FILE 002 · METHODOLOGY

The Methodology

A speed development framework for beginners, drawn from the current research and coaching consensus on sprint training.

ABSTRACT

Sprinting is the most misunderstood discipline in recreational fitness. It is treated as cardio, trained as endurance, and programmed with the same logic used for weight loss. None of that is built for speed. Sprinting is a skill with a specific physiology and a well-developed coaching literature, and it rewards a different kind of program than almost anyone builds for it.

This paper describes the methodology behind sprntr, a 52-week speed development program for beginners. The methodology is not new. It is a synthesis of decades of sprint coaching, modern exercise science, and the peer-reviewed research that informs both. sprntr organizes that material around three principles: polarized intensity, minimum effective dose, and progressive exposure. These principles are supported by a substantial body of research and reflected in the practice of the world's most respected sprint coaches.

The principles can be summarized in a single line. Sprint fast or go easy. Never grind. Progress one thing at a time.

§ 1

The Problem

Walk into a gym and ask someone how to get faster. You will get a list of exercises. Box jumps. Sled pushes. Agility ladders. Hill sprints, repeated until exhaustion. The advice is well-intentioned. It is also wrong, or at least wrong for building speed.

The first mistake is categorical. Sprinting gets filed under *cardio,* a high-intensity variant of running, in the same family as intervals and distance work. It isn't. A true sprint is a maximum-output skill that depends on freshness, neuromuscular coordination, and tissue readiness. A 400m interval is a sustained metabolic effort. These are distinct training stimuli that produce different adaptations. One builds speed. The other builds fatigue resistance. Confusing them is why most people who "sprint" never actually get faster.

The second mistake is volumetric. The default instinct in fitness is *more.* More reps, more sets, more sessions per week. Speed doesn't scale that way. The faster you want to run, the less total running you should do. Every additional rep beyond the productive ones degrades the quality of the next one. A beginner sprinting ten times at submaximal effort is learning to run at submaximal effort. They are not learning to run fast. Volume is the most common way beginner programs fail, quietly, without the trainee noticing, over weeks.

The third mistake is temporal. Sprinting demands recovery on a scale most people are not trained to respect. After a maximum-effort sprint, the body typically needs at least 48 hours (and often longer) before it can produce the same quality of output again.[1] Sprinting again inside that window does not train speed. It trains the body to sprint tired, which is a different and worse skill. Programs that schedule sprint days back-to-back tend to produce more durable slow athletes, not faster ones.

The fourth mistake is architectural. Most beginner sprint programs are not programs at all. They are lists. "Do three sprint workouts this week." "Add hills on Tuesdays." There is no phase structure, no progression logic, no principle governing when intensity goes up and when volume comes down. Without archi-

tecture, a beginner oscillates between overtraining and undertraining, usually trending toward the former, and plateaus before the adaptations that make someone fast have a chance to take hold.

Underneath all four mistakes is the same assumption: that sprinting is a thing you can figure out by doing more of it. It isn't. Sprinting is a skill with a specific physiology and a well-developed training literature, refined over decades by coaches working with elite athletes and informed in recent years by a growing body of peer-reviewed research. That literature exists. It has answers. What it has lacked is a translation for the beginner. The adult who wants to run fast, has no coach, no track, no training background, and no idea where to start.

This paper is that translation. What follows is the methodology sprntr is built on, organized around three principles, supported by research, and refined by decades of coaching practice.

§ 2

The Three Principles

The methodology behind sprntr rests on three principles. Each has support in the research literature. Each is reflected in the practice of the world's most respected sprint coaches. And each is routinely violated by beginner programs.

2.1 Polarized intensity

Sprint training produces its adaptations primarily at the extremes. Work performed at or near maximum effort drives the specific adaptations that make an athlete faster: improved neuromuscular recruitment, better force production, and the tissue qualities that allow a body to tolerate high-velocity running. Work performed at genuinely easy intensities supports recovery, reinforces movement patterns at submaximal speeds, and builds general aerobic capacity without interfering with the high-quality sessions.

What sits between those two extremes is the middle zone: hard effort without maximum-quality intent. The athlete is working hard enough to accumulate fatigue but not fast enough to drive the specific adaptations that build speed. The result is the worst of both worlds. Tissues take stress, recovery windows extend, but the speed adaptation that justifies the cost is muted or absent. All risk, little reward.

The middle zone is not defined by a number. It is defined by intent. A sprint at 80% of an athlete's current capacity, performed with maximum focus and full recovery, is a useful training stimulus during early phases. The same effort performed casually, in a fatigued state, or as part of a high-volume session is the middle zone, and is the stimulus that tends to produce injuries without producing much speed. This is partly a research-supported distinction and partly a coaching framing. The research describes patterns of effort and adaptation; the specific intent-based operationalization used here is how practitioners talk about those patterns, and is useful for that reason.

