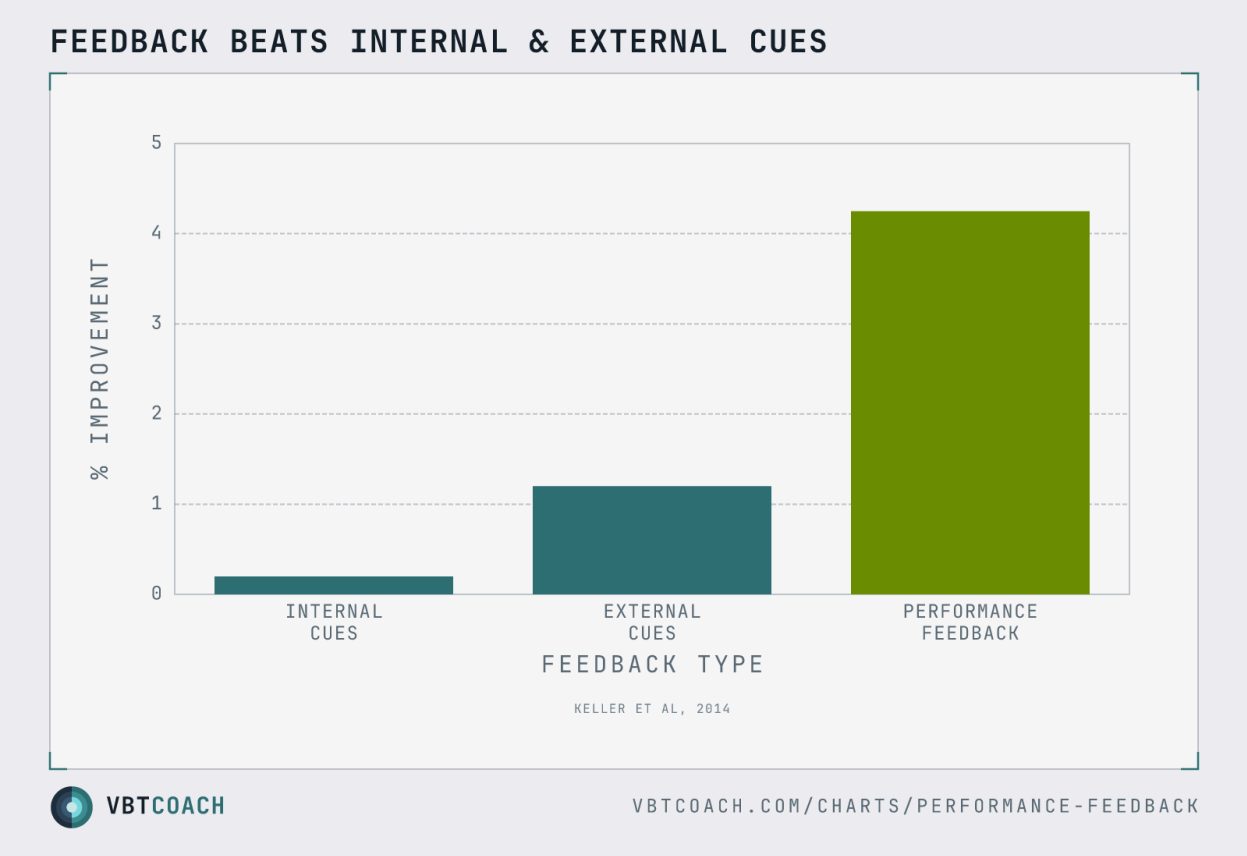
Now that you understand the principles, the numbers, and how your profile works, here are the four highest-leverage ways to use velocity data in your training. Each can be run standalone, combined with the others, or layered into your existing training and programming.

1. Increase your training quality with feedback and velocity PRs

This is the easiest and arguably the most powerful use of bar speed.

