



Original research

What are talent scouts actually identifying? Investigating the physical and technical skill match activity profiles of drafted and non-drafted U18 Australian footballers



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ABSTRACT

Objectives: To compare the physical and technical skill match activity profiles of drafted and non-drafted under 18 Australian football players.

Design: Cross-sectional observational.

Methods: In-game physical and skill variables were assessed for under 18 Australian football players participating within the 2013 and 2014 National under 18 Australian Football League Championships. Players originated from one State Academy ($n = 55$). Ten games were analysed; resulting in 183 observations. Players were sub-divided into two groups; drafted/non-drafted. Microtechnology and a commercial statistical provider allowed the quantification of total distance (m), relative distance (m min^{-1}), high speed running distance ($>15 \text{ km h}^{-1}$), high speed running expressed as a percentage of total distance (% total), total disposals, marks, contested possessions, uncontested possessions, inside 50s and rebound 50s ($n = 10$). The effect size (d) of draft outcome on these criterion variables was calculated, with generalised estimating equations (GEE's) used to model which of these criterion variables was associated with draft outcome.

Results: Contested possessions and inside 50s reflected large effect size differences between groups ($d = 1.01$, $d = 0.92$, respectively). The GEE models revealed contested possessions as the strongest predictor of draft outcome, with inside 50s being the second. Comparatively, the remaining criterion variables were not predictive of draft outcome.

Conclusions: Contested possessions and inside 50s are the most influential in-game variables associated with draft outcome for West Australian players competing within the National under 18 Australian Football League Championships. Technically skilled players who win contested possessions and deliver the ball inside 50 may be advantageously positioned for draft success.

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1. Introduction

Talent identification (TID; the process of recognising current participants that are likely to excel) and talent selection (choosing the most appropriate individual of group of individuals to perform a specific task) both play a crucial role in the overall pursuit of excellence within elite sport.¹ Many elite organisations place large financial investments into the identification and selection of talented juniors,² with the goal of subsequently providing the

most appropriate learning environment to accelerate their identified potential.³ Manifesting from this investment, many governing sport organisations host annual draft combines to facilitate the talent selection process, in which the most talented juniors (predominately under 18 years of age) are invited to partake in a range of tests purported to quantify their physical abilities and technical skills. One such organisation, the Australian Football League (AFL), facilitates a National Draft Combine each November, in which approximately 100 under 18 (U18) players are invited to participate. Following completion of the Combine, each of the 18 AFL teams are provided the opportunity to recruit junior players whom they consider will add value to their team's chances of achieving success both immediately and longitudinally via the AFL Drafts.

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Recent research has identified that U18 players drafted into the AFL following participation within the AFL National Draft Combine produced faster sprint times and displayed greater maximal aerobic capacities when compared to their non-drafted counterparts.⁴ However, the scores obtained through these objective assessments only partially inform the talent selection process; with many elite club recruiters often preferring to simply observe the performance of juniors whilst in-game play.⁵ Since 1995, the AFL have established an elite U18 competition referred to as the National U18 AFL Championships, in which the most talented juniors from each state play against one another throughout a four to six match tournament. These matches provide AFL recruiters with the opportunity to subjectively evaluate a juniors prospective playing potential by watching them display their skills in-game play.⁵ Despite this additional in-game evaluation purported to assist with the selection process, there is scarce research investigating the physical and technical skill match activity profiles of drafted and non-drafted U18 players throughout these National Championships.

Within the AFL, the continued development of sports analysis technology, namely global positioning systems (GPS), has facilitated in-depth analyses into the physical match activity profiles of players.^{6,7} Through such analyses, it has become apparent that the predominant movement profiles of players are intermittent; combining high intensity bouts of repeated running with prolonged periods of continuous lower intensity activity.^{7,8} As such, some of the more common metrics reported relating to GPS include total or absolute distance (m), relative distance (m min^{-1}) and high intensity running ($\text{distance (m)} > 15 \text{ km h}^{-1}$).⁹ In addition to quantifying the physical match activity profiles of players, commercial statistical providers; namely Champion Data[®] (Champion Data[®], Melbourne, Australia), provide AFL teams with in-depth reports surrounding the technical skill activity profiles of players in-game play. These statistics; inclusive of but not de-limited to the total number of skill involvements (total possessions), the number of inside 50s (attacking passages of play) and the number rebound 50s (attacking passage of play from defence) are useful for both coaching and research purposes.¹⁰ For example, recent research has indicated a minor inverse relationship exists between physical and technical skill match activity profiles, with successful (e.g. winning) AFL teams displaying a reduced physical output but greater number of efficient skill involvements when compared to their unsuccessful (e.g. losing) counterparts.¹¹ However, when compared the depth of notational analytics undertaken by Champion Data[®] within the AFL, there are a limited number of technical skill variables reported by the aforementioned commercial statistical provider throughout the National U18 AFL Championships given a reduction in resource availability.

