



Attitudes and Counseling Practices of Pediatricians Regarding Youth Sports Participation and Concussion Risks

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Objective To examine attitudes and practices of pediatricians toward sports-related head trauma and youth participation in tackle football and ice hockey.

Study design A respondent-anonymous electronic survey was distributed 3 times to members of the American Academy of Pediatrics Section of Bioethics, Council on Injury, Violence, and Poison Prevention, and Council on Sports Medicine and Fitness.

Results Of 791 eligible pediatricians, 227 (29%) responded. Most respondents (189/223; 85%) treat sports-related concussions, among whom 83% (137/165) reported access to an established return-to-play protocol within their practice. Virtually all (160/166; 96%) reported increased parental awareness/concern regarding concussions and 85% (139/163) reported increased visits for head trauma. Overall, 77% (140/183) would not allow their son to play tackle football and 35% (64/181) and 34% (63/184) would not allow their son or daughter, respectively, to participate in ice hockey. Most respondents endorsed limiting or eliminating tackling (143/176; 81%) and checking (144/179; 80%) from practice. Respondents were evenly divided in their support for counseling against youth participation in full-contact sports, with 48% in favor (87/180).

Conclusions Most respondents would not allow their own child to play tackle football and endorsed limiting or eliminating tackling in practice. The American Academy of Pediatrics should consider recommending restrictions on tackling in football to support the current concussion concerns of its members. (*J Pediatr* 2017;184:19-25).

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Approximately 44 million children (aged 5-18 years) participate in organized sports in the US, and this number is growing.^{1,2} Because of the number of youth sports participants, a large proportion of all sports-related concussions occur in children. Concussions, which account for almost 9% of all high school athletic injuries,^{3,4} occur mainly in tackle football (hereafter referred to as football) and ice hockey.⁵ There is a lack of reliable research, however, regarding the long-term effects of concussions in youth athletes and the appropriate duration of rest needed before safe return to play/return to learn.^{6,7}

Primary care pediatricians care for a significant proportion of children with concussions. In one pediatric network, 82% of concussed children and adolescents had their first visit with a pediatric primary care provider.⁸ Nevertheless, pediatricians believe that the current level of training and lack of formal guidelines are insufficient to treat adequately this “silent epidemic.”^{9,10} Given pediatricians’ front-line role in the treatment of children’s concussions, our primary goal was to determine their attitudes and clinical recommendations about participation in contact sports, with a focus on football and ice hockey. We examined further how these attitudes and recommendations may differ depending on the physician’s membership in the American Academy of Pediatrics (AAP) Section on Bioethics (SOB), Council on Injury, Violence, and Poison Prevention (COIVPP), or Council of Sports Medicine and Fitness (COSMF), as well as other demographic characteristics. These 3 sections were selected with the expectation that they would express a diverse range of concerns and attitudes regarding full-contact sports participation.

Methods

A respondent-anonymous survey was distributed 3 times to members of the 3 AAP sections (SOB, COIVPP, and COSMF) who are subscribed to electronic mailing

AAP	American Academy of Pediatrics
COIVPP	Council on Injury, Violence, and Poison Prevention
COSMF	Council on Sports Medicine and Fitness
SOB	Section on Bioethics

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lists (listservs) in June and July 2016. The e-mail provided a short description of the project and a hyperlink to the survey sent by the AAP section/council administrators. The exact number of e-mail recipients is unknown because membership in AAP sections change monthly, not all members have e-mail addresses, some opt out of the listserv, and others receive listserv e-mails to more than one address. On June 1, 2016, the AAP online directory listed 358 members of COSMF, 233 members of SOB, and 204 members of COIVPP. Of these 795 members, 2 members of the SOB and 1 member from COSMF and COIVPP were excluded because of involvement in the study, leaving 791 potential respondents. Data were collected with the electronic software Research Electronic Data Capture.¹¹ The survey included multiple-choice and Likert-scale questions focused on 3 areas: (1) experience/practices; (2) attitudes; and (3) knowledge concerning concussion management and youth sports participation. Demographic data and self-described competency rating regarding concussions also were collected. The survey was determined to be exempt by the University of Chicago institutional review board with consent implied by participation.