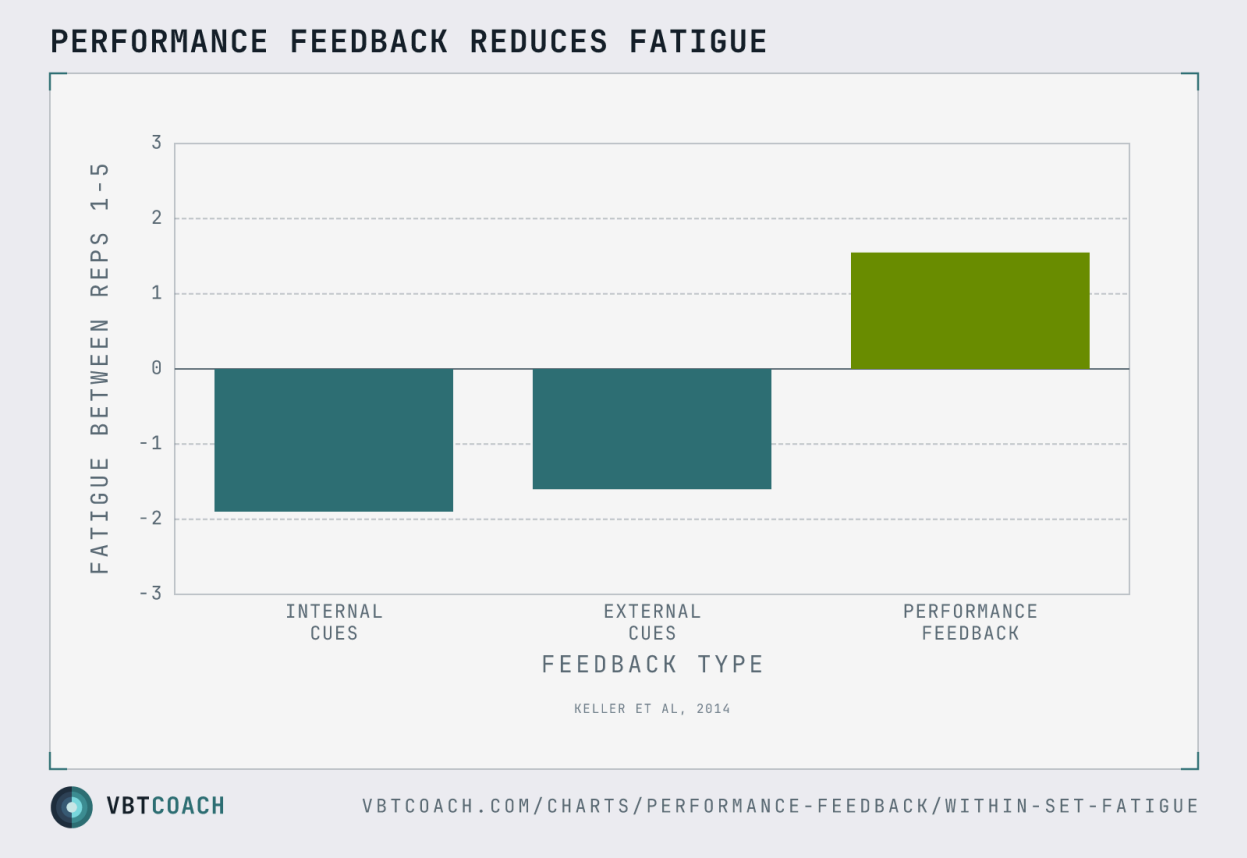
When you can see your bar speed on every rep, you naturally start trying to beat it. That competitive feedback loop — you against your own previous numbers — increases the quality of every rep as your intent climbs. More intent means more force production in real time, which leads to better strength and power adaptations over time.

The research backing this up is strong. Martin Keller (2015) found that showing athletes their jump height immediately after each attempt instantly increased jump performance by 4% within the same session — outperforming both internal and external cueing.



Keller 2014. Just seeing your performance output on each rep immediately lifts jump performance in session by more than 4%.

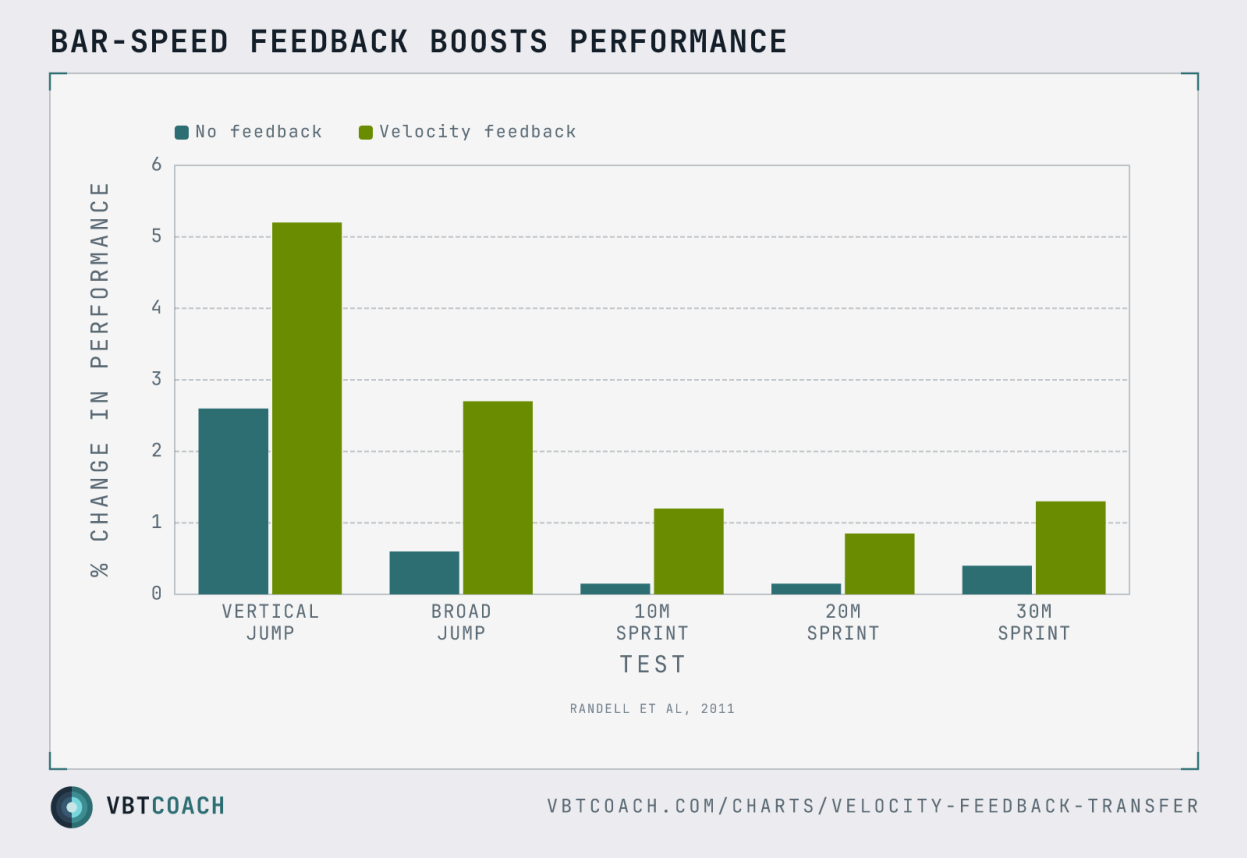
These athletes also showed *less fatigue* across testing when shown their performance numbers.