Nonetheless, the considerable importance placed on the evaluation of in-game performance by AFL recruiters when identifying potential draftees; both GPS metrics and Championship Data[®] statistics are quantified, to an extent, during the AFL National U18 Championships. This data is often used to objectively support the subjective 'coaches eye' when talent scouts are judging a junior players prospective playing potential during the National U18 AFL Championships. However, given that little is actually known surrounding the difference in match activity profiles of drafted and non-drafted U18 players, the aim of this study was to compare both the physical and technical skill in-game statistics of these player groups in an attempt to uncover the in-game variables most predictive of draft outcome. It is hypothesised based upon previous research in the AFL,¹¹ that drafted players would possess greater skill involvements when compared to their non-drafted counterparts, whilst the physical profiles of both player standards would not differ considerably.

2. Methods

Players included within this study originated from one U18 State Academy; namely the West Australian (WA) State Academy ($n=55$). In-game physical and technical skill variables were assessed for all WA U18 players participating within the National U18 AFL Championships for the 2013 and 2014 seasons. Data collected over the course of 10 games was retrospectively analysed, with four games being within the 2013 season and six being in the 2014 season; resulting in a total of 183 observations. Players were sub-divided into two groups based upon draft outcome; drafted or non-drafted. Out of these 183 observations, 106 were contributed by drafted players and the remaining 77 were from their non-drafted counterparts. Players were also sub-divided into Positions; namely forward, defence, midfield or ruck. The data utilised was derived from the year in which draft eligibility occurred for each player, and as such, only one year worth of data was used for each player. This was to ensure that a 'non-draft' outcome was not a resultant of age restrictions imposed on draft eligibility within the AFL; with this information being divulged by the State Academies High Performance Manager. This study was approved by the relevant Human Ethics Advisory Committee.

As a requirement of participation within the National U18 AFL Championships, each player wore a scapulae mounted portable GPS unit (Catapult Innovations, Team Sport 5.0, Firmware 6.54, 10 Hz, Melbourne, Australia) in a pouch embedded within the playing jumper. The GPS units and corresponding Firmware did not differ between the 2013 and 2014 seasons and where possible, players wore the same GPS unit each game. The data were downloaded after each game using propriety analysis software (Catapult Sprint Version 5.0.92, Melbourne, Australia) and the output file was exported to Microsoft Excel 2010 as a .csv file (Microsoft, Redmond, USA) for analysis. Only 'active playing time' was analysed and as such, quarter breaks and interchange periods for each player were omitted prior to analysis. The criterion variables used to quantify the physical profile of players were similar to previous research,¹² and were thus inclusive of absolute distance (m), relative distance (m min^{-1}), high speed running distance ($\text{distance (m)} > 15 \text{ km h}^{-1}$) and high speed running distance expressed as a percentage of total or absolute distance (% total). Previous work has suggested that these variables appear to be the most clinimetrically robust when compared to other GPS metrics.⁹

A specific selection of individual technical skill criterion variables for each game were retrieved from a commercial statistical provider (Champion Data[®], Melbourne, Australia). Data from this provider has previously been shown to provide a reliable means for quantifying players technical skill match activity profile for AF.¹³ This data was then entered into a custom designed Microsoft Excel spreadsheet (Microsoft, Redmond, USA, 2010); with the individual technical skill criterion variables utilised being presented within [Table 1](#). These variables were selected as they were the only ones commercially accessible by Champion Data[®] (Champion Data[®], Melbourne, Australia) during the National U18 AFL Championships between the 2013 and 2014 seasons. Previous work has shown that player technical skill count data recorded by Champion Data[®] is accurate to 99%,¹³ although specific inter-rater reliability findings were not available for this investigation.

Means and standard deviations (SD) were calculated for each criterion variable for each group (drafted and non-drafted). The effect size of draft outcome on these criterion variables was calculated using Cohen's d statistic, where an effect size of $d=0.20$ was considered small, $d=0.50$ moderate and $d \geq 0.80$ large.¹⁴ All pairwise comparisons were undertaken using Microsoft Excel (Microsoft, Redmond, USA, 2010).

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