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### A Comparison of US and Scotland Youth Soccer Coaches' Legal Consciousness Regarding Concussion Safety Regulations

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Complete List of Authors:	DeMartini, Anne; Flagler College, Kim, Sungwon; St. John's University , Sport Management Connaughton, Daniel; University of Florida , Tourism, Recreation & Sport Management McArdle, David; University of Stirling
Keywords:	concussion, legal consciousness, girls' soccer, head injury, association football, risk management, law
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A Comparison of US and Scotland Youth Soccer Coaches' Legal Consciousness Regarding Concussion Safety Regulations

Anne L. DeMartini, J.D., M.Ed

Associate Professor

Sport Management Program

Flagler College

74 King St

St Augustine, FL 32080

[ademartini@flagler.edu](mailto:ademartini@flagler.edu)

904 599 5220

<https://orcid.org/0000-0001-5921-0641>

Sungwon Kim, Ph.D.

Assistant Professor

Division of Sport Management

The Collins College of Professional Studies

St. John's University

8000 Utopia Pkwy

Jamaica, NY 11439

[kims1@stjohns.edu](mailto:kims1@stjohns.edu)

<https://orcid.org/0000-0003-2136-7613>

Daniel P. Connaughton, EdD

Professor, Department of Sport Management

College of Health & Human Performance

University of Florida

1864 Stadium Rd, Gainesville, FL 32603

[danc@hhp.ufl.edu](mailto:danc@hhp.ufl.edu)

<https://orcid.org/0000-0001-7421-3138>

Dr David McArdle

Head of Law and Law REF Co-ordinator

Stirling University

Stirling FK9 4LA, United Kingdom

[d.a.mcardle@stir.ac.uk](mailto:d.a.mcardle@stir.ac.uk)

0786 397 2284

<https://orcid.org/0000-0002-4813-6420>

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**Title:** A Comparison of US and Scotland Youth Soccer Coaches' Legal Consciousness Regarding Concussion Safety Regulations

**Short title:** International comparison of legal consciousness of girls' soccer coaches

**Abstract:**

Due to the severe health consequences of sport related concussion (SRC), governments and sport governing bodies around the world have enacted numerous measures including changes to legislation and rules of the game, and increased emphasis on coach education. This study compared the legal consciousness of girls' youth soccer coaches regarding concussion management under a statutory legal regime in the U.S. and a non-statutory regime in Scotland. The present study collected qualitative data through ten interviews of girls' youth soccer coaches in Scotland and another ten interviews of girls' high school soccer coaches in the U.S. Utilizing the socio-legal theory of legal consciousness, the findings support the idea that people make connections from their past experiences to shape their understanding of the law. We observed variance between U.S. and Scottish coaches' legal consciousness. Overall, all coaches exhibited a version of conformity to and engagement with SRC management guidance and little resistance. Florida coaches displayed more conformity, likely due to the SRC educated mandated by law. Scottish coaches who had coached in the U.S. previously demonstrated the strongest resistance. The findings suggest a need for continued improvement in the implementation of SRC laws and guidelines including updated training and better dissemination of educational materials.

**Keywords:** concussion, legal consciousness, girls' soccer, head injury, risk management, policy, football

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For Peer Review

## A Comparison of US and Scotland Youth Soccer Coaches' Legal Consciousness Regarding Concussion Safety Regulations

### Introduction

The 5th International Conference on Concussion in Sport defined sport-related concussion (SRC) as “a traumatic brain injury induced by biochemical forces” that “typically results in the rapid onset of short-lived impairment of neurological function that resolves spontaneously.”(1, 2) Potential long-term effects of SRC on developing brains include decreased physical, cognitive, emotional, and sleep health.(3) Untreated or improperly managed SRC can increase the risk of additional concussions, resulting in enhanced potential for severe health consequences.(3)

Approximately 300,000 adolescents sustain a concussion annually while participating in organized athletics in the United States (U.S.) alone.(4) Countries other than the U.S. have not routinely collected epidemiological data, making it difficult to estimate the true incidence of concussions. Several studies reported girls experienced significantly higher concussion rates compared to boys.(4-6) However, other studies have demonstrated little to no sex-related differences when it comes to the rate of concussions.(7-9)

SRC is increasingly recognized as a public health issue (1, 10, 11), resulting in increased media attention, educational efforts, and research.(4, 12) Despite such increased coverage, many SRCs still go unreported because of lack of awareness among coaches, parents, match officials, sports trainers, and athletes themselves.(1)

Due to the severe consequences of SRC, governments and sport governing bodies around the world have enacted numerous measures including changes to legislation,(13, 14) changes to rules of the game, and increased emphasis on coach education.(1) The U.S. enacted a statutory regime, with all U.S. states passing laws regarding SRC. In Scotland, the national agency for sport (SportScotland), devised and disseminated guidance for properly managing concussions across all sports.

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Though U.S. laws and Scotland's guidance have seemingly led to some advances in SRC awareness and management, there is much room for improvement.(1, 13, 15) Generally, the implementation of the U.S. laws has led to key stakeholders (e.g., coaches, parents, athletes, sport administrators, game officials/referees) and the public widely accepting the concussion laws and creation of concussion protocols in high schools, which may be associated with increased reporting of concussions.(13) However, parents and athletes resist following concussion protocols when they perceive that compliance is at odds especially with athletic goals, or when necessary monetary or staffing resources are not available.(13) Many sport stakeholders are not yet adequately informed by the law and require more education.(13) As such, uniformity "on the books" of U.S. concussion laws obscures a tremendous amount of variation of the laws "in practice."(11)

Effective implementation of concussion laws requires multiple stakeholders using various existing resources.(16) Studies involving nationwide samples suggest that concussion laws are having an impact, but more research is needed to fully understand the true effects of their implementation.(13) Research should focus on theory-driven approaches to educational interventions and program development that encompass multifaceted approaches, including those concerned with policy, community, and sport stakeholders.(17) Additionally, researchers should evaluate policies currently in practice to determine which statutory provisions have the desired impact focusing not only on the letter of the law, but on how individual jurisdictions operationalize the law.(11, 13) This study used a theoretical lens to investigate girls' youth soccer coaches' role in implementing concussion laws and regulations.