Feedback didn't just boost output — athletes maintained it for longer as the feedback delivery also reduced fatigue across reps.

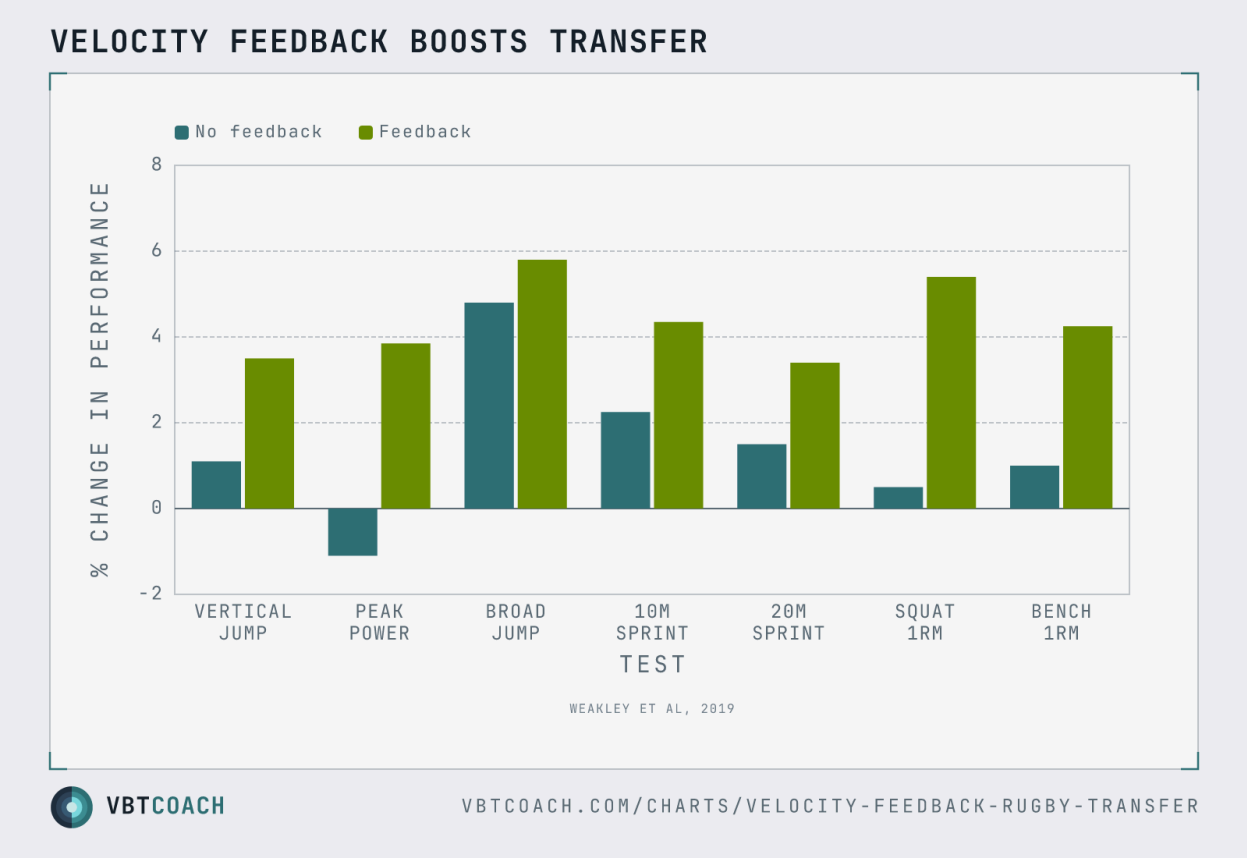
My all-time favourite feedback study is by Aaron Randell (2011). He ran a six-week training study with professional rugby players. Both groups followed identical strength and conditioning programs. The only difference: one group received velocity feedback on just the *first exercise* of the workout — three sets of four jump squats at a fixed 40kg. Everything else was done without feedback, with standard progression for both groups.