The rule that follows is simple. Fast means fast. Easy means easy. The boring middle is where injuries live.

This pattern (a polarized distribution of effort, with intensity and quality pushed to the two ends and undisciplined hard work deliberately avoided) is broadly supported in modern sprint programming research. The literature describes elite sprint structures that schedule two to three high-quality sessions per week, separated by adequate recovery, with low-intensity work filling the remainder.[2] A similar pattern appears across the programming of leading sprint coaches, regardless of their other disagreements.

2.2 Minimum effective dose

The second principle follows directly from the first. If speed is built primarily at maximum quality, and if every rep after the productive ones degrades the quality of the next, then the goal of a session is not to accumulate volume. It is to produce the smallest number of high-quality reps that drive adaptation, and then stop.

This is counterintuitive for anyone coming from a general fitness background, where longer and harder is usually better. In sprinting, the opposite is closer to the truth. Coaches working with sprinters consistently observe that a session of three maximum-quality sprints, with full recovery between reps, produces better speed outcomes than a session of ten rushed sprints at diminishing quality. The pro doing six reps at near-maximum is training speed. The beginner doing twelve reps at moderate effort is training fatigue.

The practical application of this principle is that sessions are short, quality is guarded aggressively, and the athlete finishes workouts with something left in reserve. Full recovery between reps is non-negotiable. A sprint done while still fatigued from the previous rep is not a speed stimulus. It is a fatigue stimulus wearing the costume of one.

It is worth being honest about what "minimum effective dose" means here. It is a directional principle, not a calculable number. The exact dose that produces optimal adaptation for any individual depends on training history, age, recovery capacity, and dozens of other variables that no program (delivered through an app or otherwise) can fully account for. The principle is: err on the side of less. The specific dose is something the athlete refines over time, in dialogue with how their body responds.

This principle also explains why sprint training does not follow the same scaling logic as strength training or endurance. You do not add volume linearly over time. You refine the quality of a small number of high-value efforts, and you protect those efforts from everything that would compromise them.

2.3 Progressive exposure

The third principle governs how a beginner gets from doing nothing to sprinting at maximum effort safely.

Sprinting at true maximum effort is among the most mechanically demanding things the human body does voluntarily. It loads the hamstrings at near-tissue-tolerance levels, demands extreme rates of force production, and punishes any weakness in the kinetic chain. For an untrained beginner, walking into maximum-effort sprinting cold is how injuries happen. Hamstring strains. Hip flexor issues. Achilles problems. These are the classic sprint injuries, and many of them occur during the introductory phases of programs that fail to ramp intensity gradually.

The solution, supported by a body of research on workload progression, is gradual ramping.[3] Early work is performed at prescribed submaximal efforts, typically in the 70 to 85% range, with maximum focus, full recovery, and an emphasis on technique, rhythm, and tissue adaptation. This is not a contradiction of the polarization principle. The program is deliberately keeping the beginner below their maximum during this phase, rather than claiming that 70 to 85% somehow *is* their maximum. The goal is to build tissue tolerance and movement quality under controlled conditions before true maximum-effort sprinting is introduced. As the weeks progress, intensity is ramped upward in controlled increments. The transition from "running fast for a beginner" to "sprinting at maximum" happens over weeks and months, not sessions.

There is a second reason for progressive exposure beyond injury prevention. Research on team-sport athletes has shown that regular exposure to high-velocity running (hitting at least 95% of maximum speed on a weekly basis) is associated with substantially lower rates of soft-tissue injury.[4] The implication, while drawn from a non-sprint population, is consistent with what experienced sprint coaches observe: athletes who sprint fast regularly, in well-designed programs, tend to get hurt less than those who avoid maximum-velocity work en-

tirely. The issue is not that sprinting is dangerous. The issue is that *unprepared* sprinting is dangerous. The remedy is not to avoid sprinting. The remedy is to build the capacity to sprint, carefully.

This is the asymmetry the third principle is designed to resolve. The available evidence suggests that a beginner needs to sprint in order to be protected from the risks of sprinting, but they cannot safely sprint until they have been prepared to do so. Progressive exposure is the bridge.

§ 3

The Research

The three principles above are not novel. They are a synthesis of patterns that appear across the research literature on sprint performance, recovery, and injury prevention.

A useful synthesis of modern sprint programming is Haugen, Seiler, Sandbakk and Tønnessen (2019), published in *Sports Medicine – Open*.[2] The authors review decades of coaching practice and sport-science research to describe the structure of elite sprint training. The picture that emerges is consistent with the polarization principle: a small number of high-intensity sessions per week, meaningful spacing between them, and a deliberate avoidance of undisciplined medium-intensity work. The paper is among the more comprehensive recent references on the structure of elite sprint training.