Coaches play a very important role in recognizing, managing, and encouraging the reporting of concussions. As such, they have a professional and ethical duty to be knowledgeable about concussion safety, as well as to communicate such to their athletes.(1) A coach's concussion-related education and expertise, along with contextual considerations, such as the importance of the match or the role of the player involved, influence coaching decisions on SRC management.(1) However, a paucity of research examines knowledge translation of

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3 SRC to safe practices in the athletic context under different regulatory schemes. The purpose of the present  
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6 study helps address this gap by examining factors affecting coaches' SRC management from a new theoretical  
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8 perspective.(1)

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10 Legal consciousness is concerned with the contextual considerations in which organizations, social networks,  
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12 working relationships, and informal interactions influence the behavior of individuals. As such, legal  
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14 consciousness frameworks may inform coaches' understanding and responses to concussion and how these  
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16 might be consistent with, or different to, those that 'the law' envisages. On a theoretical level, this study  
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18 illustrates the implications of the social processes that collectively reconstruct meanings and identities(18)  
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20 while, on a practical level, explores how coaches' experiences and attitudes can shape their responses to an  
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22 athlete who has sustained an injury. Specifically, this study's fundamental question was: "what is the legal  
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24 consciousness of girls' youth soccer coaches regarding concussion management under a statutory legal regime  
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26 in the U.S. as compared to a non-statutory regime in Scotland?"

### 27 28 29 30 *United States concussion laws*

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32 Washington state passed the first U.S. concussion law, known as the Lystedt law, in July 2009. It  
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34 contained three essential components: mandatory education of athletes and parents, removal from play at the  
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36 time of suspected head injury, and return to play only with written permission of a licensed, concussion-trained  
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38 healthcare provider after a minimum of 24 hours. By 2014, all 50 states and the District of Columbia had  
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40 similar legislation.(14, 15) However, while the vast majority of states statutes are based on the framework  
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42 derived from the Lystedt Law, no standardization exists among states.(14)

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44 Statutes vary in youth sport program applicability, the definition of youth sport programs, type of sport  
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46 activities covered, designated party for removal of athletes, and medical clearance required for athletes to return  
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48 to play.(14) Most concussion laws address education and training requirements for key youth sport  
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50 stakeholders, (14) but only five states explicitly require evaluation of the efficacy of coach education or  
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3 information requirements.(19) Some concussion statutes provide legal protection for certain parties from civil  
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5 liability (i.e., ordinary negligence) arising from concussion-related injuries or death provided they acted in good  
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7 faith and according to the statutory requirements.(14) Statutes vary in their language, but generally do not create  
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9 new causes of legal action.(13)

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12 Following this first wave of concussion legislation, states began to revisit the issue.(13) Since initial  
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14 passage, 22 states have amended their laws to: (1) expand coverage of the law (e.g., to include younger grades  
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16 or recreational sports leagues), (2) tighten or clarify existing requirements, or (3) improve efforts to prevent  
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18 concussions and improve early detection.”(10, 13) Even with these amendments, scholars have pointed out a  
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20 variety of flaws in the statutes and suggested the laws could improve the scope of coverage, reporting and  
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22 enforcement mechanisms, provide resources for implementation, place greater emphasis on prevention, and  
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24 evaluation, and better define concussion. (13, 20) Commentators also observe that these statutes often leave few  
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26 options for legal redress.(13, 20)

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29 Critics of the U.S. concussion laws recognize uncertainty regarding the law’s implementation and  
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31 evaluation.(13, 16) Without litigation as a vehicle for accountability, and given the vast majority of statutes do  
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33 not mandate concussion reporting, anecdotal evidence that the laws are promoting more effective concussion  
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35 management policies is challenging to validate.(13) Despite such uncertainty, following the enactment of this  
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37 legislation, studies demonstrated an increase in key stakeholders’ awareness and knowledge regarding SRC, the  
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39 rate of reporting, and in concussion-related healthcare utilization among children.(3, 4, 12, 15)

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42 Rivara et al. found the majority of high school athletes continued to practice or play while symptomatic,  
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44 and 40% reported that their coaches were not aware of their concussive symptoms. Coach awareness of  
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46 athletes’ concussions did not vary significantly by the different modalities for concussion education received by  
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48 coaches or the coach’s knowledge of the state’s concussion law.(19)

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4 According to a recent systematic review, the level of knowledge regarding identification, initial management,  
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6 and return to play in SRC was moderate among the majority of coaches and match officials. However, essential  
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8 gaps in knowledge were still present.(1) Though concussion knowledge is consistently higher amongst those  
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10 who received education on SRC, dissemination of concussion education among coaches and officials appear to  
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12 be inadequate despite increasing efforts to increase awareness.(1) These results indicate that current education  
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14 efforts mandated by U.S. law may not be enough to help athletes and coaches safely manage SRC.(1, 15)

### 15 16 17 *Scotland's concussion guidance*

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19 In an attempt to better guide officials, parents, teachers, and athletes to properly identify and manage  
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21 concussions, in 2015, medical professionals, the Scottish Government, and SportScotland collaborated to create  
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23 a single concussion regulation for all sports within the country.(21) In March 2018, Scotland released updates  
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25 on the guidelines, following an international conference on sport-related concussion in Berlin the previous  
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27 year.(21) The updated guidelines provide a consistent, accurate, and evidence-based approach regarding  
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29 concussion management for all Scottish sports.(21) The primary aim of the 2018 version was to deliver a  
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31 consistent message regarding proper recommendations on concussion safety.(21)

