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RELATIVE AGE AND FAST TRACKING OF ELITE MAJOR JUNIOR ICE HOCKEY PLAYERS[1,2]

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Summary.—Investigations in a variety of chronologically grouped team sports have reported that elite young athletes were more likely born in the early months of the selection year, a phenomenon known as the relative age effect. The present study investigated the birth dates and developmental paths of 238 (15 to 20 years old) Major Junior 'A' hockey players from the Ontario Hockey League to determine if a relative age effect still exists in elite junior hockey and if the path to elite sport was accelerated (i.e., fast tracked). The results identified a relative age effect in elite hockey although it is only apparent among individuals who fast track.

Researchers have shown that successful team athletes from a variety of sports, such as ice hockey, are more likely to be born earlier in the selection year, a phenomenon termed relative age effect (Musch & Grondin, 2001). With regards to hockey, such an effect has been documented in early developmental age categories, i.e., pee wee, bantam, midget, and juvenile (Barnsley & Thompson, 1988; Sherar, Baxter-Jones, Faulkner, & Russell, 2007) through to Major Junior 'A' hockey (Barnsley, Thompson, & Barnsley, 1985) and the adult professional National Hockey League (NHL) (Barnsley, *et al.*, 1985; Daniel & Janssen, 1987; Boucher & Mutimer, 1994). Despite the pervasive documentation of relative age effect in hockey and other athlete groups, little research has been conducted to explain why this phenomenon occurs. This note offers an explanation for this prevalence in elite hockey.

In Ontario, Canada, selected elite youth are offered the opportunity to move directly from bantam (14–15 years of age) to the Ontario Hockey League (OHL) or to a number of other levels of junior hockey. Players who fast track participate in elite junior hockey at an earlier age. Contrastingly, those young athletes who do not fast track play an additional year in the minor hockey system, at the midget level en route to the Ontario Hockey League and thus participate in elite Major Junior 'A' at an older age. It may be possible that relative age effect would be more pronounced among the

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players who fast tracked to the Ontario Hockey League, i.e., were selected to play elite hockey at a younger age. The purpose of this paper was to assess whether relative age effect is associated with the path taken to elite hockey, i.e., fast track vs nonfast track. It was hypothesized that (a) the birth distribution of the players who fast track to Major Junior 'A' hockey (from Bantam or Junior) would be significantly different from the Ontario live birth distribution, with more players born early in the selection year and (b) the birth date distribution of the players who did not fast track to Major Junior 'A' hockey would not significantly differ from the Ontario live birth distribution.

Method

Participants

The participants were a sample of 238 male Major Junior 'A' hockey players whose ages ranged from 15 to 20 years ($M = 18.0$, $SD = 1.2$ yr.) from the Ontario Hockey League. Participants were divided into two broad categories, fast track ($n = 209$) and nonfast track ($n = 29$). A fast track player was defined as any Ontario Hockey League player who elected to forego playing midget ice hockey within the minor hockey system to play any level of junior hockey [Major Junior (Jr.) 'A', Tier II Jr. A; Jr. B, or Jr. C]. Fast track players were further subdivided into fast track-bantam ($n = 38$) and fast track-junior ($n = 171$). Fast track-bantam was defined as an athlete moving from bantam directly to Major Junior 'A' hockey. Fast track-junior was any athlete going from bantam to junior hockey (Tier II Jr. A, Jr. B, Jr. C) prior to playing in Majora Junior 'A' hockey. Nonfast track players ($n = 29$) were any players who participated in midget hockey prior to playing junior hockey. The different routes to playing Major Junior 'A' hockey are depicted in Fig. 1.

Procedure

Consenting players completed a self-report fast tracking questionnaire after the first three months of the 2001–2002 regular season. The questionnaire assessed players' birthdates and route taken to playing Major Junior 'A' hockey. Each participant's date of birth was recorded. The players were then grouped according to the quarter of the selection year in which they were born. January was deemed to be at the start of the selection period whilst the month December was deemed to be the end of the selection period.

Analysis

A chi square goodness-of-fit technique was used to assess differences between the observed and expected birth date distributions. Expected birth date distribution was based on the distribution of live births in Ontario in 1983 (the year most players were born) (Ontario Office of the Registrar

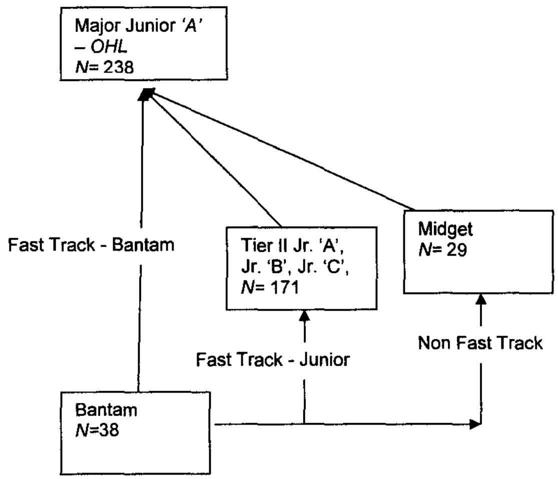

FIG. 1. Different routes to Major Junior 'A' hockey

General, 1985). There is little variability in the distribution of live male births in Canada from year to year (Daniel & Janssen, 1987). Alpha level of significance was set at $p < .05$ (SPSS Version 11.5, SPSS, Inc., Chicago, IL).