Research on recovery windows supports the spacing requirement. Thomas and colleagues (2018), writing in *Medicine & Science in Sports & Exercise*, documented that neuromuscular fatigue following sprint work persists across a window of roughly 48 to 72 hours.[1] The exact recovery time varies by individual, intensity, and volume. The general pattern is clear: sprint sessions scheduled too close together overlap with the prior session's recovery window, compromising both.

The injury-prevention case for regular maximum-velocity exposure draws from Malone and colleagues (2017) in the *Journal of Science and Medicine in Sport*, who found that athletes hitting 95% or more of maximum speed on a weekly basis had substantially lower rates of soft-tissue injury than those who did not.[4] The effect size was meaningful: an odds ratio of 0.12 for injury. It should be noted that this study was conducted on Gaelic football players, not sprinters, and the application to beginner sprint training is interpretive rather than direct. The pattern is consistent with sprint coaching observation, but a careful reader should recognize the population gap.

The case for gradual workload progression is supported by a broader body of research on training load and injury risk, prominently associated with Gabbett and colleagues.[3] The general finding is that sudden, sharp increases in training load are associated with elevated injury rates relative to gradual progression.

The specific metric most associated with this work (the acute-to-chronic workload ratio) has been the subject of methodological debate, and the precise thresholds proposed in early research are not universally accepted. The directional finding is robust: ramping load gradually reduces injury risk relative to abrupt progression. The exact numbers are less settled than early treatments suggested.

For hamstring injury prevention specifically, the evidence for eccentric hamstring training is among the strongest in sports medicine. A 2019 meta-analysis by van Dyk, Behan and Whiteley in the *British Journal of Sports Medicine*, pooling data from over 8,000 athletes, found that the inclusion of Nordic hamstring exercises reduced hamstring injury rates by approximately half.[5] This is among the most well-supported injury prevention interventions in the running literature.

Finally, the framework for returning athletes to high-speed running after injury, described in the Control-Chaos Continuum by Taberner, Allen and Cohen (2019), also in *BJSM*,[6] offers a useful conceptual model for thinking about how a beginner progresses through stages of running complexity. The framework was developed for rehabilitation, and its application to beginner sprint training is by analogy rather than direct extension. But the underlying logic (that running at maximum speed in unpredictable contexts requires a base of more controlled work first) maps usefully onto the problem of introducing a beginner to sprinting.

A note on interpretation. Much of the evidence base cited here was developed in elite athletes, team-sport populations, or rehab settings. The application to untrained adults using a phone app is interpretive. The principles transfer, but the specific numbers and thresholds may not. sprntr is built on the strongest available synthesis of this research, but the synthesis itself is a coaching judgment, not a finding. Where the research is strong, the program leans on it. Where the research is suggestive, the program is conservative.

Taken together, this body of research describes a coherent picture. Polarized intensity. Minimum effective dose. Progressive exposure. The three principles are not marketing slogans. They are summaries of patterns the literature broadly supports.

§ 4

The Coaching Consensus

Research describes patterns. Coaches live inside them. The strongest practical validation of the three principles above is that they describe, accurately, what the world's most respected sprint coaches actually do.

Dan Pfaff and Stuart McMillan, both associated with ALTIS, have shaped a generation of sprint coaching through their work with Olympic-level athletes. Tony Holler's *Feed the Cats* framework has translated much of this thinking for high school programs. Loren Seagrave, Irving "Boo" Schexnayder, Derek Hansen, Rana Reider, Ato Boldon, Rohsaan Anderson, and others have contributed similarly, each with their own language, their own emphases, and their own favored drills.

These coaches disagree about many things. The volume of tempo work that belongs in a week. The value of resisted running. The place of lifting relative to sprinting. The optimal warm-up. The right drill progression for teaching acceleration mechanics. The disagreements are real and in some cases longstanding.

But the areas of agreement are more important than the areas of disagreement. Most serious sprint coaches converge on the same three principles. Speed is developed at the extremes, not in the middle. Sessions are kept short and high-quality. Progression is gradual and protective.

Where the coaches disagree (volume of tempo running, amount of drill work, specific periodization structure) sprntr defaults to the simpler, lower-volume option. This is a deliberate choice. A beginner benefits more from consistency at a manageable dose than from complexity at an optimal one. If two respected coaches disagree on whether a beginner should run 1,200 or 1,800 meters of tempo per week, sprntr picks 1,200. The principle is more important than the exact number, and a program that gets followed is better than a program that gets optimized.

Where the coaches agree, on polarized intensity, minimum effective dose, and progressive exposure, sprntr follows the consensus without hedging. These principles are the floor the program is built on, not features that can be negotiated away.