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35 The Scottish Football (Soccer) Association (F.A.) tweeted out a link to the new guidelines; however, it  
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37 garnered only 29 “likes,” 22 retweets, and two comments, suggesting a lack of public engagement.(22)  
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39 SportScotland hosts the concussion guidance on its website to which the Scottish F.A. links.(21, 23) However,  
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41 Scottish Women's Soccer, which manages most women's soccer tournaments in Scotland, does not reference  
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43 the guidelines on their website nor in their documents and downloads.(24)

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47 The United Kingdom's Football (Soccer) Association (F.A.) and the Professional Footballers'  
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49 Association (PFA) funded the FIELD study in 2019 that investigated the incidence of degenerative  
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51 neurocognitive disease in ex-professional soccer players.(25) Following the publication of the FIELD study, the  
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53 F.A. established an independently-chaired research task force to guide the governing body on possible changes  
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4 to heading guidance, concussion management protocols, and related research initiatives.(26) The taskforce  
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6 collaborated with UEFA's medical committee to update heading guidance for the F.A., the Irish F.A., and the  
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8 Scottish F.A. to mitigate potential risks from heading.(26) The updated heading guidance, introduced in  
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10 February 2020, provides grassroots clubs, coaches, and players with recommended heading guidance for  
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12 training sessions.(26) The guidance purports to help coaches and teachers reduce repetitive and unnecessary  
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14 heading in youth soccer.(26) The updated heading guidance includes: advice on training for all age groups  
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16 between under-six and under-18, no heading in practice for primary school children, a graduated approach to  
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18 heading-related training for children in the development phase between under-12 to under-16, and regulations  
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20 on ball sizes for training and matches for each age group.(26)  
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## 23 24 25 **Theoretical framework**

### 26 27 *Legal consciousness*

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30 Legal consciousness, a form of socio-legal scholarship, examines the role of law in every-day life and  
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32 seeks to highlight the relationships and the contradictions between 'law in the books' (i.e., legislation, court  
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34 decisions, governing body regulations) and 'law in action' (i.e., individuals' daily practices influenced by those  
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36 sources).(27, 28) Theoretically, legal consciousness explains how law sustains its institutional power across vast  
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38 periods, space, and variable performance.(29) Often defined as an "outcome of social processes through which  
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40 meanings and identities are collectively reconstructed,"(18) legal consciousness draws on sociological and  
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42 anthropological traditions, encompassing a person's attitudes toward, willingness to mobilize, suppositions  
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44 about, and experiences of the law.(28) Legal consciousness' broad intellectual movement paralleled the  
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46 "cultural turn" that swept across the humanities and social sciences. It posits that law, like religion or politics,  
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48 can be seen as a cultural practice, a collective process of creating, stabilizing, organizing, and reproducing  
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50 meanings that both enable and constrain the way people conduct themselves.(30, 31)  
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4 Legal consciousness traces how law is experienced and interpreted by specific individuals as they  
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7 engage, avoid, or resist the law and its meanings.(29) It is the “commonsense understanding” of how the law  
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9 works.(32) People make connections from their past experiences with the law and legal actors – good or bad –  
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11 which arise in part from the social positions they occupy – and these experiences shape their understanding of  
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13 the law.(32) Furthermore, legal consciousness refers to what people do as well as say about the law.(29) It is a  
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15 reciprocal process in which the meanings given by individuals to their world become patterned, stabilized, and  
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17 objectified, which is a type of social practice that reflect and form social structures.(29) People generally do not  
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19 contest legal authority because a good part of legality invisibly suffuses every-day life, rendering law a durable  
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21 and influential invention.(29) People are habituated to routinized forms of legal authority throughout ordinary  
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23 life, such as traffic lanes, parking rules, ticket stubs, and sales receipts.(29)

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26 The three orientations to the law include conformity before the law, engagement with the law, and  
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28 resistance against the law. Conformity before the law connotes discussions of law as a sphere separate from  
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30 society, “objective, distinct, formally ordered and rational...compounded by a reification of law’s ability to  
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32 ‘know’ what the correct solution should be” which may reflect a sense of individual powerlessness.  
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34 Engagement with the law characterizes law as a game, where the skilled and resourceful can make strategic  
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36 gains and which is “invoked by the perception that law can be changed whether through judicial, societal or  
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38 political means.” Resistance against the law reflects a belief that the law is to be avoided rather than bowing to  
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40 its power or playing its game, perhaps exemplified by “pilfering, violence or the threat of violence, tricks,  
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42 institutional disruptions, foot-dragging, humor, storytelling, and gossip.” It implies resistance to law’s power,  
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44 terrain, and its scope, with tactics and strategies being central to the practices of resistance and revealed in what  
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46 people do as much as in what they say.(27)

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49 The radically different approaches to SRC in Scotland and the United States provide an opportunity to  
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51 reflect on the place of ‘the law’ within legal consciousness. Instruments of governance or persuasion which are  
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not immediately rooted in legislation, like regulations or caselaw, are still an element of one's legal consciousness. The sources and their origins differ, but their influence is no less significant.

The statutory regime in the U.S. or voluntary adherence to guidelines in Scotland informed interviewees' understanding of how change in SRC management has been achieved or resisted, or how their own practices have been altered or entrenched. Silbey noted that legal consciousness should be a tool for examining the mutually constitutive relationship between the pragmatic policy recommendations of 'law in action' and the academic examination of the 'law in books.'<sup>(30)</sup> Empirical research is needed to appreciate the gap between official legal rules and the conduct of legal actors.<sup>(31)</sup> Utilizing legal consciousness to compare the two countries' approaches to SRC management allows us to contribute to such exploration.