This tiny intervention led to a big difference. Both groups improved over the six weeks, but the feedback group saw significantly more improvement on *all* their performance tests.



Randell, 2011. Velocity feedback on one exercise (40kg Jump Squats) was all it took for rugby players on identical S&C programs to double performance gains across almost every field based test.

To back this up, Jonathon Weakley ran a very similar study (2019) and found almost identical performance benefits from velocity feedback.



How to use feedback to increase training performance

Three great options for unlocking this feedback loop:

In-set audible feedback. Hearing your velocity called out after every rep lets you keep intent high for the entire set, fighting fatigue and holding a high standard rep after rep.

To do this, turn on audio feedback in Metric: from the recording screen, tap the target icon and select your feedback type. The app announces your rep data through your headphones or speaker — with your music still playing underneath.

Some specific ideas:

- **Pick a velocity target and defend it.** For example, 1.2 m/s for trap bar jumps, or 0.6 m/s for squats at around 80% for dynamic effort work. See how many reps you can keep above the target, and end the set when you fall below it for two consecutive reps. This is also a great way to run clusters — trigger a long rest whenever you drop below target.

- **Beat your average.** Set your velocity target to your 6-week average for that exercise and weight, and try to earn the positive chime on every rep (Metric suggests this number for you on the feedback settings page).
- **Just make the number bigger.** Keep it super simple: set Metric's feedback to "Read" and chase the biggest number you can get it to announce. Set a goal for the training block — 100kg at 1.0 m/s, or double bodyweight at 0.5 m/s — and use your profile to pick a target that's right for you.

Chase a velocity record. Metric automatically tracks your personal records across several data points. One of the best is your fastest single-rep mean velocity for a given exercise and load. Beat it and your PR badge fills to 100% on the set review page.

When Metric tells you you've set a new velocity PR, that's real progress. Even if you haven't added weight to the bar in a while, a faster velocity at the same load means you're producing more force and getting stronger. Over time, a load PR almost always follows velocity PRs at weights above ~85%.

For coaches: run a leaderboard. The leaderboard in Metric shifts attention away from grinding maximal weights and channels your athletes' competitiveness into intent, bar speed, and lifting quality. Competing on relative power (watts per kilogram of bodyweight) is a great equaliser that gets the whole room lifting with purpose.

2. Use Trends to make daily adjustments with confidence

Metric's **Trends** feature compares your velocity today with your 6-week rolling average for that exercise and load. After each set you get a single percentage score as a readiness indicator: **trending faster (>102%), stable (98–102%), or trending slower (<98%)**.

The best way to use this is not to stress about any single faster or slower set, but to look at the pattern across multiple sets in your session.

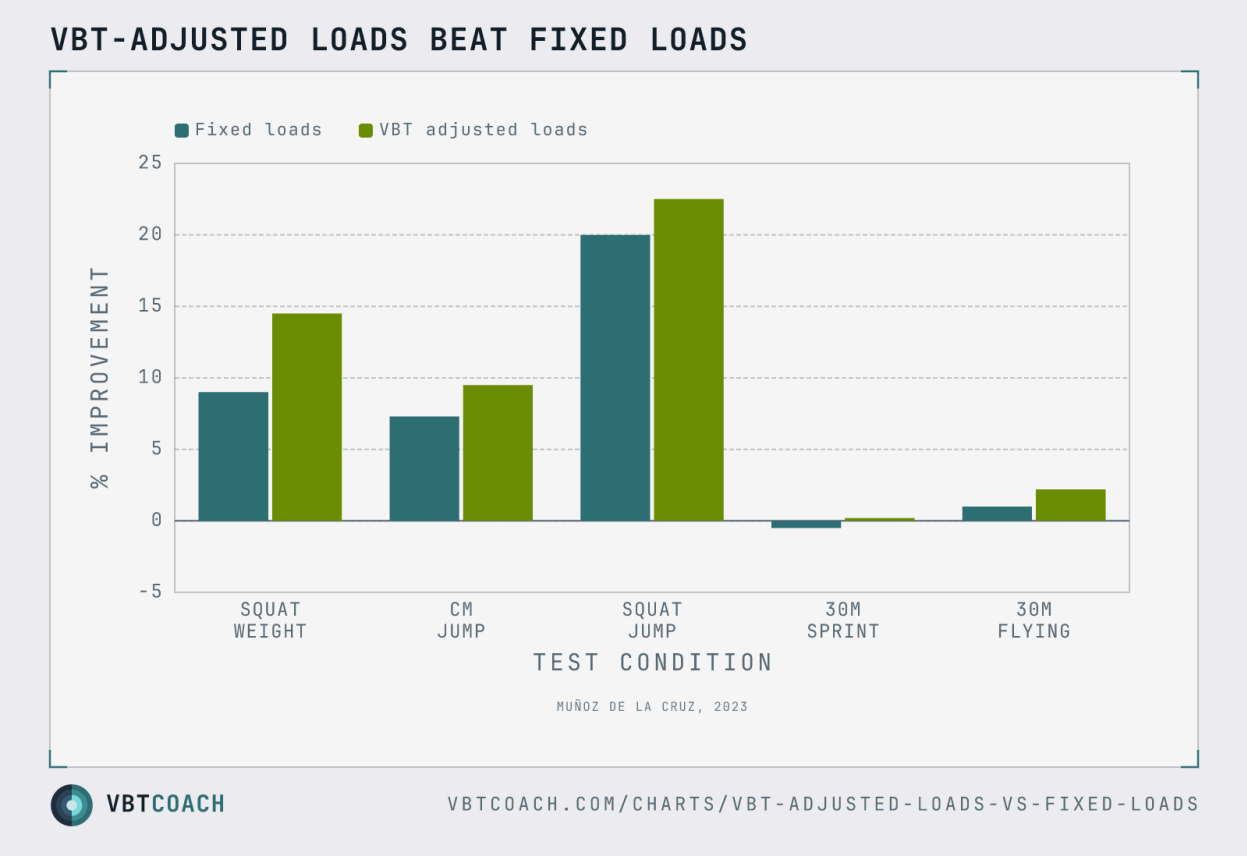
How to use it: I think of my Trend scores like a traffic light system.

