

The Psychological Impact of Relative Age Effects on Young Athletes

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Abstract

The relative age effect (RAE) is an experience in youth sports when children are born right before a cutoff date for team sports competitions and often outperform their younger peers, even though they are of the same numeric age. This paper studies the psychological impact of RAE, particularly in relation to self-perception and identity formation. With the help from communication theories, this study explores how relatively younger athletes construct narratives about their athletic identities and how their self-concept is shaped by their experiences of competition with older players. By reviewing relevant literature, the paper synthesizes the psychological and communicative dimensions of RAE, offering a theoretical framework to guide future research on how relative age influences athletes' confidence, motivation, and long-term engagement in sports. Research questions are proposed to investigate these dynamics further and provide insights into how sports programs can mitigate the negative effects of RAE.

Literature review

Self-Perception and Self-Efficacy in Youth Athletes

Self-perception, or how athletes view their own abilities, plays a massive role in shaping their engagement and longevity in their sporting career. For relatively younger athletes, relative age effect (RAE) can have a significant impact on their self-perception, especially when they compete against older peers who are physically more mature than they are. Hancock et al. (2013) suggest that the relative age advantage often creates a cycle of positive reinforcement for older athletes, while relatively younger athletes may face feelings of inadequacy, leading to lower levels of self-efficacy. This sense of lower efficacy can be a killer to motivation, as athletes may question their ability to succeed in a highly competitive environment (Bandura, 1997). This questioning of their ability to succeed may lead to deeper questions about who they really are and their confidence levels for all things, even beyond sports.

Cumming et al. (2008) examine the Achievement Goal Scale for Youth Sports (AGSYS), which measures young athletes' achievement goals, such as the desire to outperform others (performance goals) or to improve themselves (mastery goals). As a part of being a competitor each athlete develops the desire to do well and win. With constant trials and very little success, which may be due to an age gap, the competitive spirit of a young athlete can be hurt or diminished. The authors argue that RAE can influence the types of goals athletes adopt, with relatively younger athletes potentially adopting performance goals, which focus on comparing themselves to older, more skilled peers. This shift in possible lower level goals can have negative consequences on self-perception and self-efficacy, as younger athletes may focus more on their

perceived failures than on their progress (Cumming et al., 2008). Many times in sports there are already failures at hand due to the degree of difficulty and adding additional weight of a negative measurement of success can weigh even heavier on the young athlete.

Musch and Grondin (2001) discuss how unequal competition, resulting from RAE, restrains personal development, especially when younger athletes are prematurely placed in higher age level or forced to compete against older players. This can result in a diminished self-efficacy and reduced engagement, especially if the younger athletes are unable to keep up with the physical and skill-based demands of the older group. Not only is the athlete most likely to not get the playing time or direct coaching that they deserve because of this challenge to play up, but they likely also see less productive output from their hard work when they do get to play. To counter these effects, interventions focused on encouraging feedback and individual goal setting are crucial in helping young athletes retain a positive self-image and belief in their athletic abilities (Gould et al., 2002). In other words, when all the odds are stacked against the athlete one of the best ways to help overcome it is by believing in themselves and seeking positive encouragement from anywhere that it will come.

In a similar vein, Sagar and Jowett (2012) suggest that sports programs that offer individualized training and feedback and emphasize personal development over relative comparison are essential for promoting healthy self-perception in young athletes. They argue that fostering a growth mindset, where athletes focus on their effort and improvement rather than on fixed abilities, can buffer the negative psychological effects of RAE, helping to maintain motivation and long-term engagement in sports. Even though there are many benefits to team sports, having a healthy mix of athletics where the athlete challenges their own self is a good idea to mix in.

Narrative Identity and the Construction of Self in Sports

The concept of narrative identity, which refers to the way individuals construct their sense of self through stories about their past, present, and future, offers valuable insight into how athletes perceive and make meaning of their experiences. Life can be referred to as a compilation of stories and experiences and because of that our identity is often wrapped in these things. Phoenix and Sparkes (2007) argue that athletes, particularly those in youth sports, construct narratives about their sporting experiences that shape their athletic identities. These narratives are influenced by their perceptions of success, failure, and the social contexts in which they compete. So where do these perceptions come from? For relatively younger athletes, the stories they tell about their experiences often revolve around overcoming challenges and navigating a perceived disadvantage. This can lead to a positive identification of self if they can see themselves as overcomers, or can lead to a negative outlook on themselves if they perceive these experiences to be ones of constant failure or excuse making.