§ 5

Translation for Beginners

The principles described above were developed in the context of training elite athletes. Applying them to beginners requires adaptation in four specific areas. In each case, the principle survives intact; the execution changes.

Volume. What counts as "low volume" for a professional is still too much for a beginner. A pro might run eight 60-meter sprints in a session and call it a light day. A beginner doing the same workout is accumulating more high-intensity stress than their tissues can absorb. The minimum-effective-dose principle scales down cleanly: a beginner's first sprint session might be two or three submaximal reps, not eight at maximum. The ratios and recovery windows stay intact. The absolute numbers shift sharply.

Intensity. A beginner cannot sprint at 100% effort safely, and often cannot even identify what 100% feels like. Attempting maximum output with untrained tissues produces the classic sprint injuries that end programs before they start. The progressive-exposure principle handles this directly: early weeks work at prescribed efforts in the 70 to 85% range, building tissue tolerance and neuromuscular coordination before true maximum-effort sprinting is introduced. The polarization rule still applies. The athlete is asked to focus and recover fully on sprint days, and go genuinely easy on easy days. What changes is that the program deliberately caps intensity during the ramp, rather than asking the beginner to chase a ceiling they are not yet prepared to reach.

Baseline preparation. Elite programs assume a general athletic base that most beginners lack. The program has to build that base before the three principles can be applied in full form. This means an initial phase focused on movement quality, easy aerobic work, and tissue preparation. A phase that looks almost nothing like sprint training but is the scaffolding everything else stands on. Skipping this phase is the most common way beginners derail, and the research on workload progression makes clear why. The first block is non-negotiable.

Environment. The methodology, as written in the coaching literature, assumes access to a 400-meter track. Most beginners don't have one. The translation is to make the program facility-adaptive: the same principles applied wheth-

er the athlete has a track, a grass field, a quiet road, or a gym with enough open space. The specific distances and measurements shift. The structure of the workout (the effort level, the recovery, the placement in the week) does not.

These four adaptations are what separate a principles-based methodology from a beginner-accessible program. The principles are preserved. The execution is translated.

§ 6

Limitations and Honesty

A paper like this owes its reader a clear account of what the methodology cannot do. sprntr is built on the best available research and the strongest coaching consensus, but both have limits, and so does the program that follows from them.

What this methodology can't do. It cannot make a beginner into an elite sprinter. The ceiling on sprint performance is largely genetic: muscle fiber composition, limb proportions, neuromuscular architecture. What the methodology *can* do is bring a beginner closer to their individual ceiling, as safely as current research and coaching practice allow. That is a meaningful result, but it is not a promise of specific times or specific outcomes. Speed is bounded by biology. This program respects that.

What it cannot replace. It cannot replace a coach. A human coach watching an athlete run can see things (asymmetries, compensations, technical flaws) that no program delivered through an app can detect. sprntr is designed to be useful to people who do not have access to a coach, and to stand in for some of what a coach would provide. It is not designed to be a substitute for coaching when coaching is available.

Who this is not for. This program is designed for beginners. It is not appropriate for experienced sprinters with established training histories, track athletes working with coaches, or athletes preparing for specific competition. The scaffolding that makes sprntr safe for beginners is exactly what would slow down an advanced athlete. The program will be too conservative, too gradual, and too restrictive for someone whose training history demands a different approach.

Scope of inputs. sprntr focuses on sprint exposure and recovery as the primary speed development inputs. Strength training, plyometrics, and direct technical coaching are well-supported parallel contributors to speed development that this methodology does not include. Their absence is a deliberate scoping decision, driven by the realities of what a beginner can safely add to their week, what a phone-delivered program can effectively prescribe, and what a non-coach can reasonably learn to perform on their own. It is not a claim that

these inputs are unimportant. A beginner who later adds a structured strength program, plyometric work, or direct coaching to sprntr will likely benefit. The program is designed to be a foundation, not a complete athletic development system.

Hardware constraints. sprntr is delivered through a phone. A phone cannot verify that a sprint was actually run at maximum velocity, cannot measure ground contact time, cannot detect technical breakdown, and cannot confirm that the athlete actually completed the workout as prescribed. The program trusts the athlete to execute it honestly. Where honesty fails, the program fails with it.

The state of the research. The research cited in this paper represents current understanding. Consensus in sports science is not permanent. Findings are refined, revised, and re-contextualized regularly. Some of the strongest practical claims in this methodology rest as much on coaching heuristics as on direct research findings. The heuristics are useful, but they are not the same as proof. sprntr will be updated as the research and practice evolve. The principles described here have held across multiple decades of investigation, but specific numbers and thresholds may shift as the literature matures.

The honest summary is that this methodology is the best synthesis available of what current research and current coaching practice agree on. It is not the final word. It is a faithful translation of the state of the field, offered to a beginner who has nowhere else to get it.

§ 7

References

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