Questioning the importance of diversification for sport expertise development

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Sport-Specific Practice and the Development of Expert Decision-Making in Team Ball Sports

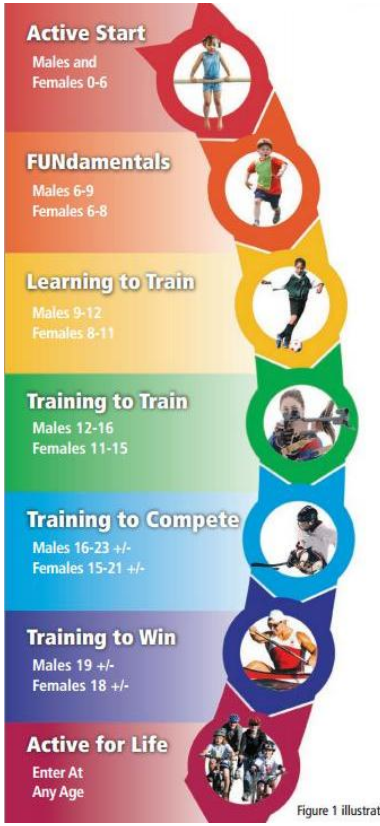
JOURNAL OF APPLIED SPORT PSYCHOLOGY, 15: 12–25, 2003

JOSEPH BAKER AND JEAN CÔTÉ
BRUCE ABERNETHY

A significant negative correlation was found between the number of prior sporting activities experienced by the expert decision-makers and the number of hours of sport-specific practice required before national team selection. This suggests that participation in other activities may indeed be a functional element in the development of expert decision-making skill.

Table 1: The Developmental Model of Sport Participation (DMSP, Côté et al., 2007)

(age in years)	1. Probable Outcomes: Recreational participation	2. Probable Outcomes: Elite performance	3. Probable Outcomes: Elite performance	Drop out
17–16–15	**Recreational Years** High amount of deliberate play Low amount of deliberate practice	**Investment Years** High amount of deliberate practice Low amount of deliberate play Focus on one sport	**Early specialization and investment** High amount of deliberate practice Low amount of deliberate play Focus on one sport	
14–13		**Specializing Years** Deliberate play and practice balanced Reduce Involvement in several sports		
12–11–10–9–8–7	**Sampling Years** High amount of deliberate play Low amount of deliberate practice Involvement in several sports *1. Recreational participation through sampling* *2. Elite performance through sampling*		*3. Elite performance through early specialization*	
6	Entry into sport			



An Outline of LTAD

The first 4 stages, with their respective approximate age ranges, are generally appropriate for all late-specialization sports. In the Training to Compete and Training to Win stages, age ranges vary from sport to sport.

The 10 key factors influencing LTAD

1. The 10-Year Rule
2. The FUNdamentals
3. Specialization
4. Developmental Age
5. Trainability
6. Physical, Mental, Cognitive, and Emotional Development
7. Periodization
8. Calendar Planning for Competition
9. System Alignment and Integration
10. Continuous Improvement

Figure 1 illustrates the stages of LTAD.

Late specialization: the key to success in centimeters, grams, or seconds (cgs) sports

K. Moesch, A.-M. Elbe, M.-L. T. Hauge, J. M. Wikman

Scand J Med Sci Sports 2011

As assumed, there are no differences in the current sample regarding the amount and time spent in other sports. This finding contradicts previous results that revealed successful athletes to have had more experiences in additional sports (e.g. Vaeyens et al., 2009).

The road to excellence: deliberate practice and the development of expertise

Paul Ward[*a], Nicola J. Hodges[b], Janet L. Starkes[c] and A. Mark Williams[d]

High Ability Studies
Vol. 18, No. 2, December 2007, pp. 119–153

The implication is that elite players are no more diverse in their pursuit of other activities than sub-elite players and consequently would appear to gain no additional benefit from engaging in these activities.