Smith and Sparkes (2009) stress the importance of narrative inquiry in understanding how athletes construct their self identity and make sense of their experiences. In the case of younger athletes who might end up struggling with RAE, narrative inquiry sets the groundwork for investigating how they reframe their relative disadvantage as a potential source of growth. According to Lally (2007), athletes' identities are not stable but evolve throughout their athletic careers. For relatively younger athletes, the process of narrative identity construction may involve shifting from a sense of inadequacy to one of resilience and persistence, as they come to view their challenges as opportunities for growth.

In elite sports, Carless and Douglas (2013) describe how athletes at the top of their field develop complex narratives that help them navigate self-doubt and adversity. These narratives often involve themes of overcoming personal obstacles, which can serve as sources of motivation and identity reinforcement. Similarly, the narratives constructed by relatively younger athletes in youth sports can have a profound impact on their psychological resilience and future engagement in the sport. How they perceive their relative age and how they communicate this in their personal narratives can either empower them or deter them from continued participation (Sagar & Jowett, 2012). Even though the athlete may not be able to change the competition that they face, or the time that they are born, they are able to choose what they do with it and how they view it. Having and encouraging a spirit of resilience and determination can help this seemingly weakness or disadvantage into a strong advantage in their character development.

Lally (2007) also suggests that the process of athletic retirement can offer perspectives into how athletes manage their identities during transitions. While this research is focused on elite athletes at the end of their careers, it provides important parallels for younger athletes who may experience shifts in identity due to their relative age. The stories athletes tell about their transition, whether they frame it as a loss or a positive shift, can influence their future involvement in the sport.

The Intersection of Self-Perception, Self-Efficacy, and Narrative Identity

The intersection of self-perception, self-efficacy, and narrative identity offers a comprehensive framework for understanding the psychological effects of RAE on young athletes. Hancock et al. (2013) emphasize the interrelation between self-perception and self-efficacy, noting that athletes' beliefs about their abilities shape how they interpret their

experiences in sports. When combined with narrative identity, these factors offer insight into how relatively younger athletes perceive their disadvantage, how they construct meaning from their experiences, and how their identities are formed as a result. The overall perception and reality of who the athlete is, is a mix of all of their internal and external realities.

Gould et al. (2002) argue that interventions aimed at improving athletes' self-efficacy, such as through positive reinforcement, individualized feedback, and a focus on process-oriented goals, can help athletes reshape their narratives. When athletes adopt a growth-oriented narrative, instead of one of constant failure and unreachable goals, they see challenges as opportunities to improve. They are more likely to remain motivated and persist in their athletic careers, regardless of their relative age. Similarly, Sagar and Jowett (2012) highlight the role of coaches and mentors in shaping athletes' narratives by providing emotional support and encouragement, which can help buffer the negative effects of RAE. Each individual has the communicative chance to positively influence and change their self identity and perception of who they are by how they handle tough situations and who they say to themselves that they are. However, in communicating this the athlete does not have to be alone. Each parent, friend, or especially a coach has the chance to recognize the disparity and be there communicatively in the young athletes' tough times.

Together, these psychological constructs create a dynamic environment in which relatively younger athletes must navigate their self-perception, self-efficacy, and personal narratives to maintain motivation and engagement in sport. Understanding how these elements interact is critical for developing strategies that support young athletes in overcoming the challenges posed by RAE.

Method

Participants and Procedures

The participants for the survey were 58 undergraduate student-athletes enrolled at Wheaton College during the fall 2024 semester. The sample was drawn from a range of varsity sports, including but not limited to baseball, basketball, soccer, volleyball, and track and field. Both male and female athletes participated, representing a mix of individual and team-based sports. Ages ranged from 18 to 23 years, with the majority being juniors and seniors. Participants were recruited based on their active enrollment in a varsity sport and their willingness to participate in the study. All participants identified themselves as full-time students, with a commitment to their respective athletic programs.

