

**Supplementary Table 1:** Individual Speakers and Organizations Participating in AMSSM Youth Early Sport Specialization Research Summit

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**Invited Speakers\***

David R. Bell, PhD, ATC  
Anthony I. Beutler, MD  
Joel S. Brenner, MD, MPH  
M. Alison Brooks, MD, MPH  
R. Dawn Comstock, PhD  
David Conant-Norville, MD  
Jean Côté, PhD  
Kristen D. Dieffenbach, PhD  
John P. DiFiori, MD  
Brooke de Lench, BA

Avery D. Faigenbaum, EdD  
Tom Farrey, BA  
Glenn S. Fleisig, PhD  
Brian Hainline, MD  
Daniel C. Herman, MD, PhD  
Mackenzie M. Herzog, PhD, MPH  
Neeru Jayanthi, MD  
Stephanie A. Kliethermes, PhD  
Mininder S. Kocher, MD  
Cynthia R. LaBella, MD

Robert M. Malina, PhD  
Stephen W. Marshall, PhD  
Alicia M. Montalvo, PhD, ATC  
Gregory D. Myer, PhD  
Kyle B. Nagle, MD, MPH  
Vicki R. Nelson, MD, PhD  
Andrea Stracciolini, MD  
Adam S. Tenforde, MD  
Andrew M. Watson, MD, MS

**Organizations Represented**

American Academy of Pediatrics  
American Academy of Physical Medicine and Rehabilitation  
American College of Emergency Physicians  
American College of Sports Medicine  
American Medical Society for Sports Medicine  
American Orthopaedic Society for Sports Medicine  
Association of Tennis Professionals  
Aspen Institute  
Datalys Center for Sports Injury Research and Prevention  
International Society for Sports Psychiatry  
Major League Baseball  
Major League Soccer

Mom's Team  
National Athletic Trainers' Association  
National Basketball Association  
National Collegiate Athletic Association  
National Institutes of Health  
National Strength and Conditioning Association  
President's Council on Sports, Fitness & Nutrition  
United States Center for Coaching Excellence  
United States Tennis Association  
USA Gymnastics  
USA Swimming

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**\*Note:** All invited speakers were from the USA, except for Dr. Jean Côté who resides in Canada. The Summit planning committee attempted to achieve gender and racial/ethnic diversity when inviting speakers with expertise in areas related to youth sport specialization to participate in writing groups and as panelists. Although gender parity was attained, appropriate racial/diversity representation was more difficult to achieve. This was in part due to personal and professional circumstances at the time of the Summit. The planning committee did provide 2 competitive travel scholarships for the Summit to underrepresented minorities to encourage continued participation in the event and in this area of research.

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## Supplementary Table 2: AMSSM Youth Early Sport Specialization Summit (YESSS) Leadership

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### American Medical Society for Sports Medicine (AMSSM) Leadership

Executive Director	Jim D. Griffith, MBA, CAE, <i>AMSSM- Leawood, Kansas</i>
Chair of CRN Leadership Team	Anthony I. Beutler, MD, <i>Intermountain Healthcare</i>
AMSSM Research Director	Stephanie A. Kliethermes, PhD, <i>University of Wisconsin-Madison</i>
Research Conference Co-Chair	Stephen W. Marshall, PhD, <i>University of North Carolina-Chapel Hill</i>
Research Conference Co-Chair	Daniel C. Herman, MD, PhD, <i>University of Florida</i>
Research Conference Co-Chair	Neeru Jayanthi, MD, <i>Emory University</i>