Aim

- To examine skill level differences in patterns of participation in organised sports within a large, diverse sample of athletes

Participants

- 193 athletes
  - 33 sports
  - 18-35 years
  - Male and Female
  - Australian and Canadian

- 3 skill levels
  - Elite: Open international level
  - Pre-elite: Open national / junior international level
  - Non-elite: Open provincial / junior national level or below

Procedures

Developmental History of Athletes Questionnaire (DHAQ)

- Identify all organised sports
  - 'Sporting activities for which you had regular practice sessions under the formal supervision of a coach or adult'

- For each organised sport:
  - Ages of participation
  - Hours / week + months / year → hours / year
  - Highest level of competition

Statistical analysis

- Categorical variables
  - Pearson chi-square tests for independence
    - Monte Carlo method ($p \leq .05$)
    - Adjusted standardized residuals (≥ 2.0)
- Continuous variables
  - One-way ANOVAs
    - Tukey's HSD post-hoc tests ($p \leq .05$)
    - Violation of Levene's test for homogeneity of variance
      - Welch's F
      - Games-Howell post-hoc tests ($p \leq .05$)

Results

Jim Thorpe

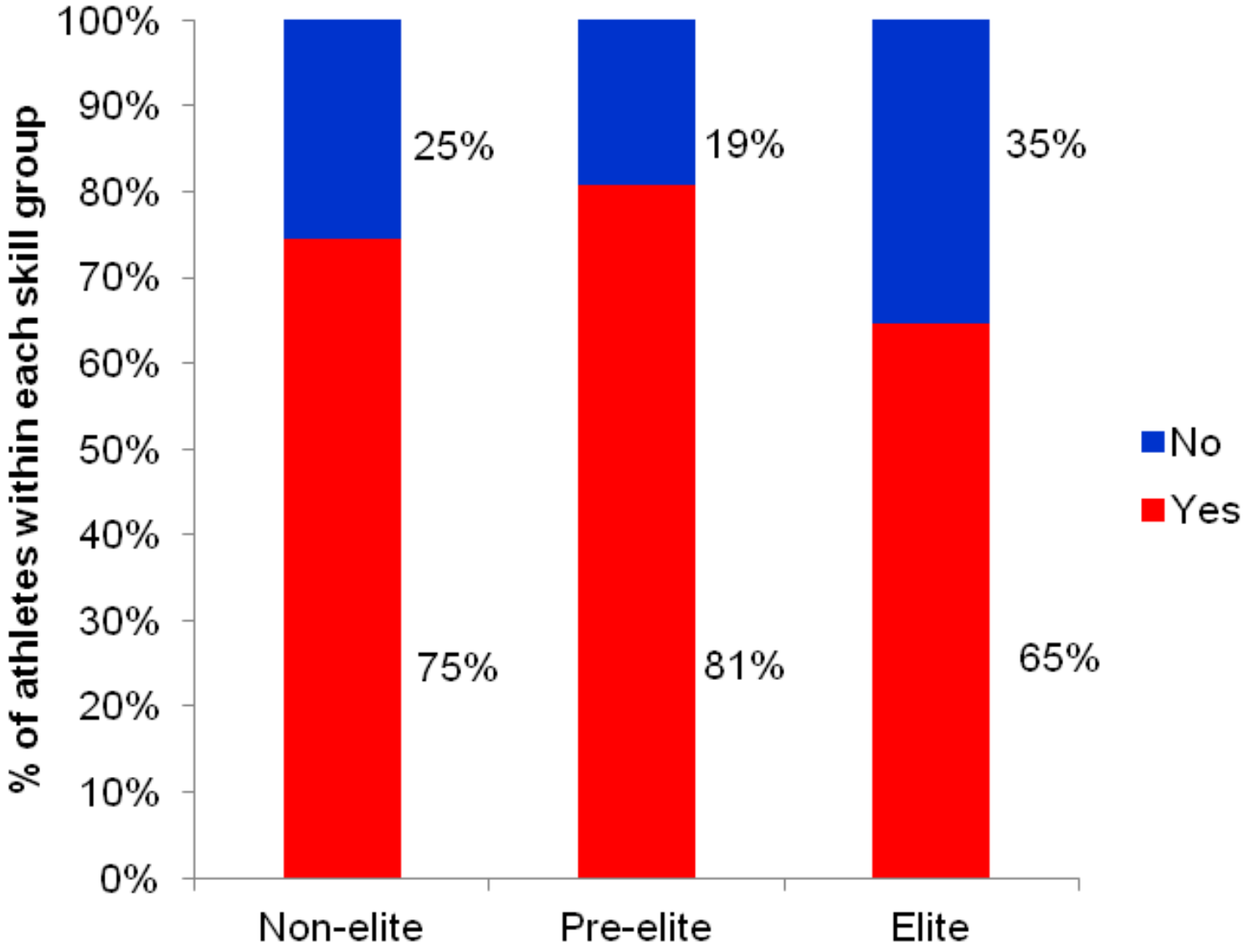
1912 Olympic gold medalist – pentathlon and decathlon

