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Geography, Specialization, and Throwing Arm Health in High School Baseball Players

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INTRODUCTION

Sport specialization is increasingly common and has been identified as a risk factor for lower extremity overuse injuries (1, 2).

The ability to specialize and play year-round might be partially determined by geography and climate, but this has not been examined.

Additionally, limited data exists on whether specialization is associated with upper extremity pathology, specifically in youth baseball players.

METHODS

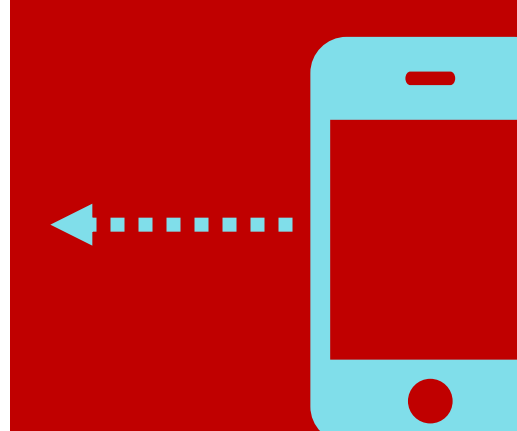
598 high school baseball athletes (age 15.9±1.3 years old) from 3 states (Alabama N=210, California N=204, Michigan N=184) completed an anonymous questionnaire.

Athletes were recruited from 5 high schools in each state, with schools matched based on factors that influence specialization rates (school size, socioeconomic status, and baseball team ability).

The questionnaire consisted of 1) demographics, 2) baseball participation information (such as primary position, months per year of baseball participation, and sport specialization status), and 3) throwing arm health, which was assessed using the Youth Throwing Score (YTS).

Baseball players from warm-weather states were more likely to be highly specialized compared to players from the Midwest.

Being highly specialized and being primarily a pitcher were associated with poorer arm health.



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RESULTS

Players from Michigan were less likely to be classified as highly specialized (41.3%) compared to players from Alabama (56.2%) or California (57.8%, $\chi^2=16.0$, $p=.003$).

After adjustment for covariates, high specialization was associated with decreased score on the YTS compared to low specialization players (50.5±0.6 vs. 54.0±1.2, $p=0.01$).

Year-round baseball participation was not associated with YTS (51.1±0.6 vs. 51.2±0.9, $p=0.9$).

Being primarily a pitcher was associated with decreased score on the YTS (49.8±0.9 vs 53.8±0.53, $p<0.001$).

DISCUSSION

Although baseball recommendations that discourage sport specialization are widely available, high rates of sport specialization were reported in our sample.

Continued dissemination of safe sport recommendations is necessary to minimize the consequences associated with specialization and pitching.

REFERENCES

- Jayanthi et al. 2015. Sports-Specialized Intensive Training and the Risk of Injury in Young Athletes: A Clinical Case-Control Study. Am J Sports Med.
- McGuine et al. 2017. A Prospective Study on the Impact of Sport Specialization on Lower Extremity Injury Rates in High School Athletes. Am J Sports Med.