## Method

### *Participants*

The researchers assembled a convenience sample of ten soccer coaches in central Scotland and ten coaches in northeast Florida, U.S. We recruited coaches from girls' high school teams in Florida, all of which were paid positions. The U.S. sample included four female coaches. All but two of the U.S. coaches were parents and their average age was 49.6 years old.

The Scottish coaches led youth club teams of girl's ages 13-18 years old and were primarily white, male, and volunteer. We were not able to recruit high school coaches in Scotland since girls' high school soccer teams do not exist in Scotland. Only two of the Scottish coaches were female. Both of those coaches were paid, as well as one of the male coaches. The Scottish coaches averaged 37.8 years old and four of them were parents.

### *Data collection and procedures*

We developed semi-structured interview questions after a comprehensive review of the literature. A panel of six experts including youth sport coaches, concussion safety specialists, and qualitative researchers

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3 reviewed the items for comprehensiveness, clarity, and formatting. Researchers made minor modifications to  
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6 the questions after the expert panel review. The Institutional Review Board approved the present study before  
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8 the study commenced.  
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10 The primary researcher conducted the semi-structured interviews in central Scotland from May through  
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12 July 2018, and in Florida from January to October 2019. Participation in the interview was voluntary and  
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14 without incentives. The interviews lasted on average 45-90 minutes and were based on eleven questions  
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16 regarding concussion management. These questions asked coaches about (1) athlete safety and SRC in general,  
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18 and their (2) opinions on importance and prevalence of SRC in girls' youth soccer, (3) experiences with athletes  
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20 who may have had SRC, (4) management of SRC, and (5) thoughts on concussion laws/guidance. To ensure  
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22 accuracy, the interview transcripts were sent back to the Scottish coaches for their review.  
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26 Transcripts of all 20 interviews were distributed to the researchers. Two researchers then coded the  
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28 interview transcripts utilizing cycles of descriptive and structural coding. To ensure inter-coder reliability, each  
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30 researcher coded the transcripts separately, and the primary researcher resolved any divergence through  
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32 adjudication. Descriptive coding assigns basic labels to data to provide an inventory of topics.(33) Structural  
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34 coding applies a conceptual phrase representing a topic of inquiry to a segment of data that relates to specific  
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36 research questions used to frame the interview.(33)  
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40 Finally, the researchers used the legal consciousness theory of “three orientations to the law” as the  
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42 guiding topics of inquiry: conformity before the law, engagement with the law, and resistance against the  
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44 law.(27) Additionally, the researchers identified consistent subthemes in interviews by calculating code  
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46 frequency based on comments aligned with each orientation and subtheme. Researchers then paired guiding  
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48 orientations with direct quotations from the transcripts.  
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## Results

The findings suggest coaches' legal consciousness included a version of conformity and engagement, but little resistance, and observed variance between U.S. and Scottish coaches. However, their thoughts did not fit precisely into the three traditional legal consciousness orientations in which the categories were not mutually exclusive. We also identified subthemes regarding (1) willingness to participate in SRC training, (2) uncertainty – around the regulations, recognizing SRC, and how to respond to SRC, (3) a desire for/reliance on assistance in management of SRC from other stakeholders – including match officials, parents, and medical professionals, and (4) gender differences.

On average, female coaches indicated higher levels of consciousness regarding SRC management guidelines than male coaches. The paid coaches also had more knowledge and awareness than volunteer coaches. All of the U.S. coaches (all coached in high school) were paid, while the majority of the Scottish coaches were volunteers. Coaches who had played soccer themselves generally had more consciousness regarding SRC management guidelines. All but one of U.S. coaches had personally sustained a concussion, while only one of the Scottish coaches had a prior concussion. One Scottish coach noted, "Once you have experienced it personally, having experienced it...it's definitely changed the way I deal with it, just putting player safety the number one thing." In addition, a U.S. coach stated, "actually both of my daughters had concussions...So, I'm a little more sensitive to that." Another U.S. coach emphasized, "I think if you've had a concussion...it makes a difference. You realize it's not something to play around with."

Scottish and Florida coaches who had the most recent first aid training (some of which are required) indicated more consciousness regarding SRC management guidelines. Likewise, coaches with more administrative responsibilities for their organization had more knowledge regarding SRC management guidelines presumably due to more frequent communication with their governing bodies. Likewise, coaches in organizations with more resources had higher levels of consciousness. Organizations with more resources were

able to provide additional related-training as well as increased access to physios/athletic trainers. Additionally, those organizations observed closer relationships with specialized medical professionals.

The most potent examples of Scottish coaches' resistance was from coaches who had previously coached in the U.S. These coaches objected to the best practices of SRC management in the U.S., not their own country's guidelines. In response to the U.S. club soccer rule that limits a practice session to only 5 minutes of heading training, a Scottish coach said, "It's almost as if they don't want any responsibility and [to be able to say] 'that is not my fault'." "I think it is taken too seriously over there, and [they should] chill a little bit." Several Scottish coaches noted the more litigious culture in the U.S. "I guess over in America they are crazy about suing each other and lawsuits for breaking a toenail and just everything." A U.S. coach supported that, saying, "Guess everybody's terrified by litigation." When asked about Scotland enacting SRC laws similar to the U.S., a coach replied, "People would think 'what is going on?' That is ridiculous." Another noted, "the Britain view in particular is very anti-law...it would be certainly negative...it would probably be a sledgehammer."

Table 1. Interview code frequency.

