



4 x 50 Speed Repeatability Test

Describes how closely an athlete repeats four maximal 50s under a fixed send-off and standardized recovery.

TEST PROFILE

Primary use	What it produces
Sprinters and athletes whose repeat sprint performance is being monitored	Describes how closely an athlete repeats four maximal 50s under a fixed send-off and standardized recovery.

Controlled document: TEAMGOLDUSA club field protocol, Release R34.0.77, September 2026. This is a performance test, not a medical examination, diagnosis, or clearance to participate.



4 x 50 Coach Testing Protocol

Purpose. Measure speed repeatability and performance decrement across four maximal 50s. TEAMGOLDUSA reports this as protocol-specific repeatability, not a direct laboratory measurement of anaerobic capacity.

1 Fix the protocol

Choose SCY, SCM, or LCM; stroke; start type; timing system; and a fixed send-off. TEAMGOLDUSA default is four maximal 50s on 2:00 from the same start. A 3:00 send-off is a different protocol and must be reported separately.

2 Prepare the athlete

Complete a full sprint warm-up. The athlete must begin the first repeat fresh. Use the same warm-up and pre-test recovery on comparison days.

3 Conduct four maximal efforts

Use identical commands and strong consistent encouragement. Record all four times and any start or timing problem. The athlete leaves on the fixed send-off, not after an improvised recovery. Stop if technique or safety deteriorates beyond normal sprint fatigue.

4 Calculate two views

Report first-to-fourth drop = $T4 - T1$. Also report percent decrement = $[(\text{sum of four times}) / (\text{best time} \times 4) - 1] \times 100$. Percent decrement uses all four efforts and is less dependent on only the first and last repeat.

5 Compare like with like

Interpret the result only against the same course, send-off, start, stroke and timing method. A longer interval permits more recovery and will usually reduce decrement; it does not represent the same test.

Safety and result boundaries

Use only with coach-selected swimmers who are currently training and can safely complete the required effort. Do not test an athlete who is ill, injured, returning without clearance, or reports concerning symptoms or a restriction. Stop for distress, chest pain, faintness, confusion, loss of coordination, unusual breathing difficulty, suspected injury, or when directed by safety personnel. Follow the facility emergency action plan. An interrupted test is not a valid comparison result.



COACH FIELD FORM

4 x 50 Speed Repeatability Sheet

Use one fixed send-off for the entire group or record each athlete's exact recovery. Times alone cannot be interpreted without the interval.

Date _____	Site or pool _____	Course SCY / SCM / LCM
Coach _____	Conditions and equipment _____	Round _____

Athlete	Send-off	50 #1	50 #2	50 #3	50 #4	Best	1-to-4 drop	Percent decrement	Valid
1. _____									
2. _____									
3. _____									
4. _____									
5. _____									
6. _____									
7. _____									
8. _____									

First-to-fourth drop: $T4 - T1$. **Percent decrement:** $[(T1 + T2 + T3 + T4) / (\text{best time} \times 4) - 1] \times 100$. Smaller values mean the athlete maintained performance more closely under this exact protocol.

Notes, interruptions, timing method, or reasons a result should not be compared



READ BEFORE ADMINISTERING THE TEST

Medical Context and Research

This is a performance field test, not medical care. Coaches must follow club eligibility, supervision, emergency, and return-to-participation procedures.

What the result can support

Repeated-sprint testing can describe the ability to reproduce short performances under a defined recovery schedule. Reporting every repeat plus percent decrement is more informative than only comparing the first and fourth times.

Important limits

The result depends heavily on the send-off, start, timing, pacing behavior, turn quality, motivation, and warm-up. With two to three minutes between 50s, this is a speed-repeatability test with substantial recovery, not a pure fatigue or anaerobic-capacity measurement.

Source	Citation for further research
Repeated-sprint calculation	Glaister M et al. Multiple sprint work: methodological, physiological, and experimental issues. <i>International Journal of Sports Physiology and Performance</i> . 2008;3:107-112. doi:10.1123/ijsp.3.1.107.
Sprint decrement reliability	Glaister M et al. Familiarization, reliability, and evaluation of a multiple sprint running test using self-selected recovery periods. <i>Journal of Strength and Conditioning Research</i> . 2010;24:3296-3301.
Swimming energetics context	Figueiredo P et al. An energy balance of the 200 m front crawl race. <i>European Journal of Applied Physiology</i> . 2011;111:767-777. doi:10.1007/s00421-010-1696-z. Review test-specific evidence before equating field decrement with a single energy system.

For more research: Search the title or DOI through PubMed, Crossref, or the journal website. TEAMGOLDUSA provides citations for education and does not endorse self-diagnosis.