- **Green — trending faster (>102%):** Bar speed is above your recent average across your warm-ups. You're well recovered and primed to push. If you planned 3 sets of 3 at 140kg, go for sets of 4, add 5kg, or add a fourth set. Chase a rep PR on your top set. This is the day to be ambitious.

- **Amber — stable (98–102%):** Sets hovering around 100%, maybe some ups and downs. This is the most common reading and the one lifters get wrong most often — they see "flat" and assume low readiness, so they pull back. Don't. Amber is realistically the most common session you'll ever have, and these are the days to run your plan exactly as written. Hit your prescribed weights, log the work, bank the progression. By definition most workouts are average — and they're the most important ones to show up for.
- **Red — trending slower (<98% across 2+ warm-up sets):** Something's off — but that's not a reason to skip. The big mistake here is being far too conservative with the deload. **Modify, don't miss.** Repeat last week's session instead of progressing, cut a rep or two from your work sets, trim some accessory volume. Even on a red light day you still need to train — just don't dig a hole or chase big numbers.

This system is not just about holding back on bad days. Green and amber days are equally important, because they give you the objective confidence to know when to push. A lot of lifters leave progress on the table by sticking rigidly to the plan on days they could have done more, or by pulling back too aggressively when the data is merely flat. And even with Trends running, keep paying attention to the subjective feel of every set (RPE and VBT are a great combo!)

I call this **opportunistic periodisation** — a term you'll see me use a lot. You still follow your big-picture program week to week, but you use Trends to decide when to push ahead of schedule and when to hold. Over time, these small nudges mean you recover better and progress faster than any rigid plan would allow, because you're matching every workout to what your body can actually do that day.



Muñoz, 2023. Adjusting training loads across a training program leads to better performance outcomes.

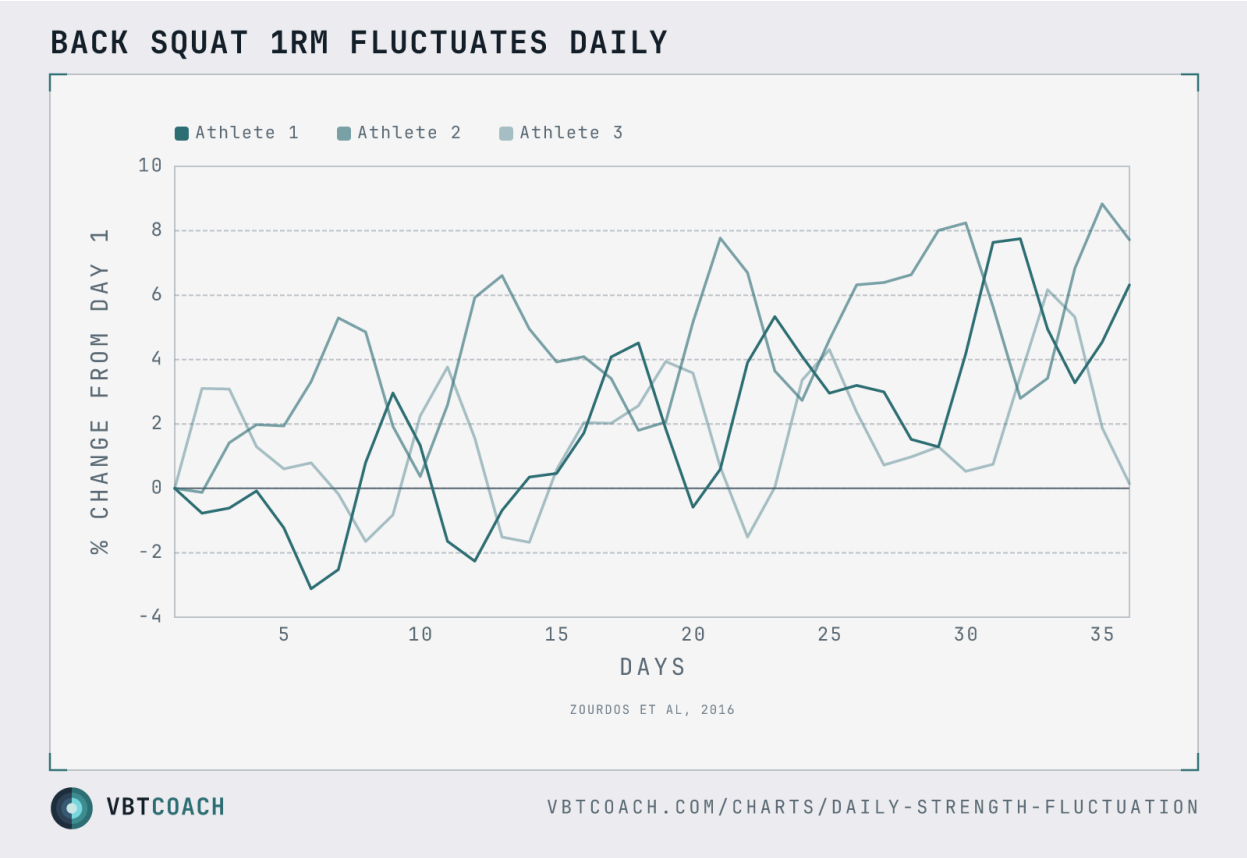
Important note: Trends needs a few weeks of history before the comparisons become reliable. For the first 3–4 weeks you're building your baseline. Don't stress about the indicators in this phase.