Professional football player - 13 years

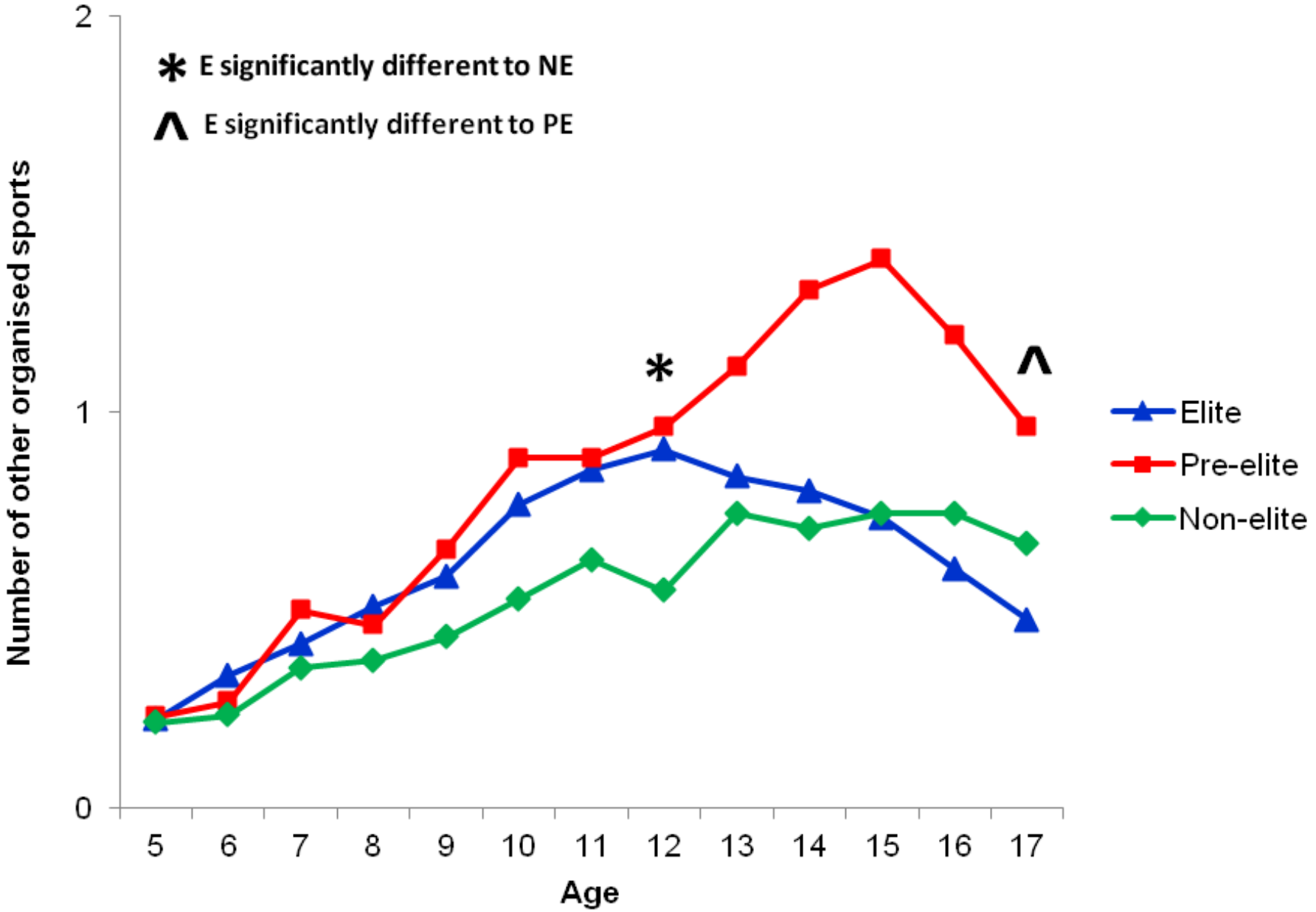
Professional baseball player - 7 years