Our data was collected through Qualtrics and was typically answered by a quarter of the people we sent it out to. Our survey was only measured by people who completed the entirety of the survey and each response was anonymous and took them about 8 minutes to complete. Every answer that was given was in response to a multiple choice styled question and there were not open ended descriptions in this survey.

Materials

To start, each participant filled out exact demographic questions so that there was an accurate representation of different participants and for a knowledge of who was filling out the survey. Using this data each participant was grouped into a category of either “relatively old” or “relatively young” for their prospective sport. Using this knowledge of who the participants are,

we were then able to categorize how each participant responded to the next questions dealing with self efficacy and athletic identity.

Self efficacy was measured by a series of 10 questions all based and adapted from Schwarzer's (2012) General Self-Efficacy Scale. For each item (e.g. "I am confident that I could deal efficiently with unexpected events in my primary sport") respondents indicated their level of agreement in a 5-point Likert scale in a matrix table choosing one of 5 responses from 1= "strongly disagree" to 5= "strongly agree". Throughout the 10 questions about primary sport self-efficacy there was a score .820 from Cronbach's alpha test, indicating good internal consistency.

Athletic Identity was assessed using the Athletic Identity Measurement Scale (AIMS), adapted from Brewer, Van Raalte, and Linder (1993). This scale measures the extent to which an individual identifies with their sport. It includes seven items, (e.g. "I consider myself an athlete" and "I would be very depressed if I were injured and could not compete in sport.") Responses were also provided on a 5-point Likert scale in a matrix table ranging from 1 = Strongly Disagree to 5 = Strongly Agree. The Cronbach's alpha for the Athletic Identity scale was .730, which indicates acceptable internal consistency.

Results

A multiple linear regression was calculated to predict self efficacy based on relative age of athlete in primary sport. A significant regression equation was found ($F = 1.312, p < .05$), with an R^2 of .114. Relative age of athletes in primary sport was a significant positive predictor of self efficacy in athletes. RQ1 was supported. Specifically, athletes who were younger than their teammates had higher reported levels of self efficacy in the context of their primary sport.

Discussion

Summary of Survey Results

Ultimately, it is discovered that, contrary to our original hypothesis, the self efficacy levels of relatively young athletes for their respective sports were stronger than those of relatively older athletes. This means that younger athletes, those born later in the age group cutoff reported feeling more confident in their abilities to perform and succeed in their sports compared to their older teammates. Rather than being at a disadvantage, these younger athletes may be developing stronger self-belief as they face and overcome the challenges of competing with peers who are often bigger, stronger, or more experienced. This surprising result highlights how being in a seemingly less favorable position might actually encourage personal growth and confidence over time.

Implication of Research

These results of relatively younger athletes having higher reported self efficacy levels may highlight an intriguing relationship between relative age and self-efficacy, suggesting that younger athletes in a given cohort may develop greater confidence in their abilities despite—or perhaps because of—the challenges they face competing with older peers. Often it is perceived that relatively older athletes have many physical advantages that favor their experiences in sports early on which helps them succeed in highly competitive environments (Bandura, 1997). Even though typically the relatively older athlete may experience more success, this may lead to less self efficacy down the road.

Typically the relatively older athletes may see more success than the relatively younger athletes. However, success does not necessarily directly correlate with self efficacy. Relatively

younger athletes for their sport might perceive themselves as needing to work harder to keep up, which could lead to higher levels of mastery and self-belief. However, our testing may be highly subjective to the age group that you ask. As a younger athlete that is still going through a tougher time in sports and has yet to develop a strong identity may be more inclined to complain about their circumstances. However, likely by the age of college athletics, things tend to even out and if the athlete stuck it through during the harder times they may have come out even stronger.

Scripture supports this argument of relatively younger athletes having stronger reported self efficacy levels in Romans 5:3-5 when it states “Not only so, but we also glory in our sufferings, because we know that suffering produces perseverance; perseverance produces character, and character produces hope, and hope does not put us to shame, because God’s love has been poured into our hearts through the Holy Spirit who has been given to us.” Relatively younger athletes may take to this verse as an example of how difficulties early on ended up creating a stronger character of who they are.

