Yo-Yo, UNCa or 30-15IFT: which field test should be used to prescribe and monitor training in football?

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Headline

Field tests are often chosen by habit rather than by what the coach will do with the result. We compare three tests widely used in Latin American football, two intermittent (Yo-Yo Intermittent Recovery Test and 30-15 Intermittent Fitness Test) and one continuous (UNCa Test), according to what they measure and how useful their outcome is to prescribe and monitor training. We argue that the 30-15IFT is the most complete single option for football.

Aim of the paper

To compare the Yo-Yo Intermittent Recovery Test (Yo-Yo IR), the UNCa Test and the 30-15 Intermittent Fitness Test (30-15IFT) in terms of construct, type of outcome and usefulness for prescribing and monitoring training in football, and to explain which one we consider most appropriate when only one field test can be used.

Discussion

Two questions for any field test

Football is intermittent, with high-intensity efforts and changes of direction alternating with active or passive recovery (1,2). Laboratory VO_2max remains the physiological reference, but even with the same protocol, maximal aerobic speed (MAS) differs markedly between the laboratory and the field (15.6 vs 13.6 km/h) (3). Coaches therefore rely on field tests. In our view, the problem is not a lack of tests, but that they are often chosen without considering how the result will be used (4,5). A field test should help answer two questions. At what speed should each player run in the next session? And has their capacity really changed since the last assessment?

Three tests, three different outcomes

The Yo-Yo IR consists of 2 × 20 m shuttles at progressive speeds with 10 s of active recovery (Figure 1A), and its outcome is the distance covered (6). No other intermittent test has more evidence in football. In young players, Yo-Yo IR1 performance was related to total (r = 0.65) and high-intensity match running (r = 0.77) (7). It separates competitive levels and ages, from 603 m in under-13 to 2200 m in the professional squad of a Nicaraguan club (8), and it is sensitive to training (9,10).

The UNCa Test was designed to estimate MAS in the field rather than on a treadmill (11). Players run continuously around a hexagon with 20 m sides and 120° turns, at a pace that increases every minute (Figure 1B). Its final speed correlates closely with laboratory MAS (r = 0.83 to 0.91) (12,13) and is highly reproducible (11). It is cheap and simple, but most of the evidence comes from one group of authors, and its continuous format does not reproduce the alternation of effort and recovery of the game.

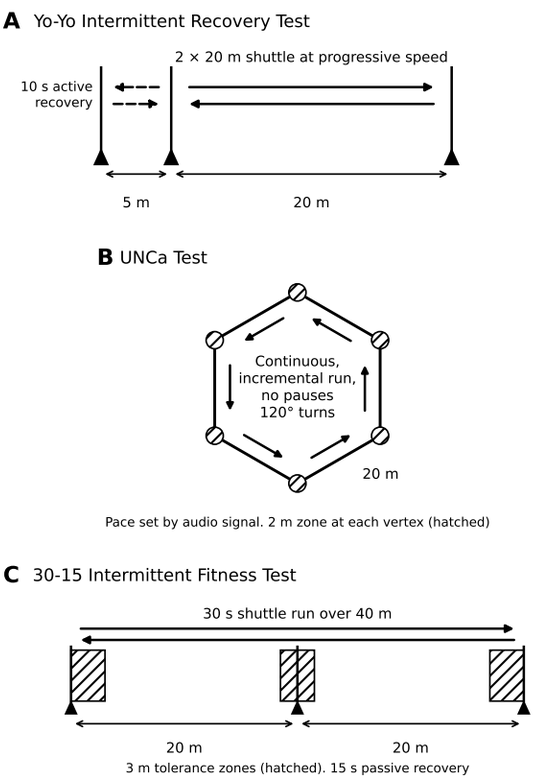


Fig. 1. Set-up of the Yo-Yo Intermittent Recovery Test (A), the UNCa Test (B) and the 30-15 Intermittent Fitness Test (C). Triangles indicate cones and hatched areas indicate tolerance zones. Adapted from (6), (11) and (5).

The 30-15IFT was designed for team sports (5). Players perform 30 s shuttle runs over 40 m separated by 15 s of passive recovery, and speed increases by 0.5 km/h per stage (Figure 1C). Its final velocity (V_{IFT}) is not a MAS, since it integrates aerobic power, recovery between efforts, anaerobic contribution and change-of-direction ability (14). Its reliability is supported by two systematic reviews (15,16), and Chilean data show differences by competitive level, playing position and sex (17,18,19). Table 1 summarises the main differences.

Table 1. Main characteristics of the three field tests. MAS, maximal aerobic speed; V_{IFT}, final velocity of the 30-15IFT; HIIT, high-intensity interval training. Based on (6,9,11,5).

Criterion	Yo-Yo IR1 / IR2	UNCa Test	30-15IFT
Format	Intermittent, 2 × 20 m shuttles	Continuous, incremental, 20 m hexagon	Intermittent, 30 s running / 15 s rest over 40 m
Recovery	10 s active	None	15 s passive
Changes of direction	180° every 20 m	120°, low cost	180° every 40 m
Outcome	Distance (m)	Final speed (km/h), field MAS	V_{IFT} (km/h)
Main construct	Repeated high-intensity effort, high anaerobic load (especially IR2)	Maximal aerobic power	Aerobic power, recovery, anaerobic capacity and change of direction
Prescription of runs	Indirect, distance is not a speed	Direct for continuous work and long intervals; corrections needed for short shuttles	Direct for short-interval HIIT with changes of direction
Monitoring	Large percentage changes, larger measurement error	Sensitive to aerobic changes	Reliable, 0.5 km/h resolution
Evidence in football	Largest (match, level, position, age)	Limited, mostly Argentinian	Large and growing, Chilean data by level, position and sex
Space	≈ 25 m	Hexagon with 20 m sides	40 m