Statistical Analyses

Statistical analyses were performed with SPSS (version 24.0; IBM Corp, Armonk, New York). Standard descriptive summaries (frequencies for categorical variables) were obtained, and comparisons of categorical variables were examined with χ^2 tests. Comparisons between categorical and continuous variables were examined with one-way ANOVAs. To examine further associations regarding attitudes toward counseling, a binomial logistic regression with backwards elimination was performed including all independent variables with P value $\leq .10$. Respondents who finished residency after 2010 were asked to estimate how many hours were spent in didactic sessions learning about head trauma/concussions. Participants' responses to 9 knowledge questions were tallied to calculate a concussion knowledge score. Incomplete responses on the knowledge section were excluded.

Collapsed Variables

For certain Likert scale variables, the responses were collapsed into 2 categories for further statistical analysis. In 2 questions ("Are you seeing increased frequency of visits with regard to head trauma?" and "Have you noticed increased parental concern or awareness towards head trauma?"), responses of "a minimal amount," "a moderate amount," and "a lot" were combined into "increased" and contrasted with "no increase."

Questions comparing physician self-description of competency were collapsed into 2 variables; "some competence" included responses of "not at all competent," "minimally competent," and "mostly competent" vs "fully competent." Age of tackling and checking offered age groups of "younger than 9 years," "9-10 years," "11-12 years," "13-14 years," "15-18 years," "college," and "never," which were collapsed into 3 groups: "14 and younger," "15 and older," and "never." Questions about checking policies in games offered 3 options and were collapsed into 2 groups: "checking should be permitted" if they

responded that "checking should be permitted starting at the age of 14 years" or "checking should always be allowed" vs "checking should NEVER be allowed in youth ice hockey." Questions about tackling and checking in practice were combined into 2 groups: "Should always be permitted to ensure proper technique" and "should be permitted at most practices at the coach's discretion" were combined into "permissive," and "checking should be limited" and "checking should be eliminated" were combined into "restrictive." All questions offering "strongly agree" and "moderately agree" and "strongly disagree" and "moderately disagree" were collapsed into "agree" and "disagree," respectively. Years in practice was divided into 2 groups: "under 15" included those "still in training," "0-<5," "5-<10," and "10-<15 years" in practice, and "over 15" included those who self-described as "15-<20," "20-<25," and "25 years or more" in practice. Responses to "How often do you care for a patient with a concussion or head trauma?" were grouped into "minimal" (never, rarely [defined as less than 1 \times per month], and occasionally [defined as at least 1 \times per month]) vs "frequently" [defined as several times per month]). "How do you rate your knowledge about concussions?" combined "minimal" and "moderate" and combined "significant" and "expert" for comparison. Finally, questions about sports participation grouped all sports into "contact sports" vs "other sports," as defined by the AAP.¹² Contact sports on our survey included basketball, boxing, field hockey, football, ice hockey, lacrosse, martial arts, rugby, soccer, and water polo.

Results

There were 227 complete or partial responses from 791 eligible providers (29% response rate). Twenty-nine answered less than 50% of the questions and were excluded from further analysis. Of the remaining 198 respondents, 35 affiliated with the SOB, 44 were with the COIVPP, 91 with the COSMF, and 28 did not provide their section membership affiliation.

Demographics of the respondents are shown in [Table I](#). No significant difference was found in sex, ethnicity, type of residency, number of children, or years in practice between sections. A greater proportion of COSMF respondents (74/91, 81%) were team physicians compared with either COIVPP respondents (7/44, 16%) or SOB respondents (1/35, 3%), $P < .0001$. COSMF respondents also were more likely to be youth sports coaches (COSMF 42/90, 47%; COIVPP 10/44, 23%; and SOB 11/35, 31%, $P = .02$), avid spectators (COSMF 63/91, 69%; COIVPP 26/42, 62%; and SOB 13/35, 37%, $P = .004$), and have participated in at least one sport (COSMF 85/91, 93%; COIVPP 36/42, 82%; and SOB 26/35, 74%, $P = .011$). COSMF respondents also were more likely to rate their own concussion knowledge as "expert" (COSMF 43/85, 51%; COIVPP 10/41, 24%; SOB 1/31, 3%, $P < .0001$).

Overall, 85% (165/195) of participants reported treating patients who experienced concussions, with variation between AAP sections (51% of SOB members, 86% of COIVPP members, and 96% of COSMF members; $P < .0001$). More than one-half (58%) reported seeing patients with these complaints at least several times a month. Of the respondents who

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