

HIIT Training Protocol Guide

Four evidence-based interval protocols, how to choose between them, and the programming rules that determine whether HIIT helps or just burns you out.

Evidence-based approach: Tabata et al. (1996), Helgerud et al. (2007), and Gibala et al. (2006) on low-volume high-intensity interval training.

How To Use This Guide

HIIT is not one protocol — it's a category. The interval structure you pick changes which energy system you train and how much your body needs to recover afterward. Pick one protocol per session based on your goal below, not all of them in the same week.

Protocol 1 — Tabata (20s / 10s)

Izumi Tabata's original 1996 protocol: maximal effort, not moderate.

1. 8 rounds of 20 seconds at true maximal effort, 10 seconds rest — 4 minutes total work.
2. Best suited to cycling, sprinting, or bodyweight moves you can safely go all-out on.
3. The original study found gains in both aerobic (VO2max) and anaerobic capacity in 6 weeks.
4. Because effort is maximal, limit to 1-2 sessions per week — this is not a daily protocol.

Protocol 2 — Norwegian 4x4

Helgerud et al. (2007) — the most-studied protocol for VO2max improvement.

1. 4 rounds of 4 minutes at 85-95% max heart rate, with 3 minutes active recovery between.
2. Total session: roughly 28 minutes including warm-up, more sustainable than Tabata's intensity.
3. Produced larger VO2max gains than moderate continuous training in the original comparison.
4. Works well on a bike, rower, or incline treadmill where effort is easy to sustain steadily.

Protocol 3 — 30:30 Intervals

The most beginner-friendly ratio — equal work and rest.

1. 30 seconds hard effort (roughly 80-90% max), 30 seconds easy or full rest, repeated 8-12 times.
2. Lower injury risk and easier pacing for people new to interval training.
3. A practical bridge protocol before progressing to Tabata-intensity work.

Protocol 4 — Low-Volume Sprint Intervals

Gibala et al. (2006) — minimal time investment.

1. 4-6 rounds of 30 seconds all-out sprint, 4 minutes rest, 2-3x per week.
2. Total hard work per session: 2-3 minutes. Produced similar mitochondrial and endurance
3. adaptations to 10.5 hours of traditional moderate cycling spread across two weeks.

Programming Rules

1. Cap true HIIT at 2-3 sessions per week — the intensity requires 48-72 hours to recover from.
2. Always precede with a 5-10 minute progressive warm-up; cold-start intervals raise injury risk.
3. Match protocol to goal: Tabata/sprints for anaerobic capacity, 4x4 for VO2max, 30:30 to start.
4. Elevated post-exercise oxygen consumption (EPOC) means HIIT burns calories for hours after —
5. but this is a modest metabolic bonus, not a replacement for overall training volume.

Recovery Between Sessions

1. Leave at least one full rest or easy day between true HIIT sessions.
2. Watch resting heart rate and sleep quality — both are early markers of accumulating fatigue.
3. Pair with adequate protein intake and sleep; interval training without recovery capacity
4. increases injury and overtraining risk rather than compounding fitness gains.

Common Mistakes

1. Doing HIIT daily. More is not better here — recovery capacity is the actual bottleneck.
2. Pacing 'maximal' efforts at 70% because pacing feels safer — this defeats Tabata's mechanism.
3. Skipping the warm-up because the session feels short — most interval injuries happen early.
4. Using HIIT as the only training modality — it complements, but doesn't replace, steady-state
5. aerobic work and strength training for overall fitness.