Orientation/subtheme	Scotland coaches ( <i>n</i> = 182) <i>n</i> (%)	Florida (U.S.) coaches ( <i>n</i> = 185) <i>n</i> (%)
Conform	32 (17.6%)	51 (27.6%)
Engage	25 (13.7%)	17 (9.2%)
Resist	16 (8.8%)	8 (4.3%)
Uncertainty		
Guidelines	6 (3.3%)	0 (0%)
Recognizing SRC	17 (9.3%)	12 (6.5%)
Addressing SRC	9 (4.9%)	4 (2.2%)
Training		
Online	7 (3.8%)	21 (11.4%)
In-person	9 (4.9%)	7 (3.8%)
Assistance		
Parents	12 (6.6%)	8 (4.3%)
Match officials	6 (3.3%)	7 (3.8%)
Medical professionals	23 (12.6%)	40 (21.6%)
Gender difference	20 (11%)	10 (5.4%)



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371 Table 2. Interview quotes.

Orientation/ subtheme	Scotland coaches	Florida (U.S.) coaches
Conform	<p>“A law or guidelines, for me it doesn’t make a big difference because essentially we follow both of them. I would be happy either way, as long as it’s something clear for everyone.”</p> <p>“At the end of the day, if it is mandatory, you will do it.”</p> <p>“The health care provider. So, whatever they said...whatever they suggested...that would be the deciding factor.”</p> <p>“Before I would say play on, but now we oversee the kids...I must take responsibility of them.”</p> <p>“A girl...banged her head and... didn’t feel well...she was taken off...and didn’t go back on. So we did deal with that correctly.”</p> <p>“If you have been removed, they are conscious of the time to play protocols.”</p> <p>“I think an online course would be fine.”</p> <p>“what [would] cement the guidance...is to see some practical examples.”</p> <p>“Remove them from the game, no question about that.”</p> <p>“Sit out is the basic move from the government push.”</p>	<p>“There’s a standard protocol they follow.”</p> <p>“More general, when in doubt, sit them out. That’s kind of like the motto.”</p> <p>“It’s good...it does emphasize the very seriousness of it.”</p> <p>“Obviously here...with litigation...everybody’s going to err on the side of caution.”</p> <p>“Even though it sometimes...seems excessive and repetitive...I think it’s still a good thing that we have to do every year, be aware of what’s happening and watching out for these injuries...It’s definitely been a positive.”</p> <p>“It’s better safe than sorry. Especially, just liability wise, not only caring about the child. You can get in a lot of trouble if something is wrong and you don’t pull the child.”</p> <p>“If I was in any way uncertain...you sit out...you would never send somebody back into play who has the potential of a concussion.”</p> <p>“Everybody knows the expression ‘when in doubt, sit them out.’ So...I’ve never taken any chances with that.”</p> <p>“I’m more than happy to sacrifice a victory and pull a player that needs to be pulled. A few years ago I probably be ‘oh, they look fine’. But now I’m more likely to...make that substitution.”</p>
Engage	<p>“If you attach a brand to it, people will go...the Rangers put their name on it and...suddenly they are getting 200 Rangers fans coming.”</p> <p>“Simplifying the information...increasing confidence in it”</p> <p>“Maybe referees have more training.”</p> <p>“It’s a topic that needs its own part of the [Scottish Women’s Soccer] website.”</p> <p>“The biggest problem...is that the majority of research...is around males.”</p>	<p>“I’m looking forward to changes in the game...also advancements in the head protection gear.”</p> <p>“Those players that have experienced a head injury speaking to other players or...coaches.”</p> <p>“They could require everybody to wear some kind of helmet.”</p> <p>“If there’s info on how to prevent concussions then I would love to know.”</p> <p>“Parent education could be massively improved.”</p>

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3 “There are no resources in Scotland to be able to properly track it [SRC  
4 incidence]...there is no login system, so how would you know how  
5 prevalent it is?” “I wish they would expand it [SRC online training] and make it a little more  
6 “Soccer should look to other sports.” challenging.”  
7 “I think parent education workshops would be really important.”  
8 “Educate the players themselves.”

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14 375 Table 2. Interview quotes. (continued)

Orientation/ subtheme	Scotland coaches	Florida (U.S.) coaches
Resist	<p>18 “On April Fool’s Day it comes out...in Scotland...heading is 19 banned...and we’re like “it is April Fools Day.” 20 “I don’t think some coaches would do [extra SRC training], [when in 21 the U.S.] I opened up all the pages at the same time because that was the 22 easiest way...I think it is one step too far for people here.” 23 “They don’t have any way to enforce that [return to play protocol]. It is 24 guidelines. It is not the law.” 25 “I think there is not enough evidence to be able to be a deterrent.” 26 “The guidance us the very safest side now since we have had so many 27 years of essentially no guidance...now the pendulum is swinging all the 28 way the other directions”</p>	<p>18 “I’ve probably done the Florida concussion course 10 times, where I’m like, 19 ‘Ugh, it’s redundant.” 20 “There is always a degree of resentment to any form of training I find...Is it 21 welcomed? Probably no.” 22 “You get desensitized to it...I watch a bunch of videos...and...there’s always 23 the denial that ‘it’s not going to be my kid.”” 24 “One of the reasons I quit high school coaching was because of more and more 25 requirements.” 26 “The downside is that we’re not allowed to do heading practice...a lot of 27 coaches are frustrated because they can’t teach them how to head.”</p>
Uncertainty	<p>31 “In terms of specific instructions and the enforcing of that...there is no 32 clear law.” 33 “You really don’t know what to do with the player.” 34 “If you don’t know what the longer-term impact of heading a ball is, 35 then it is difficult to change.” 36 “I think it is just a grey area.” 37 “Research is advancing into concussion and so that information are out 38 of date.” 39 “Concussion is a hard topic because kids can sometimes look okay even 40 if you checked them.” 41 “Should you take the player off then? I don’t know.” 42 “Why is it six weeks and not 4? What is the difference... 43 physiologically?” 44 “You’re fine or you’re not because the guidance says you are not?”</p>	<p>31 “Even with all that [SRC symptoms] the CT scan was negative...it’s...quite 32 astonishing.” 33 “It’s just a lack of understanding. It’s too complex.” 34 “Medicine’s certainly not an exact science, so I would never be confident in 35 being able to diagnose a concussion or clearing somebody of a concussion.” 36 “It’s so subjective, that we don’t have a test...that’s a challenge, ‘cause how do 37 you know?”</p>