Results

The percentage of fast track bantam, fast track junior, and nonfast track players born in each quarter of the selection year are shown in Fig. 2. The fast track bantam birth-date distribution was significantly different from the Ontario Birth date distribution ($\chi_3^2 = 9.73$, $p < .05$), with 78.9% players born in the first six months of the selection year. Likewise, the fast track junior birth date distribution was significantly different from the Ontario birth distribution ($\chi_3^2 = 24.39$, $p < .05$), with 68.4% of players born in the first 6 mo. of the selection year, respectively. These birth-date distributions are depicted in Figs. 2a and 2b. The birth-date distribution of nonfast track athletes did not significantly differ from the Ontario birth distribution ($\chi_3^2 = 1.32$, $p > .05$), as depicted in Fig. 2c, with 55.2% of the players born in the first 6 mo. of the selection year. However, the birth-date distribution of the fast track players did not differ significantly from the nonfast track players ($\chi_3^2 = 2.94$, $p > .05$).

Discussion

The current study showed that, when hockey players' birth dates were analyzed based on their developmental route to playing Major Junior 'A' hockey, a relative age effect was found among the players who fast track versus those players who did not fast track, i.e., their birth dates did not differ

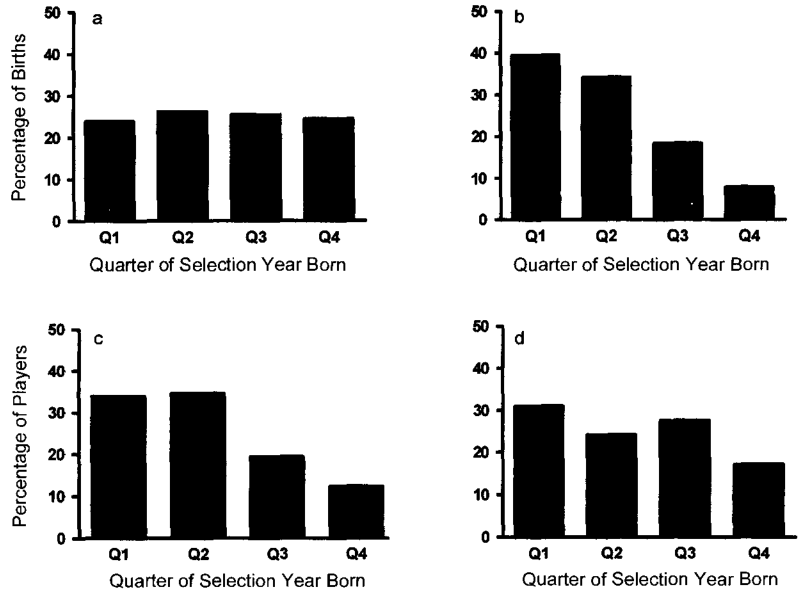

FIG. 2. Distribution of (a) Ontario live births (1982) and birth dates of Major Junior 'A' hockey players who (b) Fast tracked from bantam hockey to Major Junior 'A' hockey (fast track bantam), (c) Fast tracked from bantam hockey to junior hockey (fast track junior), (d) Did not fast track to Major Junior 'A' hockey (nonfast track).

significantly from the birth-date distribution in Ontario. This suggests that selecting players at an older age, i.e., whilst playing midget rather than bantam or junior hockey, reduces the selection bias against the relatively younger player. However, it should be noted that no significant difference was found between the birth-date distribution of players who fast tracked and players who did not. This is likely due to the small sample size of nonfast track players ($n=29$).

Research by Van Rossum (2006) reported no relative age effect among Dutch adolescent dance athletes (10 to 17 years of age). His explanation for the finding was that in dance the physical factor (strength, size, etc.) does not constitute the decisive element for success. Indeed, other studies have shown a lack of a relative age effect in sports, such as in table tennis, volleyball (Van Rossum, 2003) and gymnastics (Baxter-Jones & Helms, 1996), where technical motor skills play a more important role than physical size. Unlike table tennis, volleyball, dance, and gymnastics, success in hockey is highly dependent upon strength and size. Therefore, when evaluating hockey talent during adolescence, it may be difficult to distinguish natural physical talent from physical talent which is related to a greater physical development (because such youth are older). In the early years of adolescence, a youth born early in the selection year can have a considerable physical advantage over youth born late in the selection year, influencing their success in hockey. For example, previously 77.5% of boys selected at a Bantam (14–15 years old) hockey try-out were born in the first half of the selection year (Sherar, *et al.*, 2007). In the later years of adolescence, however, the physical advantages that one year can grant are reduced (Tanner, 1962). It is possible that birth date has a greater influence on hockey performance and thus on success during the early years of adolescence than in the late years of adolescence. Therefore, one strategy to reduce birth date bias in elite hockey would be to select players for elite junior teams later in adolescence at age 17 rather than 15, where the difference of up to a year in chronological age would have less influence on physical development. It should be recognized, however, that this increase in selection age of elite junior athletes is unlikely until the professional National Hockey League raises its current draft age, which at present is 18 years of age.

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