# CHANGES IN THE 30-15 INTERMITTENT FITNESS TEST AFTER TWO WEEKS OF HIGH INTENSITY PRE-SEASON TRAINING IN ELITE RUGBY LEAGUE PLAYERS

THE UNIVERSITY OF QUEENSLAND
AUSTRALIA

**Vincent G Kelly[1&2]**

**[1]School of Human Movement & Nutrition Sciences, The University of Queensland, AUSTRALIA**

**[2]Brisbane Broncos Rugby League Football Club, Brisbane, AUSTRALIA**

v.kelly2@uq.edu.au

## INTRODUCTION

The 30–15 Intermittent Fitness Test (30-15IFT) is becoming a commonly used fitness test to evaluate players' high-intensity running performance in football. The 30–15IFT not only evaluates high-intensity intermittent running capacity, but, in contrast to a number of other fitness test of intermittent performance, the final speed reached at the end of the test (VIFT) is well suited for training prescription. The 30–15IFT is sensitive to detect changes in fitness with improvements between 5% to 10% previously reported after 6 to 10 weeks of training. The typical error of measurement for the 30-15IFT is 0.3 km/h and the calculated smallest worthwhile change is smaller than 1 stage. Therefore a change as small as 0.5 km/h in VIFT can be considered substantial. Hence, if the VIFT is being used for training prescription it should be monitored regularly to ensure that the prescription is accurate and providing athletes with an appropriate training stimulus. The aim of the present study was to examine the sensitivity of change in the 30-15IFT after two weeks of high intensity preseason training in elite rugby league players.

## METHODS

## PARTICIPANTS

Nineteen professional rugby league players performed the 30-15IFT before and after a two-week training intervention.

**Table 1.** Participant demographic information

| n = 19 | Age yrs | Body Mass kg | Sum of 7 Skinfolds mm |
|---|---|---|---|
| Mean | 24.0 | 95.8 | 80.1 |
| SD | 3.4 | 9.4 | 14.9 |

## TRAINING AND TESTING

The study was conducted during preseason training. Players were familiarised with the 30-15IFT before the study. The pre and post tests were performed on a turf field before and after a 2-week training intervention at 8 A.M with similar temperature (26–28°C). Participants were tested in their usual team environment alongside other team mates wearing football boots. To ensure consistency prior to each test, participants were required to maintain normal dietary intake, training, and sleeping patterns the day before testing. The primary outcome measure was participant performance and the final stage reached in the 30-15IFT was reported as 30-15IFT maximum velocity (VIFT).

Training during the preseason included thirteen sessions/week: four resistance training sessions (60 min), three technical and tactical skill training sessions (25 – 40 min), two speed and agility sessions (30 min), two high-intensity interval running training sessions (16 – 24 min of shuttle and straight line running at 90 – 95% of 30-15IFT maximum velocity (VIFT)) (Table 2), one small sided game session (40 min) and one wrestling session (50 min).

## TESTING AND TRAINING (cont.)

Using the session-RPE method, participants completed 2801 AU and 3238 AU of training during the first and second week of training respectively. The high-intensity interval running training and small sided games sessions combined represented 22% and 26% of the total training volume in week one and two respectively.

**Table 2.** High-intensity interval running training sessions

| Week 1 90% VIFT | Week 2 95% VIFT |
|---|---|
| 10s:10s 30m Shuttle @ 90% for 5min (15 reps) | 10s:10s 30m Shuttle @ 95% for 5min (15 reps) |
| Rest 3min | Rest 3min |
| 10s:10s 30m Shuttle @ 90% for 5min (15 reps) | 10s:10s 30m Shuttle @ 95% for 5min (15 reps) |
| Rest 3min | Rest 3min |
| 15s:15s Straight Line @ 90% for 6min (12 reps) | 15s:15s Straight Line @ 95% for 8min (16 reps) |
| | Rest 3min |
| | 10s:20s Straight Line @ 95% for 6min (12 reps) |
| **Total Running Time 16min** | **Total Running Time 24min** |
| **Total Session Time 22min** | **Total Session Time 33min** |

## RESULTS

The within-test % change suggested a small sensitivity to training for the 30-15IFT (+3.28%, p = 0.02) and this change was rated as moderate, i.e., standardized difference, ES = +0.7 90%CL.