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Table 2. Interview quotes. (continued)

Orientation/ subtheme	Scotland coaches	Florida (U.S.) coaches
Training	<p>“I would not have a problem at all. If it is medical related ad efforts to encourage the safety of your players I would have no issue about that.”</p> <p>“They’ll go but if there is an incentive, free coaching courses and free entrance to tournaments, if there is a chance for a coach to get a free badge then they are going to go and listen to that information.”</p> <p>“It is hard to see how it [online training] would piss anyone off because it is not much.”</p> <p>“I think an online course would be fine.”</p>	<p>“I think the training’s good...because it does emphasize the seriousness of it.”</p> <p>“I do worry a little bit about that [online SRC training] becoming more of like a ‘yeah, yeah, yeah, check, check, check,’ whereas face to face may be a little more effective.”</p> <p>“Like any training, in particularly having done it one year...it’s a refresher, so it’s not that arduous.”</p> <p>“You have to go through that training, and the training was informative...I think they take it seriously.”</p> <p>“Even though you get a little desensitized to them because I see them so often, there’s still new information in them...I think it’s good.”</p> <p>“It’s a little repetitive, but I think they’re stressing an important...trying to make it raise your awareness, elevate your knowledge.”</p> <p>“It’s very repetitive. It’s the same course every year. So I wish they would expand it and make it a little more challenging, a little more informative.”</p>
Assistance	<p>“There is help from the physios and the doctors regarding the health of the players and while coaches are not given too much information on what to do in certain situations but obviously trusted qualified people [deal with] that.”</p> <p>“I think...a physio or first aid trained person has to be the one to deal with a head injury...the referee has to have the responsibility to say you can’t come back on the pitch.”</p> <p>“The referee is the neutral one on the pitch, then they can say that a player needs to come off the pitch and if they make the decision then you need to train the referees.”</p> <p>“You would absolutely hope that the referee is fully up to speed.”</p> <p>“We’re relying on the parents.”</p>	<p>“I just turned everything over to the trainer.”</p> <p>“It got taken out of your hands and that’s really the best.”</p> <p>“I send her off to the athletic trainer, because of course he’s more qualified than I am.”</p> <p>“I would always defer to the trainer.”</p> <p>“The trainer is the first line of defense.”</p> <p>“No one’s going out on the field until I’ve heard it from three or four people that they’re allowed out.”</p> <p>“The high schools all have athletic trainers at the fields. So if there’s any doubt, it’s no longer my decision. I call a trainer, ‘Hey, can you evaluate my player for me?’”</p>

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3 “Send them to the hospital, to a professional...If you’re not sure, send to  
4 the hospital.”  
5 “The hospital, the health care provider...whatever they said...whatever  
6 they suggested...that would be the defining factor.”  
7 “We don’t have the resource or finance to be able to put medical  
8 professionals on-site at the youth games.”  
9 “Now at the senior end of the game, I’m fortunate I can rely on a  
10 doctor.”

“I think the referee is required to remove a player from the game if he thinks  
there was a head to head or some kind of head contact.”  
“We have administrators, trainers, athletic director, even the principal at almost  
every home match...we’ve always got plenty of help.”  
“And since our school is part of [university]...”Go see out concussion specialist  
at [university].”  
“If someone did not have an athletic trainer on-site, that would be a different  
ballgame.”  
“I call the parents and I check on them and I ask them to please review this fact  
sheet of symptoms.”  
“It was taken out of the school’s hands, it became a medical decision.”

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385 Table 2. Interview quotes. (continued)

Orientation/ subtheme	Scotland coaches	Florida (U.S.) coaches
Gender difference	<p>“In women’s soccer...[is] not quite there yet with same professional standards of medical care as guys.” “[in] The Scottish game, if you are injured you go on with it...unfortunately, it transpired to the woman’s game because a lot of the coaches are males coming from male backgrounds so if you get injured, ‘deal with it, walk it off.’” “There is not really many kind of challenges...it is not the boys’ soccer where you get your elbow up and struck them jumping.” “Women’s soccer is slower pace than guy’s soccer...it’s not played in the air as much.” “Boys are more physical...my girls are very gentle...there is no one really that goes out of the way to be aggressive. “My intuition is it [SRC] is a bigger issue in boys sport because they tend to be more aggressive.” “Girls are less prepared to go in and hot the ball and so I think we will see a lot more head contact in boys youth soccer.”</p>	<p>“On the boys' side, when they go up for a header, when they clash heads, they’ve gotten a concussion right there...but with the girls...it’s been headers and sometimes a bad fall when they hit their head on the ground.” “I think...in some ways concussions might be a little more prevalent on the girls' side than the boys' side. One of the biggest things I read about is, the girls’ neck muscles aren’t nearly as strong, so there’s more whip.” “There’s way more girls [who] wear the headband...than the boys.”</p>

## 387 **Discussion**

388 The coaches' responses regarding legal consciousness supports the idea that people make  
389 connections from their past experiences – good or bad – which arise in part from the social  
390 positions they occupy – and these experiences shape their understanding of the law.(32) The  
391 coaches' knowledge and attitudes towards SRC management and regulations varied according to  
392 their gender, volunteer status, playing experience, recentness of first aid training, administrative  
393 role within their school or club, and strength and size of resources of their school or club. This  
394 finding is consistent with Young and Billing's legal consciousness research which reinforces that  
395 acquiescence or deference to legal system authority may reflect broader cultural differences  
396 between people from different backgrounds.(34)