The outcome unit matters most

In our view, the key difference is not which test is more valid, but what kind of data each one provides and what the coach can do with it in the next session. The Yo-Yo IR gives metres, which do not translate into a running speed. It is useful to group players, but not to decide how far each one should run in a 15 s interval. UNCa final speed is a good reference for continuous work and long intervals (20), but in short formats with 180° turns intensity must be corrected, since time to exhaustion at 110% of final speed is 42% shorter than in straight-line runs (21). V_{IFT}, by contrast, can be applied directly to short-interval high-intensity interval training (HIIT), typically at 85 to 95% of V_{IFT} (22,23), and it produces more homogeneous physiological responses between players than MAS from a continuous test (5). The distance for each player is calculated as distance (m) = (%V_{IFT} × V_{IFT} [km/h] / 3.6) × work time (s). Table 2 shows how, for the same group stimulus, each player covers a different distance while working at a similar relative intensity.

Table 2. Hypothetical example of individualising a 15 s work / 15 s rest shuttle block from V_{IFT}. Distances rounded to the nearest metre, calculated with the expression in the text. Intensity ranges based on (22). Distances should be adjusted when the format uses angles or distances very different from the 40 m of the test.

Player	V_{IFT} (km/h)	Distance in 15 s at 90% V_{IFT} (m)	Distance in 15 s at 95% V_{IFT} (m)
A (midfielder)	22.0	83	87
B (full-back)	20.0	75	79
C (centre-back)	18.0	68	71

Outcomes are not interchangeable either. V_{IFT} is usually several km/h higher than the final speed of a continuous test (5), so using one as if it were the other over- or underestimates the training load. Finally, no field test can prescribe the load of small-sided games, which depends on rules, space and number of players.

Monitoring means separating signal from noise

All three tests are maximal, so three or four assessments per season seem enough, for example after pre-season, at the start of the competition, at mid-season and after a long break (24). A common mistake in technical reports is to compare percentage changes between tests. The 42% improvement reported for the Yo-Yo IR2 (9) appears large, but it cannot be compared with percentage changes in V_{IFT}. Because V_{IFT} increases in 0.5 km/h stages, an improvement of one or two stages in a player with a V_{IFT} of 20 km/h represents only a 2.5–5% change. Each Yo-Yo stage adds metres at a higher speed, so distance amplifies both improvement and noise, with a typical error of around 5% in level 1 and 10% in level 2 (25,9). The 30-15IFT has the opposite limitation, high reliability but a resolution of 0.5 km/h (15). The solution is methodological and consists of estimating the typical error in our own squad, defining the smallest worthwhile change and analysing each player against these thresholds (26). Between tests, daily monitoring should rely on GPS, heart rate during standardised submaximal tasks and perceived exertion.

Why we choose the 30-15IFT, and its limits

We propose distinguishing between descriptive validity, the ability to reflect a capacity or discriminate between groups, and prescriptive validity, the possibility of turning the result directly into an individual load, alongside ecological validity, which, as highlighted by Weakley et al. (27), ensures that testing protocols accurately match the athlete's real-world sporting context. The Yo-Yo IR excels in descriptive validity (7) and the UNCa Test in its agreement with the laboratory (12,13), but only the 30-15IFT combines these essential dimensions for intermittent work by effectively bridging physiological assessment with the specific intermittent and multi-directional demands of football (27).

Our preference does not hide its weaknesses. V_{IFT} is a composite measure, so an improvement does not tell us whether aerobic power, recovery or turning efficiency changed. In

Chilean professional players, Yo-Yo IR1 performance was not associated with post-exercise lactate (28), suggesting that no single outcome summarises these capacities. V_{IFT} also depends on turning technique and body mass, requires familiarisation and strict control of the tolerance zones, should be postponed two to three weeks after a break (23), and has been studied less than the Yo-Yo IR in relation to match performance.

Practical applications

- Choose the test according to the decision the result will inform, not by habit.
- If only one field test can be used to prescribe and monitor training, use the 30-15IFT and prescribe short-interval HIIT at 85 to 95% of V_{IFT}.
- Do not convert or directly compare V_{IFT}, UNCa final speed and Yo-Yo IR distance.
- Test three or four times per season, and never in the first days after a break.
- Interpret individual changes against the squad's typical error and smallest worthwhile change, not only as percentages.
- Keep the Yo-Yo IR for comparisons with the literature or historical series, and the UNCa Test when resources are limited or the training block is purely aerobic.

Limitations

- This expert opinion is based on a narrative, non-systematic reading of the literature.
- The authors have been involved in studies using the 30-15IFT and the Yo-Yo IR, which readers should consider when weighing our position.
- The three tests have not been compared in the same players, and the advantage of prescribing from V_{IFT} rather than MAS remains to be tested.
- Most evidence on the UNCa Test comes from one research group, and several sources are published in Spanish-language journals.

AI Use Statement

Language and editing. Claude (Anthropic) was used to translate the authors' original Spanish manuscript into English and to edit the language of the whole text.

Writing and drafting. Claude (Anthropic) was used to condense the original manuscript to the journal's length and section structure (Headline, Aim, Discussion, Practical Applications and Limitations). All arguments are the authors', who reviewed and approved the final text.

Literature and references. Claude (Anthropic) was used to reformat the references into Vancouver style. All references were checked by the authors against the original sources.

Figures and tables. Claude (Anthropic) was used to redraw Figure 1 with English labels from the authors' original figure and to translate and condense the tables.

Data and analysis. Not applicable. No data were generated or analysed with AI.

Conflicts of Interest

The authors declare no financial, institutional or personal conflicts of interest.

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