Professional basketball player - 2 years

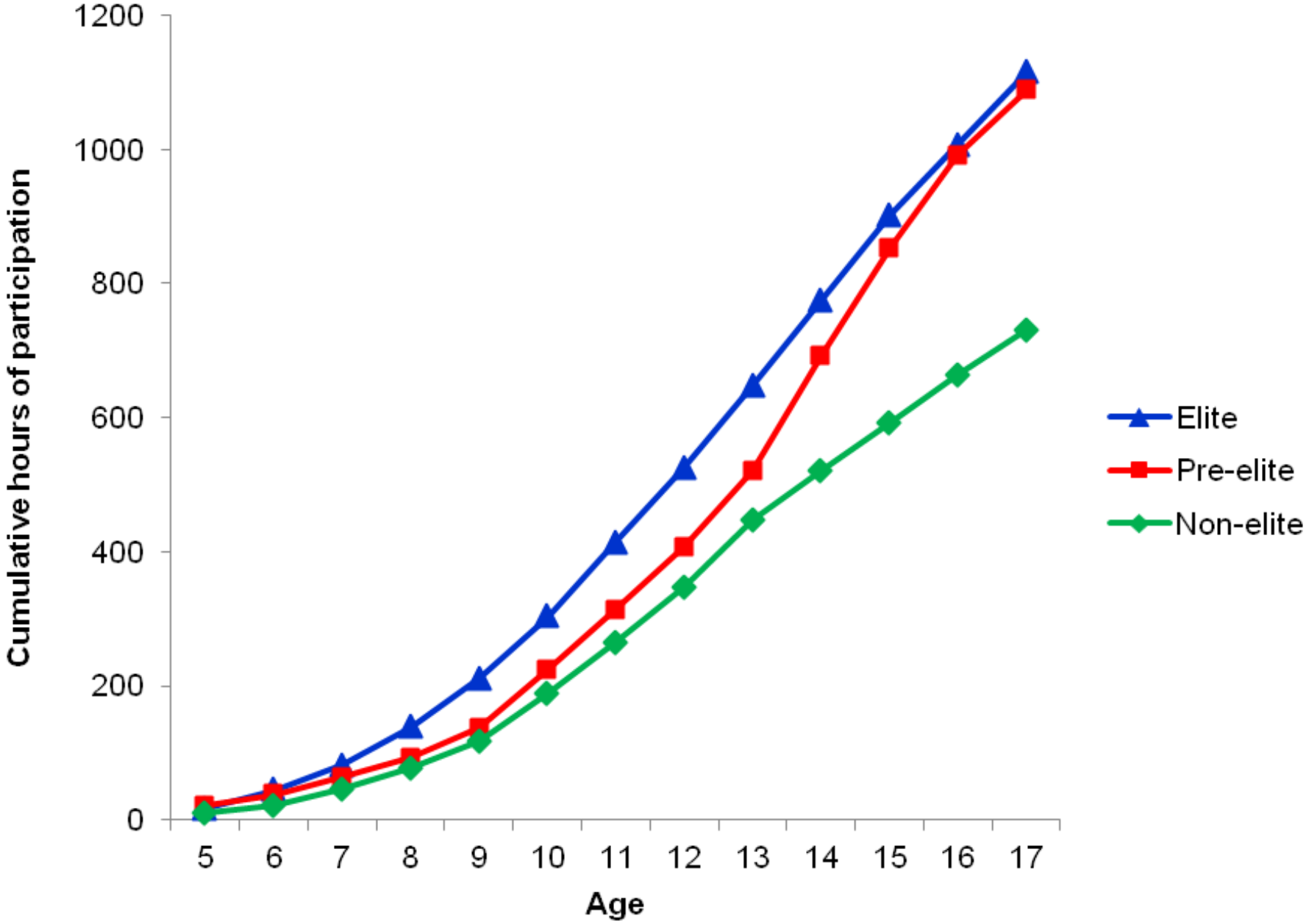
Participation in other sports before age 18