397 Many of these factors intersect, making it difficult to parse which experiences or social  
398 positions have greater influence on the coaches' legal consciousness. For example, among the  
399 U.S. participants, we were not able to identify which personal/demographic factors had the most  
400 influence on the coach's legal consciousness given the complexities of intersections between  
401 gender, personal experience with concussion, and occupational status (paid/volunteer).  
402 Similarly, Young and Billings noted the complex interaction between race, gender, and cultural  
403 capital in producing legal consciousness.(34)

404 Overall, the coaches' legal consciousness does support the idea that legal authority is  
405 typically not contested due to its ubiquitousness in every-day life.(29) Concussion management  
406 regulation and training, especially by the Florida coaches, were seen as something to follow  
407 without much critical thought. For instance, the Florida coaches exhibited conformity more often  
408 than the Scottish coaches, and expressions of conformity were a more substantial proportion of  
409 their comments than the Scottish coaches.

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3 410 Respondents did “conform,” by following the guidelines they were aware of, and within  
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5 411 their abilities. All of the U.S. coaches were aware of the concussion law, while only a few  
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7 412 Scottish coaches knew about the guidelines. However, the coaches did not indicate that they felt  
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9 413 powerless, often a characteristic of conformity to law.(27) The Scottish coaches did view the  
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11 414 guidelines as separate from their day to day life since they did not think the prevalence of SRC in  
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13 415 girls’ soccer was high, as evidenced by their reported personal experiences with concussions.  
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15 416 The Florida coaches believed that SRC often occurs in girls’ high school soccer and appeared  
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17 417 more resigned to conformity through mandated concussion training.  
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22 418 Our findings also suggest that the coaches in general were somewhat engaged with the  
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24 419 law. Neither group of coaches perceived concussion guidance or laws as a “game to play.” They  
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26 420 did view the guidelines as changeable, as respondents from both Scotland and Florida indicated  
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28 421 their own management of SRC had changed over time. Scottish coaches desired more  
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30 422 information as the science regarding concussion improves, while Florida coaches preferred new  
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32 423 and more engaging training modules. This finding suggests that a person’s engagement with the  
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34 424 law in a particular situation depends on a complex and dynamic set of processes. For instance,  
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36 425 one’s experiences, attitudes, understanding of one’s identity, and one’s beliefs about social  
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38 426 norms can be factors that determine a level of engagement with the law.(28)  
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42 427 Meanwhile, active resistance to the law was largely absent from the respondents as there  
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44 428 were no examples of them purposefully trying to avoid the regulations. Nevertheless, some  
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46 429 Scottish coaches expressed skepticism that the guidelines do not accurately reflect best practices  
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48 430 regarding the handling of medical complications and return-to-play protocols. Such findings  
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50 431 suggest the need for attitude changes toward the guidelines which may be accomplished through  
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52 432 nationwide educational campaigns regarding concussion safety led by government and sport  
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3 433 governing bodies. Concussion-related educational interventions also should be developed from a  
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5 434 theoretical basis to help create more positive attitudes toward the guidelines.  
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8 435 The U.S. coaches, on the other hand, resisted the repetitiveness of the mandated SRC  
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10 436 training. Kroshus, et al. also noted that educational materials providing information that was not  
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12 437 new to respondents may decrease its efficacy in changing SRC management behavior.(35) This  
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14 438 suggests the need for more frequent updates to the educational modules, consistent with the ever-  
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16 439 changing science surrounding prevention and management of concussion. These findings  
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18 440 support previous calls on avoiding “one size fits all” mandates for concussion education.(17, 35)  
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21 441 Both sets of coaches chafed at the idea of banning heading as a means of reducing  
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23 442 concussions. A U.S. coach stated, “You’ll change the game. I would hate to see that.” Another  
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25 443 exclaimed, “For concussion reasons, I’m sure it’s better. For soccer reasons it’s horrible.” A  
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27 444 Scottish coach said, “I think it would be ridiculed over here.” To date, banning and/or restricting  
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29 445 heading has led to critical debate within the soccer community. While limiting heading may be  
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31 446 associated with reducing the mechanisms responsible for concussions,(36) others may argue that  
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33 447 limiting heading may be counterproductive in the long-term due to the potential reduction in  
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35 448 proper heading-related instruction and practice. Moving forward, policy makers should continue  
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37 449 follow evidence-based research regarding the true effects of heading on concussions.  
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42 450 The U.S. coaches expressed less uncertainty regarding the guidelines they were expected  
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44 451 to follow. All of the U.S. coaches were aware of the SRC law and its’ implementation as  
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46 452 required by the Florida High School Athletic Association. The U.S. coaches also indicated less  
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48 453 uncertainty than the Scottish coaches regarding recognition of SRC and proper management  
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50 454 actions. This is consistent with Yeo et al.’s recent review that found most coaches and officials  
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3 455 could identify common signs and symptoms of SRC, understood the importance of immediate  
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5 456 removal from play, and allowed return to play only under the guidance of medical advice.(1)  
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8 457 This is likely due to the mandatory concussion training highlighted by the law as a  
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10 458 prerequisite to coach in a Florida high school. This mandatory training, which is typically  
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12 459 conducted online, may explain why the U.S. coaches mentioned a willingness to engage in  
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14 460 online training more often than the Scottish coaches. It is possible that the latter may not have  
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16 461 been exposed to online SRC training previously.  
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19 462 Though both sets of coaches voiced a desire to include other stakeholders in making  
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21 463 return to play decisions, the U.S. coaches mentioned the benefits of deferring to medical  
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23 464 professionals more often. This may be the result of a more frequent presence of athletic trainers  
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25 465 and/or other medical professionals in the U.S. high school settings compared to those of  
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27 466 Scotland. Because concussion is difficult to identify and diagnose, it is understandable that  
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29 467 coaches need to work with medically trained personnel on-site for assistance with SRC  
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31 468 management. In contrast, very few of the Scottish clubs had the resources to provide a first-  
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33 469 aider/athletic trainer or physio at girls' soccer games. This finding provides support for increased  
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35 470 funding and resources to employ more medical professionals at Scottish youth soccer events. The  
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37 471 results of this study suggest that girls' soccer coaches are willing to follow and engage with  
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39 472 concussion management regulations in both the U.S. and Scotland. Coaches demonstrated a  
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41 473 desire to protect their players and for additional knowledge regarding SRC management.  
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43 474 Although law and governing body regulations serve as tools to improve concussion management,  
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45 475 youth sport stakeholders can benefit from educational programs that effectively educate and  
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47 476 increase SRC reporting in youth soccer.(12) Future legislative amendments should focus on a  
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49 477 more consistent enforcement of such educational programs and related policy mandates.(19)  
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3 478 Scottish youth soccer clubs, in particular, can play a key role in improving concussion  
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5 479 management. The use of health promotion and social marketing tools would improve the  
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8 480 dissemination and implementation of concussion guidelines.(19, 37) Increased dissemination of  
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10 481 guidelines may be particularly crucial in Scotland, where many of the coaches lacked knowledge  
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12 482 of the SportScotland guideline even before the recent policy changes regarding heading  
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15 483 restrictions. Clubs are already required to have a child protection officer, to whom they could  
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17 484 add the additional responsibility of concussion management. Scottish coaches also indicated the  
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19 485 desire and willingness to attend additional first aid training specific to concussion management.  
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21 486 Soccer clubs should consider offering concussion safety workshops/trainings for all volunteer  
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24 487 coaches, as well as parents, match officials, and athletes.

