Exploring the Moderating Effect of Academic Timing on the Relative Age Effect among Canadian Interuniversity Athletes

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Despite age-grouping being a common practice among educational and sport organizations, these methods tend to advantage those who are relatively older, while disadvantaging those who are relatively younger (Barnsley, Thompson, & Barnsley, 1985). Consequently, researchers have established that these types of domains often result in the formation of relative age effects (RAE). Relative age effects are developmental advantages experienced by those born in the initial months after a predetermined cut-off date over their younger counterparts (Barnsley et al., 1985). While most RAE research has focused on professional and youth sport (e.g., Cobley et al., 2009b), few investigations have explored its prevalence at the intercollegiate/interuniversity level. To date, there have been only a few studies (e.g., Chittle, Horton, & Dixon, 2016; Dixon, Liburdi, Horton, & Weir, 2013; Glamser & Marciani, 1992) that have examined the RAE in an intercollegiate/interuniversity setting, most of which have been conducted within the National Collegiate Athletic Association (NCAA). Canadian Interuniversity Sport (CIS) is the primary governing body for interuniversity athletics in Canada that encompasses 12 different sports, 55 member institutions, four regional conferences, and more than 11,000 student-athletes (Canadian Interuniversity Sport, n.d.). To date, there has been a considerable void in the literature regarding the prevalence of RAEs in CIS sport.

When examining RAEs within an intercollegiate/interuniversity setting it is important to take into consideration the moderating effects of academic timing (AT). When examining AT, student-athletes are considered to be ‘on-time’ when their current year of athletic eligibility coincides with their expected year of athletic eligibility, based on their year of birth. Conversely, student-athletes are considered to be ‘delayed’ when their current athletic eligibility year corresponds with a younger cohort of student-athletes. Although there is the possibility for student-athletes to be ‘advanced’ in terms of their eligibility status, these instances are comparatively rare. Generally, student-athletes who are on-time are more likely to be relatively older while those who are delayed are more likely to be relatively younger (e.g., Chittle, Horton, Dixon, 2015, 2016). The purpose of this research project was to predict the AT status of student-athletes based on their sex and quartile of birth.

The target population for this study was Canadian student-athletes who competed in one of the 12 championship sports sanctioned by CIS during the 2013-2014 season (i.e., basketball, cross country, curling, field hockey, football, ice hockey, rugby, soccer, swimming, track and field, volleyball, and wrestling). The birthdates and eligibility years of all student-athletes were gathered from eligibility certificates obtained directly from CIS. Student-athletes were initially categorized by sex and sport. Following this step, student-athletes were placed into the appropriate birth quartile relative to their respective sport’s annual cut-off date, as determined by each sport’s national governing body. It was determined that the sport governing bodies for swimming and wrestling do not rely on yearly cut-off dates to group athletes. Furthermore, there has not been a consistent cut-off date for curling in recent years, making it difficult to determine the relative ages of student-athletes participating in this sport. Consequently, student-athletes participating in curling, swimming, and wrestling were removed from the analysis. All of the remaining sports within the study population utilized a December 31st cut-off date (or January 1st in the case of Basketball Canada). Thus, quartile one (Q1) contains student-athletes born during the months of January, February, and March, quartile two (Q2) represents student-athletes born in April, May, and June, quartile three (Q3) is comprised of student-athletes born in July, August, and September, and quartile four (Q4) includes student-athletes born in October, November, and December.

Student-athletes were also identified as on-time or delayed based on their years of birth and current athletic eligibilities. For the 2013-2014 CIS season, on-time student-athletes born in 1995, 1994, 1993, 1992, and 1991 ought
to be in their first through fifth years of athletic eligibility, respectively. Student-athletes whose athletic eligibilities corresponded with a later birth year were considered delayed, while those whose eligibilities corresponded with an earlier birth year were considered advanced. A binary logistic regression analysis was performed on the study population of CIS student-athletes in order to generate a model that can predict the academic timing status of student-athletes (i.e., on-time or delayed) based on their sex (i.e., male or female) and quartile of birth (i.e., Q1, Q2, Q3, and Q4). Subgroup binary logistic regression analyses were conducted on each of the nine CIS sports in order to predict academic timing status based on sex and quartile of birth.

The regression results indicated that the model with the variables included (i.e., sex, quartile of birth) was a good fit (Hosmer & Lemeshow = 4.50, p = 0.609), and was a significant improvement over the null model X2(4) = 1078.85, p < 0.001. Overall, the predictor model explains 11.66%-15.72% of the variance in AT. The subgroup binary logistic regression models for basketball, football, ice hockey, soccer, track and field, and volleyball were all significantly better (p < 0.05) than the null model at predicting who was on-time or delayed. Within CIS, male student-athletes are frequently delayed, with the most extreme examples being in ice hockey and football. Within these sports, it appears that delaying one’s athletic eligibility has become commonplace. Alternatively, only 39.50% of CIS female student-athletes are delayed. The disparity in these values may be due to fewer opportunities for females to partake in competitive sport outside of interuniversity athletics (Weir, Smith, Paterson, & Horton, 2010).

Given that most RAE studies are univariate in nature, the multivariate analyses conducted in this study provide examples of alternative, more robust statistical approaches that can be utilized in order to capture the multifaceted nature of the RAE. Furthermore, this study highlights the need for multivariate statistical techniques in order to account for the multiple constraints (Wattie et al., 2015) that can influence RAE profiles. Finally, the ability to predict who is on-time or delayed provides CIS with a better understanding of the demographics of its student-athletes, which may help to ensure these individuals have equal chances to benefit from participation in interuniversity athletics. This presentation will discuss potential policy implications of these findings on CIS.