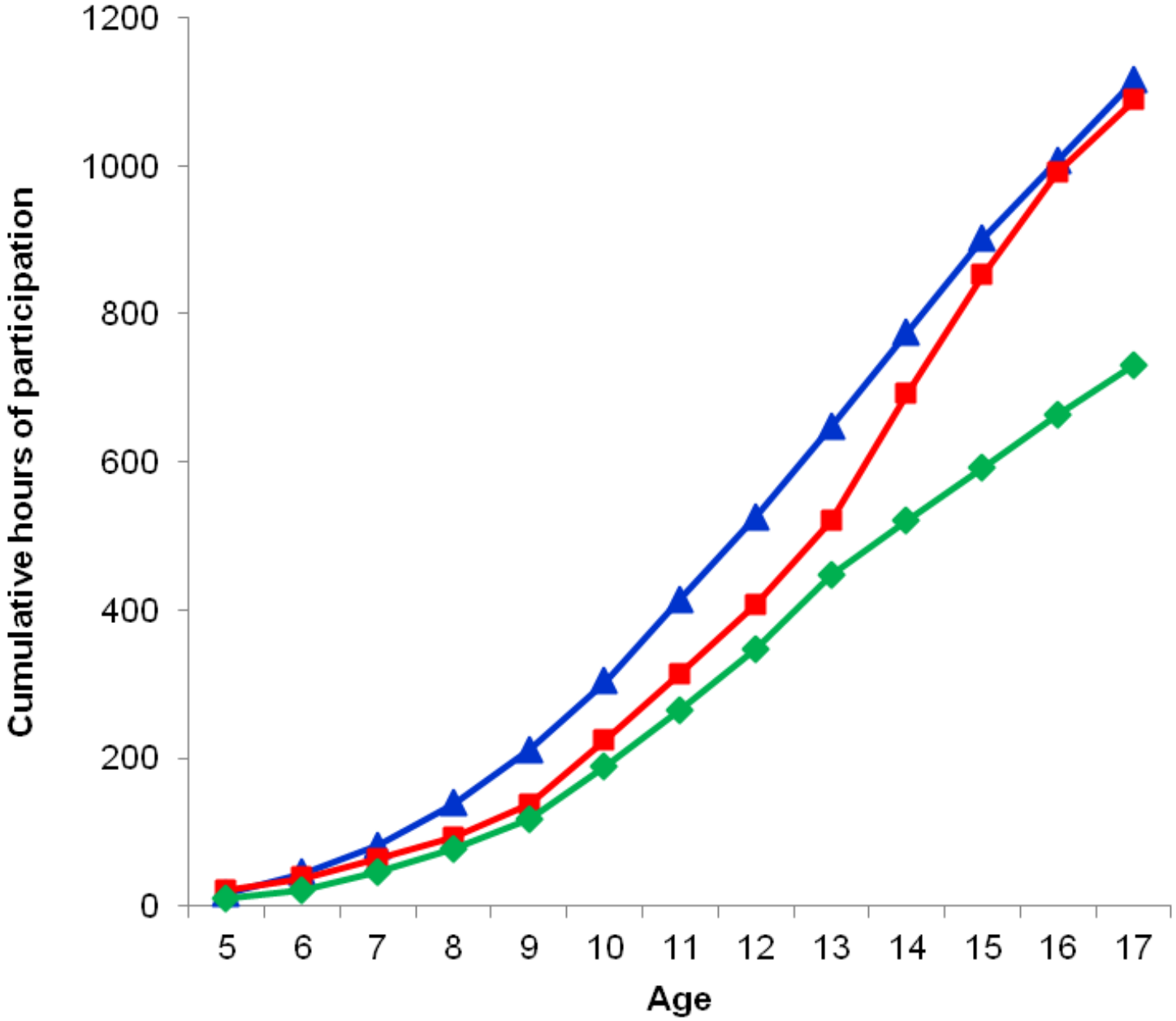
Number of other sports



Cumulative hours of other sports



Cumulative hours of other sports



Elite = 1,115

(0 – 7,716)