### Research Conference Writing Group Committees

Impact of youth sport specialization on child and athlete performance and development <b>(Writing Group #1)</b> <b>Neeru Jayanthi, MD§*</b> <i>Emory University</i> <b>Kyle B. Nagle, MD §*</b> <i>Seattle Children's Hospital</i> <b>Jean Côté, PhD</b> <i>Queen's University</i> <b>Avery D. Faigenbaum, EdD</b> <i>The College of New Jersey</i> <b>Robert M. Malina, PhD</b> <i>University of Texas at Austin</i> <b>Andrew M. Watson, MD *</b> <i>University of Wisconsin-Madison</i> <b>Brian Feeley, MD</b> <i>University of California- San Francisco</i> <b>Stephanie A. Kliethermes, PhD</b> <i>University of Wisconsin-Madison</i>	Impact of youth sport specialization on musculoskeletal injury risk and early discontinuation of sport <b>(Writing Group #2)</b> <b>Stephen W. Marshall, PhD §</b> <i>University of North Carolina-Chapel Hill</i> <b>Cynthia R. LaBella, MD §*</b> <i>Northwestern University</i> <b>Mackenzie M. Herzog, MPH §</b> <i>University of North Carolina-Chapel Hill</i> <b>M. Alison Brooks, MD, MPH *</b> <i>University of Wisconsin-Madison</i> <b>Mininder S. Kocher, MD</b> <i>Boston Children's Hospital</i> <b>David R. Bell, PhD, ATC</b> <i>University of Wisconsin-Madison</i> <b>R. Dawn Comstock, PhD</b> <i>University of Colorado-Denver</i>	Organizational guidelines and recommendations for healthy and safe youth sport participation <b>(Writing Group #3)</b> <b>Daniel C. Herman, MD, PhD §*</b> <i>University of Florida</i> <b>Adam S. Tenforde, MD §*</b> <i>Harvard University</i> <b>Joel S. Brenner, MD, MPH *</b> <i>Children's Hospital of the King's Daughters</i> <b>Gregory D. Myer, PhD</b> <i>Cincinnati Children's Hospital</i> <b>John P. DiFiori, MD *</b> <i>Hospital for Special Surgery</i> <b>Vicki R. Nelson, MD*</b> <i>Greenville Health System</i> <b>Alicia M. Montalvo, PhD, ATC</b> <i>Florida International University</i>
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§ co-chair of writing group; \* AMSSM member

Supplementary Table 3 – Search Strategy\*<sup>†</sup>

Search	Search terms
#1	young OR youth OR pediatric OR immature OR high school OR child OR adolescent
#2	#1 AND (athlete OR sports OR athletes)
#3	#2 AND (specialization OR specialisation OR free play OR single-sport OR year-round OR deliberate practice)
#4	<p><b>For writing group #1:</b></p> <p>#3 AND (performance OR talent OR elite OR expert OR expertise OR skill-acquisition OR scholarship OR attrition OR persistence OR longevity)</p> <p><b>For Writing group #2:</b></p> <p>#3 AND (“overuse” OR “injury” OR “severity” OR “pain” OR “chronic” OR “gradual onset” OR “quality of life” OR “physical activity” OR “participation” OR “termination”)</p> <p><b>For Writing Group #3:</b></p> <p>#3 AND (“guidelines” OR “recommendations” OR “consensus” OR “solution” OR “intervention”)</p>

Note: The first 3 levels of search terms were consistent among all writing groups. The fourth level was specific to the targeted writing group.

\*Search strategy is an extension of that originally developed by Kliethermes et al.<sup>6</sup>

<sup>†</sup>Complete search strategies can be found in each of the systematic reviews. Whenever possible, the three writing groups aligned in search strategy. Co-chairs of each writing group met monthly to ensure consistency. For all systematic reviews, the target population included individuals under 21 years of age. Relevant literature must have included an explicit measure of sport specialization, although closely related exposures such as training load were additionally captured. Any comparator was accepted, however it was expected most studies would use an internal comparator (e.g. youth with low degrees of specialization). Outcomes were writing group specific and pertain to the level #4 search terms. Inclusion criteria included published peer-reviewed articles with full text English versions available. Identification of studies was based on the search terms provided, but also resulted from committee member referral of relevant studies, prior literature reviews, and expert committee or position statements.