A Systematic Review: The Relationship Between Early Sports Specialization and Injury in Young Athletes

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Summary of Findings

<table>
<thead>
<tr>
<th>Year &amp; Lead Author</th>
<th>Sex</th>
<th>Age</th>
<th>Sport</th>
<th>Outcome Measures</th>
<th>Total n</th>
<th>Location of Injury and/or Condition</th>
<th>Location of Sample</th>
<th>Downs &amp; Black</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fleisig 2011</td>
<td>Male 9 – 14 y/o</td>
<td>Baseball</td>
<td>High-volume of pitching - Throwing curve ball at young age - Pitches that also played position of catcher</td>
<td>481</td>
<td>Elbow surgery - Shoulder surgery - Retirement secondary to injury</td>
<td>Alabama</td>
<td>26 Good</td>
<td></td>
</tr>
<tr>
<td>Hall 2015</td>
<td>Female Middle school age</td>
<td>Basketball, Soccer, Volleyball</td>
<td>Anterior Knee Pain Scale (AKPS) - International Knee Documentation Committee (IKDC) form - Standardized history and physician evaluation</td>
<td>357</td>
<td>Anterior knee</td>
<td>Kentucky</td>
<td>22 Good</td>
<td></td>
</tr>
<tr>
<td>Jayanthi 2015</td>
<td>Both 7 – 18 y/o Not Reported</td>
<td>Sport specialization (year round intensive training in a single sport at the exhaustion of other sports) - Sports training (time spent training each sport per week in relation to athletes age) - Injury type (acute, overuse, serious overuse)</td>
<td>1190</td>
<td>Knee - Foot / Ankle - Shoulder - Head / Neck - Low back</td>
<td>Unspecified</td>
<td>21 Good</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Results

Quality was determined to be good in all 3 articles. 2217 total subjects were included in the 3 reports. Participants were separated into two main categories, injured or uninjured as related to ESS. Other metrics include specific injury types, locations, gender and age. It appears there is strong evidence to support the hypothesis that early specialization leads to an increased risk of injury and the avocation of early sports specialization. Injury incidence rates appeared 1.5x to 4.0x higher for athletes in specialized sports. It does not appear gender impacts the rates in both male and female athletes who choose to specialize suffers at a greater rate than their non early sports specialization counterparts.

Conclusions

Based on the analyzed evidence youth athletes participating in early sports specialization have a higher incidence of injury when compared to multi-sport athletes. This systematic analysis appears to be in line with contemporary professional opinion and position statements. There is a continued need to develop quality evidence to further support this position.

Clinical Relevance

There is great pressure for young athletes to specialize early in hopes of achieving future success. It does appear that this participation in early sports specialization leads to a greater risk of injury. The physical therapist should utilize this information to properly advise clients and patients to maximize their potential.

References


Contact Information

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Background

With the popularity of college and professional sports, young athletes are specializing in one sport with the desire to achieve high level success. The mantra of success is forwarded by many elements including coaches, parents, and performance trainers leading the athlete to specialize early. Some sports have developed year-long competitive leagues promoting this training and performance specialization. There has been a recent push in professional literature for adolescents to not partake in early sports specialization (ESS) due to the negative physical and emotional impact.

Purpose

The purpose of this systematic review is to evaluate the relationship between injuries associated with early sports specialization and the young athlete.

Methods

A systematic review of recent literature was completed to identify evidence related to the clinical question. The search was completed by utilizing EBSCOhost. A PRISMA strategy utilizing key words identified 319 articles. After applying screening criteria 3 articles were included for data extraction & analysis. Two reviewers assessed quality of evidence using the checklist developed by Downs & Black. A neutral third reviewer was utilized to resolve disagreements leading to a consensus quality rating of good, fair, and poor.

Records identified through database searching (n = 319)
- Additional records identified (n = 3) through other sources

Records after duplicates removed (n = 206)
- Records screened (n = 73)
- Records excluded (n = 133)

Full-text articles assessed for eligibility (n = 73)
- Full-text articles excluded, with reasons (n = 70)
- Exclusion rationale included expert opinion only, presented lack of adequate ESS comparisons, unclear relation to ESS
- Studies included in qualitative synthesis (n = 3)