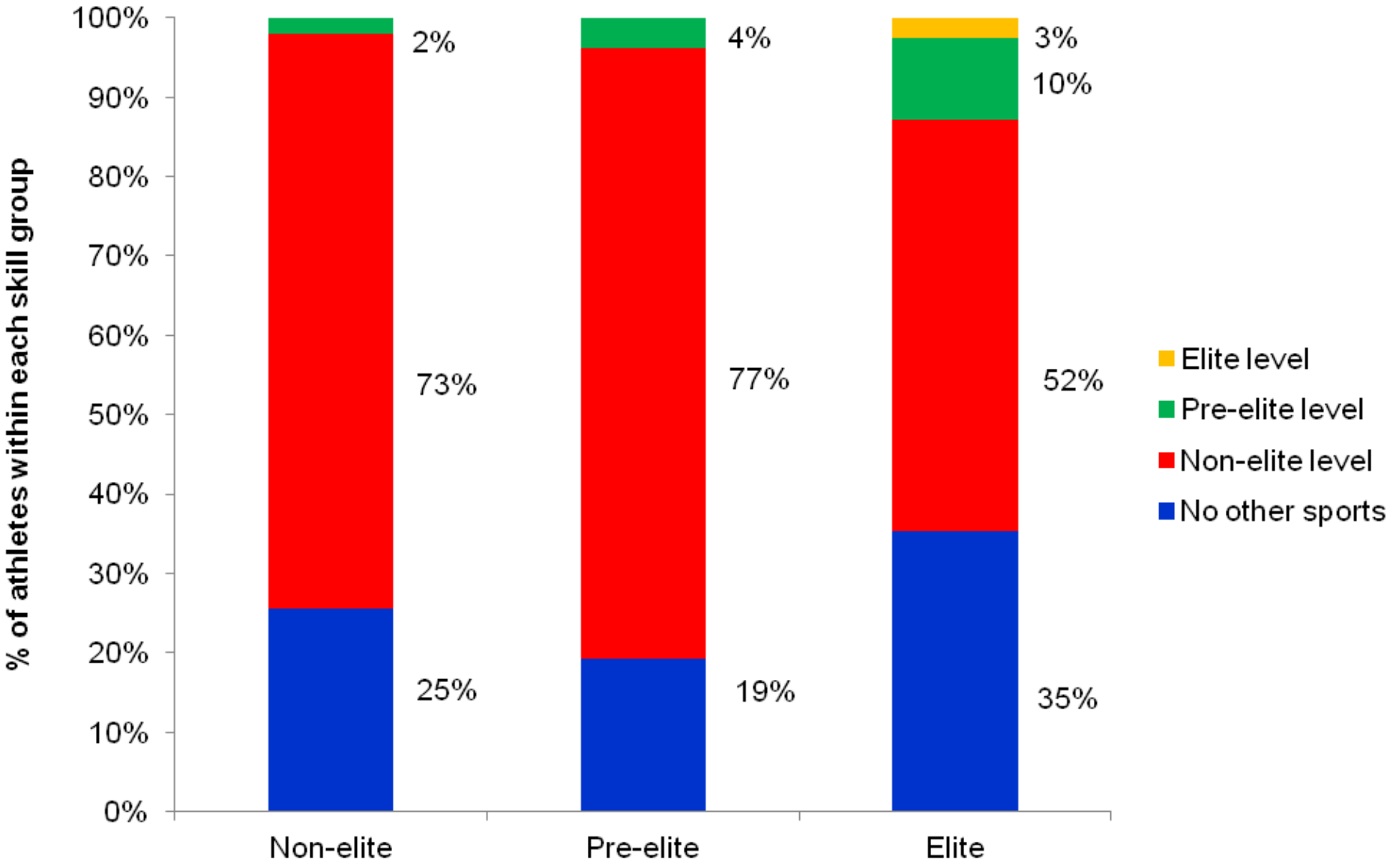
Pre Elite = 1,088

(0 – 4,571)