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26 488 The U.S. coaches provided support for updated and revised training on concussion  
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28 489 management, using more real-time examples. Specifically, coaches in both countries preferred  
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30 490 additional in-person training opportunities, rather than online. Given the majority of coaches and  
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33 491 officials were eager to seek further education on SRC, sport governing bodies should improve  
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35 492 the accessibility of such educational programs and information sources.(1) In instances where in-  
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38 493 person training may not be feasible, online trainings should be designed to be user-friendly and  
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40 494 updated regularly.(1, 35) In addition, these trainings should be developed from a theoretical  
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42 495 basis, which can help guide coaches to reflect on their own experiences in recognizing and  
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45 496 managing concussion by bridging the gap between theoretical knowledge and practice.(1, 19)

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47 497 Sport-specific rules have also been implemented as a means of SRC prevention.(38)  
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49 498 Governing bodies of youth soccer in the U.S. and Scotland should also consider rule changes to  
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51 499 improve concussion management. For instance, allowing rolling substitutions, which permits  
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54 500 players to enter and leave the game without restrictions, would allow for players to be assessed

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3 501 more frequently whenever a concussion is suspected without impacting youth soccer  
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5 502 achievement. Officials can also play a role in the prevention of SRC by controlling physical  
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7 503 contact that may cause SRC (e.g., preventing high elbows in heading duels).(1)  
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10 504 Those responsible for creating policies derived from concussion laws and guidelines must  
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12 505 develop effective strategies in an effort to improve their implementation. These may include  
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14 506 defining roles of key individuals, promoting education, creating awareness, and facilitating  
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16 507 effective communication.(16) Further efforts should stress disseminating these common  
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18 508 implementation strategies and practices to a broader range of clubs and schools in both the U.S.  
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20 509 and Scotland.(16) Legislation without effective implementation strategies may not be the  
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22 510 answer, particularly in Scotland. Additionally, stakeholders should engage in more creative  
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24 511 research. They should collaboratively design feasible policies that are scientifically sound,  
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26 512 sensitive to the fidelity of implementation, aligned with the incentives of youth sport, and  
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28 513 promote inclusive data collection.(13)  
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34 515 ***Limitations***  
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36 516 The current study was limited by a small-sized convenience sample from only two  
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38 517 regions, which does not allow for the generalizability of the results. Second, response bias may  
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40 518 have resulted due to the interviewer's personal and demographic background (e.g., gender,  
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42 519 race/ethnicity, previous soccer playing and coaching experience). Another limitation is that, due  
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44 520 to the changes in the concussion legislation/guidelines since the interviews were conducted,  
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46 521 participants' legal consciousness may not have captured any potential updates to the  
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48 522 legislation/guidelines. Also, U.S. coaches may have been unwilling to admit resistance to the law  
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50 523 given the potential sanctions (e.g., suspension from coaching). Because of the statutory mandates  
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52 524 in the U.S., it is conceivable that respondents were hesitant to reveal noncompliance with the law  
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3 525 and provided socially acceptable answers. Despite these limitations, our findings are one of the  
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5 526 first to compare the legal consciousness of concussion safety regulations/guidelines among  
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8 527 international coaches. This study could be expanded to include interviews of Florida coaches of  
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10 528 girls' soccer clubs.

### 12 529 13 530 **Conclusions**

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16 531 This study investigated the critical public health issue of SRC using a new theoretical  
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18 532 lens by comparing the legal consciousness of girls' youth soccer coaches regarding concussion  
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20 533 management under a statutory legal regime in the U.S. and a non-statutory scheme in Scotland.  
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22 534 The findings suggest coaches in both countries conform to and engage with concussion  
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24 535 laws/guidelines. However, the study found little resistance in either country to concussion  
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27 536 laws/guidelines. With the high incidence of concussions in girls' soccer, understanding coaches'  
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29 537 legal consciousness of concussion regulation is an important avenue to reduce this serious injury.

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