3. Use your e1RM to find the perfect weight

Building on the idea of load flexibility with Trends, we can apply an even more precise system to find the right weight to match your readiness: an enhanced percentage-based training approach.

The fundamental premise of percentages is pre-planned, progressive overload for strength. The problem is that actual strength fluctuates constantly, meaning your true 1RM you tested six weeks ago might be 10% higher or lower on any given day, making your prescribed weights less precise than they could be. Without ever knowing it, athletes can spend a whole block undertraining (if they're adapting

faster than the plan predicted) or overreaching (if recovery is struggling to keep up with the plan).



Zourdos, 2016. Daily 1RM strength swings of ±5% are normal even when the trend is going up. Fixed percentage programs based on a 1RM from weeks ago are blind to this.

With velocity tracking, you can collect a fresh e1RM every session from your warm-up sets — letting you prescribe percentages, sets, and reps weeks in advance, then tune the weight in the moment.

How to do it in practice:

Track velocity on your warm-ups as normal. After 3–4 progressively heavier sets, Metric automatically builds your profile and calculates today's e1RM. Use that as the reference for your working weights.

If today's program calls for 3×4 at 85%, drag your finger across the profile in Metric to find the load matching 85% of *today's* e1RM. That's your working weight. This is opportunistic periodisation in action: a concrete week-to-week

plan, executed with a real-time strength estimate, so the training stress always matches your actual rate of recovery and adaptation.

The result: faster progress, better recovery, fewer stalls. Instead of grinding through a weight the spreadsheet prescribed six weeks ago when your body was in a different place, you match the intensity to today.

4. Program with velocity targets

Velocity targets remove the percentage & 1RM step entirely and program a direct **velocity target**, using it to find the perfect working weight each session straight from your bar speed. It's the opportunistic trends idea matured into a long-term plan: strength development with built-in, real-time autoregulation, with velocity as the driving metric.

The trick is to use *progressive* velocity targets, so we still apply progressive overload across the weeks and months of the program.

Lifting velocity is more sensitive to your recovery status and fatigue than load is, so basing your daily working weight on a velocity target lets you (a) progress more rapidly when you're recovering well, and (b) spot accumulated fatigue early and sidestep illness, burnout, or injury.

Here's the basic mechanic for velocity targets

Pick a target bar speed for today’s working sets, say 3×5 at 0.50 m/s (that bar speed refers to best rep velocity), then start warming up. Keep adding weight each set until your first rep lands close to the target velocity (±0.02m/s is close enough). That's now today's working weight.

The exact weight at 0.5m/s should be pretty stable session to session, over weeks the weight lifted at the target increase as you get stronger, while on those days when you are under the weather or not yet fully recovered the weight will be lower. This is velocity target ensures you're training at the right intensity every single session. It’s also worth nothing that these “swings” in load at the target velocity will be small, maybe at most ±5kg (10lbs) week to week, but much more likely 1-3kg.

You can't lift at 0.5m/s forever, though. That would be like training at exclusively 100kg for 3 reps all year-round. That’s a strategy for plateauing really fast. To apply progressive overload, we need to adjust our target velocity to match our

training phase and keep the program from getting stagnant. My favourite approach when training for strength is **progressive 4 weeks blocks with a decreasing velocity target**. Here's how:

Week 1 — profile. Start with a profiling week for the lifts you'll train. On your own load-velocity profile, find the velocity that corresponds to roughly 80% of your e1RM for each exercise. That's your Block 1 target velocity.