Limitations and Future Directions

The limitations of this survey included a time constraint that limited our ability to get an even greater sample size. Ideally, we would also like to have a larger range of athletes such as elementary school student athletes all the way up until college. In a perfect world we would be able to see the growth or decrease in self efficacy over the years for each sport and gender. Our survey lacked the ability to have an exact birthday and instead made us generalize people into specific categories. Knowing the differences between exact months and many even finding an ideal month in between where you may have a physical advantage along with high self efficacy scores would have been interesting to collect. In the future we suggest to other researchers to sample from a wide range of ages. We collected a very solid sample size of Wheaton college

students, but would like to hear from other ages and colleges as well. For this project, the bigger the better, and we suggest that if you are to take on this project you should go big or go home.

Conclusion

This study contributes to the understanding of how relative age influences self-efficacy in athletes, revealing that younger athletes may derive unique benefits from their position within a cohort. These findings highlight the complex interplay of competition, resilience, and personal internal growth in sports. By recognizing the potential for relatively younger athletes to thrive, coaches, educators, and athletes themselves can create environments that encourage development and confidence for all participants, embodying values of perseverance, community, and mutual encouragement to grow their character and who they are as an individual for the future.

Appendix (Survey)

Independent Variable Questions:

Age

1. Are you 18 years old or older?
 - Yes, 18 or older
 - No (If no, please discontinue the survey.)
2. What is your age?

Education

3. What year are you in college?
 - Freshman
 - Sophomore
 - Junior
 - Senior

Sex

4. What is your sex?
 - Male
 - Female
 - Prefer not to answer

Sport

What is your primary sport?

- Baseball/softball
- Basketball
- Cross-country running
- Football
- Golf
- Soccer
- Swimming
- Tennis
- Track and field
- Volleyball
- Other (please specify)

What month is the cut-off date for age groups in your primary sport?

- January
- February
- March
- April
- May
- June
- July
- August
- September
- October
- November
- December

How many years have you been playing your primary sport?

- 1-1 year
- 1-2 years
- 2-3 years
- 3-4 years
- 4-5 years
- 5-6 years
- 6-7 years
- 7-8 years
- 8-9 years
- 9-10 years
- 10+ years

Dependent Variable Levels

Primary Sport Self-Efficacy (adapted from the General Self-Efficacy Scale by Schwarzer, 2012)

5. I can always manage to solve difficult problems in my primary sport if I try hard enough.

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree

- Strongly agree

6. If someone opposes me in my primary sport, I can find means and ways to get what I want.

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

7. It is easy for me to stick to my aims and accomplish my goals in my primary sport.

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

8. I am confident that I could deal efficiently with unexpected events in my primary sport.

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

9. Thanks to my resourcefulness, I know how to handle unforeseen situations in my primary sport.

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

10. I can solve most problems if I invest the necessary effort in my primary sport.

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree

- Strongly agree

11. I can remain calm when facing difficulties in my primary sport because I can rely on my coping abilities.

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

12. When I am confronted with a problem in my primary sport, I can usually find several solutions.

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

13. If I am in a bind in my primary sport, I can usually think of something to do.

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

14. No matter what comes my way in my primary sport, I'm usually able to handle it.

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

Athletic Identity (Adapted from Brewer, Van Raalte, & Linder, 1993)

15. I consider myself an athlete

- Strongly disagree
- Disagree

- Neither agree nor disagree
- Agree
- Strongly agree

16. I have many goals related to sport

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

17. Most of my friends are athletes

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

18. Sport is the most important part of my life.

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

19. I spend more time thinking about sport than anything else.

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

20. I feel bad about myself when I do poorly in sport.

- Strongly disagree
- Disagree
- Neither agree nor disagree

- Agree
- Strongly agree

21. I would be very depressed if I were injured and could not compete in sport.

- Strongly disagree
- Disagree
- Neither agree nor disagree
- Agree
- Strongly agree

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