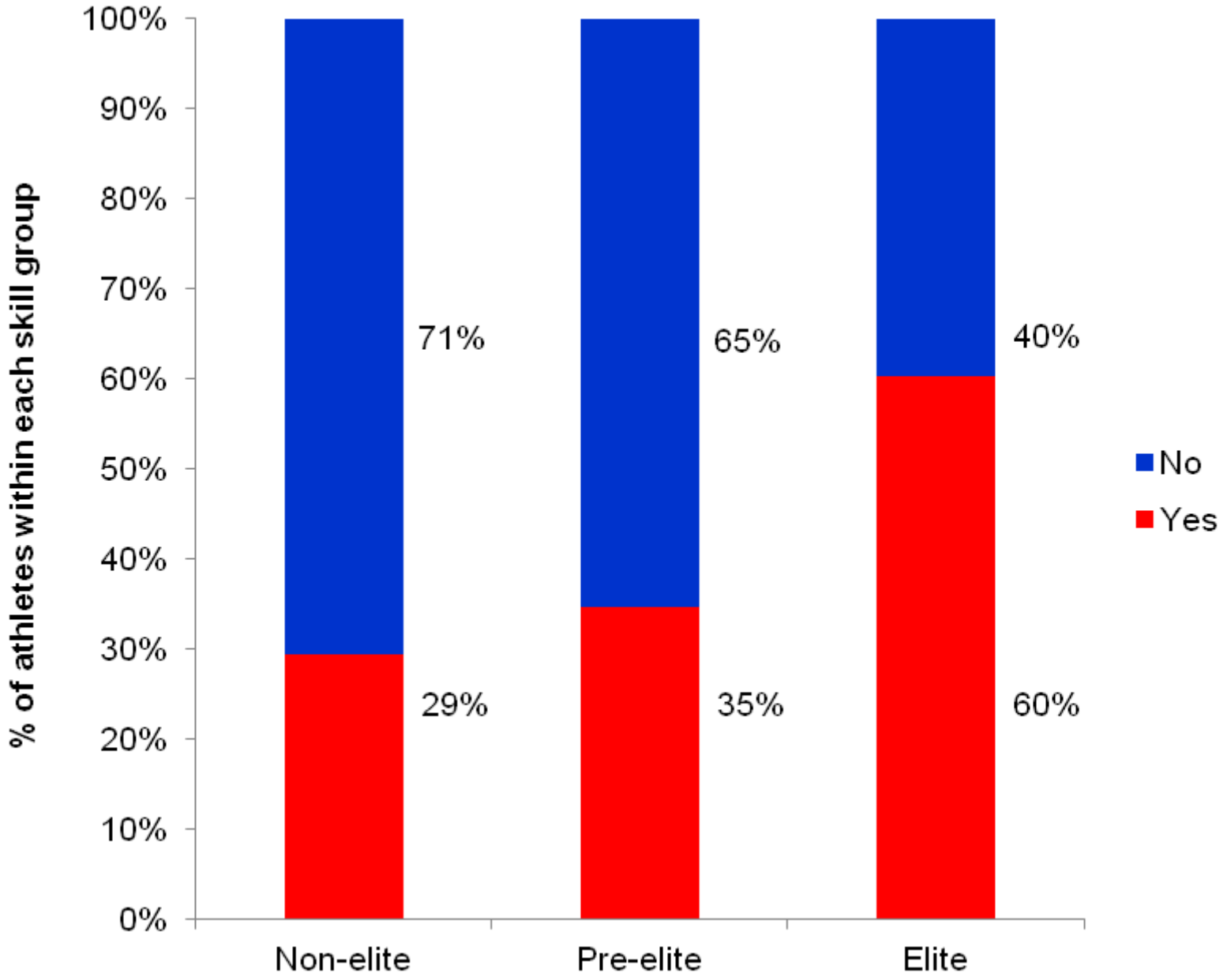
Non elite = 731

(0 – 7,447)

Highest level of competition reached for other organised sports before age 18



Percentage of athletes who specialised before age 18



Discussion

- Elite athletes were not more or less likely to participate in other sports before age 18 than lesser skilled athletes
- Elite athletes did not participate in more or less sports before age 18 than lesser skilled athletes, but were more likely to participate in other sports at higher levels
- Elite athletes did not participate in more hours of other sports before age 18 than lesser skilled athletes
- Elite athletes were more likely to have specialised before age 18, but did not do so earlier or later than lesser skilled athletes who had also specialised

Practical implications

- Neither early specialisation or diversification were strongly associated with sport expertise
  - Large variability in patterns of participation
  - While diversification may be associated with healthy child development, it may not be a prerequisite for sport expertise
- Elite athletes were often participating in other sports at high levels
  - Skill transfer?
  - Innate ability?
- *Need to consider sport-based differences*

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Acknowledgements

- **Advisors**
  - Dr. Joe Baker, Dr. Clare MacMahon, Dr. Damian Farrow
- **Research assistants**
  - Young-Bin Cho, Allan Khano, Cassim Ali, Jeff Bacchus, Justin Black, Natasha Bussoli, Melissa Humana-Parades, Stephanie Merenda, Samantha Jeske
- **Lab mates**
  - Shilpa Dogra, Jason Izraelski, Jane Logan, Brad Meisner, Jared Puterman, Rachael Stone, Nick Wattie, Harmonie Wong
- **Funding agencies**
  - Victoria University, York University, International Council for Canadian Studies, University of Toronto / Ontario Ministry for Health Promotion / Canadian Sport Center Ontario
- **Athletes, coaches, and sporting organisations**

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Questions?
Comments?
Job / post-doc offers?

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