Note: You don't have to write any of this down or build a spreadsheet. Metric stores the data, creates the profiles, and shows your loads in the app during your workout. You just need to know your target velocity for each exercise for each block — screenshot the table below for guidance, or put the targets straight into a program template in Metric.

Block 1 (Weeks 1–4): Volume phase — 3×5 at your target velocity. Warm up as normal, then use your profile to find where the target velocity lands. I like to do a test single at or just below the target weight to prime my nervous system and confirm the load before the work sets — optional; your call. Rest 2–3 minutes, then 3 sets of 5 at that weight.

Example: if your back squat e1RM today is 140kg, the velocity at 80% (112kg) might be 0.55 m/s for you — making that your Block 1 target (best rep velocity). Over the four weeks, assuming you're recovering between sessions, the weight that moves at 0.55 m/s will climb steadily.

Block 2 (Weeks 5–8): Strength phase — 3×3 at a slower target. Drop your velocity target by 0.05 m/s (0.50 m/s in our example). A slower target means a heavier bar, so as intensity rises we cut volume: 3 sets of 3. Same process — add load until your first rep hits the target, then do the work.

Block 3 (Weeks 9–10): Peak phase — 2×2 at your slowest target. Drop another 0.05 m/s (0.45 m/s in our example). This is a short intensification phase — you should now be working above 90% of your 1RM and genuinely pushing your strength. I personally like 2×2 for a short peak, but 3×1, or 1×2 + 1×1, work great too. I keep this block to two weeks to cap the intensity exposure.

After Block 3, repeat. Jump straight back into Block 1, or take a deload week and run a fresh profiling session to bank your progress and set new baselines. (Profiling sessions are optional — you collect profiles in normal training every workout anyway.)

Block	Weeks	Sets × Reps	Velocity target	Example weight
1 — Volume	1–4	3×5	0.55 m/s (~80%)	110–115kg
2 — Strength	5–8	3×3	0.50 m/s (~85%)	118–122kg
3 — Peak	9–10	2×2	0.45 m/s (~90%)	125–130kg
4 — Profile	11	6×3 (profile)	—	40–120kg
1 — Repeat	12–15	3×5	0.55 m/s (~80%)	115–120kg ↑

All numbers are illustrative. Your targets, weights, percentages, and rate of progression come from your own profile and will differ — the 0.05 m/s step between blocks is the structure; your profile supplies the values.

The second time through, the weights at each velocity will be heavier than the first time. That's the progress: same bar speeds, heavier weights. The load takes care of itself across the program, because the velocity targets only let you lift heavier once you've genuinely adapted. No percentage spreadsheets, no stale 1RM tests.

Ways to progress or vary your next run-through:

- **No changes:** same targets, sets, and reps (this same cycle can probably repeat 3–4 times with great results)
- **Increase all rep counts** by +1 (3×5 → 3×6, etc.)
- **Reduce all velocity targets** by 0.05 m/s (0.55m/s → 0.5m/s for block 1)
- **Add different blocks:** Add a 3×4 block between 1&2, or a 2×1 block at the end.

A Rollout Guide to Velocity Tracking with Metric

Now that you have concrete methods to trial, you might be eager to jump right in. Here's a realistic look at your first few weeks of barbell tracking.

Before we start, three things to keep in mind:

First, velocity tracking integrates — it doesn't replace. Keep doing what you're already doing and use the data to make small, informed improvements. Change everything at once and you won't know what's working.

Second, velocity data gains meaning with training context. Be patient and don't jump at shadows — it takes 3–4 weeks to build a steady baseline for spotting meaningful trends. Treat your first sessions as data collection, not data interpretation.

Third, if tracking is adding 20 minutes or stressing you out, you're doing too much. Track your main barbell lifts only — 1–2 exercises per workout, max. The best system is one you'll actually use consistently.

What you need

A smartphone. iPhone or Android — Metric runs on both.

A tripod or phone mount. Position your phone about 1.5–2 metres from the bar, side-on, with a clear view of the plates. Any basic phone tripod works fine.

The Metric app. Free on the App Store and Google Play. You can track velocity on every set with the free version (some features need a Pro or Coach subscription).

That's it. No sensors, no calibration, no expensive hardware. Point your phone at the bar and hit record. Metric has been independently validated against 3D motion capture in peer-reviewed research, so the numbers you see are numbers you can train with.

Week 1: Profile your key lifts

Your job this week: record your main barbell exercises and start building load-velocity profiles.

For each key lift in your program (squat, bench, deadlift, press, row, cleans, etc.), build a full profile and get an e1RM:

1. Set up your phone on the tripod, side-on, plates clearly visible.
2. Open Metric, start a workout, select your exercise, enter the load, hit record.
3. Do 2–3 reps at each weight with good technique and high intent — not so aggressive your reps get sloppy, but purposeful acceleration on every rep.
4. Work through 3–5 loads from roughly 40% up to 80%+ of your max, with at least one set at or above 75%. Your normal warm-up progression plus your first working set covers this for most lifters.