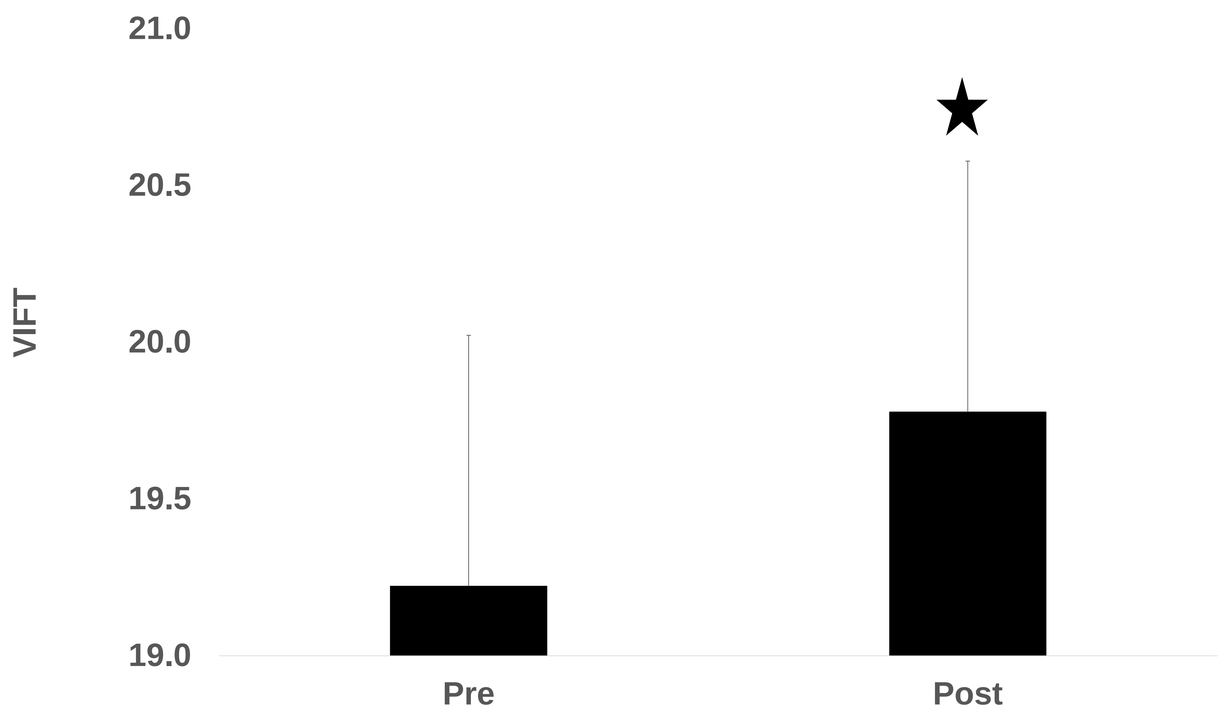


**Figure 1.** Changes (± SD) in 30-15 IFT final velocity (VIFT) following two weeks of preseason training $p < 0.05$

## DISCUSSION

The 3.28% (ES:0.7) change in high-intensity intermittent-running performance was less than the 5% to 10% improvements previously reported.[1] However, these larger improvements were obtained after a period of 6 to 10 weeks of training whereas the current investigation was conducted over two weeks. It is important to know how quickly performance on this test will improve if it is to be used for the prescription of training as an improvement of one level is considered a substantial change[1]. In this study only two high-intensity intermittent-running sessions were performed over the two week period. The sessions were individualised using VIFT intensities ranging from 90 to 95% of VIFT which is within the optimal range for sessions that contain running with and without change of direction (COD). These sessions combined with other training were enough to elicit an improvement in VIFT.

Since the attainment of VIFT is related to maximal aerobic function, anaerobic capacity, COD qualities and inter-effort recovery abilities, it reproduces and evaluates the physical capacities that are taxed during high-intensity interval training including COD. It is reasonable to suggest that if these qualities are included in a block of training they may also influence 30-15IFT performance. In the current investigation, speed, COD, agility and small sided games were completed as part of the pre-season preparation and high intensity activities made up approximately 25% of the total training volume, contributing to overall performance.

When using the 30-15IFT to determine training velocities and ensure the accuracy of individualized interval training in professional rugby league players it is important to conduct regular testing. A short intensive training block in the early pre-season phase of rugby league training will cause a change in the mean 30-15IFT score and should be monitored regularly.

## PRACTICAL APPLICATIONS

Sport scientists and strength and conditioning professionals who use VIFT for training prescription need to be aware that it is sensitive to change after a period of high intensity training as short as two weeks. VIFT should be tested regularly and programs updated accordingly to ensure optimal training velocities are being prescribed.

## REFERENCES

Buchheit, M (2010) The 30-15 Intermittent Fitness Test : 10 year review. Myorobie Journal Vol 1 Septembre 2010, 1-9