5. Metric does the rest. Your profile builds automatically as you record, and your e1RM appears once you have reps at 2–3 different weights.

By the end of each exercise you'll have your first velocity and power records, baselines for your Trends data, a load-velocity profile, and an e1RM. Don't change your program yet — you're collecting baseline data.

A worked example — Sarah's first tracked squat session.

Sarah guesses her squat 1RM is around 100kg. She sets up her phone, then works through her warm up sets.

- 20kg × 10 (empty bar, not tracked),
- 40kg × 6 @ 1.02 m/s,
- 60kg × 5 @ 0.81 m/s,
- 75kg × 3 @ 0.62 m/s,
- and 85kg × 3 @ 0.49 m/s.

After each set Metric shows an updated profile, by set four, she has a clean four-point profile and an e1RM of 103kg, which matches her guess, but now she can start trying to improve that profile every week. The most interesting number of the whole profile is that 0.49m/s on the 85kg. This becomes the baseline and over the next few training blocks she'll try to beat this, aiming for a 0.55m/s velocity record with 85kg while also trying to hit a 90kg squat at or above 0.49m/s.

Week 2: Start chasing PRs and using feedback

Now that you have a baseline, use it.

Turn on audio feedback. From the recording screen, tap the target icon and select "Read" with mean velocity. Let the app call out your velocity after each rep while you train.

Beat your personal records. On every set, try to beat the best rep velocity you recorded last week at that weight. When Metric notifies you of a new velocity PR, that's a genuine marker of progress.

Try a best-rep velocity target. Pick one main working weight and using the 6-week average in Metric, set this as your target and see how many reps you can keep above it this week, using Metric's real-time feedback target mode (positive

chime above, negative below). An objective standard for great intent on your working set.

Review your profile and e1RM after each session. Check the Performance tab. Is your e1RM where you'd expect? How does it compare to what you'd have guessed? Over the coming weeks this number becomes your reference for load selection and progress (see applications #3 and #4 above).

What to expect (and what's normal)

Your numbers will be a little inconsistent for the first couple of weeks while you dial in your setup and build baseline data, but that’s normal:

- **Session-to-session variation of 2–5% in velocity, or e1RM.** Your 100kg squat might be 0.62 m/s Monday and 0.58 m/s Thursday. That's normal daily fluctuation — and exactly the kind of variation that becomes useful data over time. Another reason to accumulate a baseline before adjusting your program.
- **The occasional outlier rep.** Rare, but if one rep reads way off from the rest, it's possibly a tracking artifact from camera angle or visual noise. Hide weird reps from the set review to keep your data clean.
- **Velocity not improving every week.** Strength progress is not linear. You might not see velocity improvements for several weeks, especially mid-block. The data is still valuable for load selection and readiness even when you're not setting records.
- **More soreness than usual in the first few workouts.** Many lifters coast through their warm-up weights, going through the motions. Using barbell tracking tends to automatically raise intent and effort levels which is more taxing. This is a very short-term problem and you'll adapt quickly. The strength and power boost over the coming weeks is well worth it. Athletes: don't be surprised if running speed and jump height pop up quickly thanks to the higher-quality reps across all your sets.

Week 3 and beyond: Explore and experiment

After three or four weeks, you'll have an intuitive feel for what your 80kg bench "should" move at. You don’t have to worry about every speed at every weight,

remember Sarah's focus 0.49m/s on 85kg. That was her focus and key number to improve.

This is also where the real performance gains start. Once you're lifting with consistent intent, expect e1RM, power, and velocity improvements across your exercises within the first month.

Now is the time to explore the four example applications from this guide. Use **your e1RM** for load selection. Set **velocity feedback goals** on your main lift. Watch your **velocity trends** as your training history and context matures, or map out a **full progressive program with velocity targets**. You don't have to do all four at once — pick one and run it for a few weeks.

You can also start exploring beyond mean velocity. Metric tracks 13 data points on every rep, including power output, eccentric metrics, tempo, and range of motion. No rush — but as you get comfortable, power and tempo data open up new ways to track and program.

Want to go further?

If you've followed this guide and tracked consistently for a few weeks, you're already training with more intent, making better loading decisions, and building a performance history most lifters never have. You'll get stronger faster, produce more power, and manage fatigue better, because your training is informed by real data instead of guesswork.

There's a lot more on the other side of the basics:

- **Velocity loss and last rep velocity** — objective control over how close to failure every set goes
- **Power metrics and profiling** — finding and training at your optimal power load
- **RPE and velocity integration** — calibrating your gut feel against objective data
- **Tempo metrics and the metronome** — controlling the lowering phase for hypertrophy and technique
- **Advanced metrics** — time to peak velocity and Metric's novel eccentric power metric

- **Bar path analysis** — technique review with AR overlays, especially for Olympic lifts

I wrote the *Lifting with Data* book to cover all of this in depth. It's the complete system, built to work alongside Metric so everything you read connects directly to what you see in the app.
Get a copy on the vbtcoach website →

Got questions, want to share a PR, or just ask your programming questions?
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