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Risk Management Behaviors Related to the Teaching of Floor Hockey in K-12 Physical Education

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■ INTRODUCTION

Floor hockey is an activity commonly taught at various grade levels in physical education programs. As with virtually all units in physical education, the teaching of floor hockey presents specific, unique concerns related to safety that must be addressed by the teacher. Although floor hockey is a popular physical education activity, little written material exists to aid teachers in their planning of floor hockey units of instruction. Many professional preparation curriculum textbooks and skill-related textbooks used in physical education teacher education programs do not include chapters on floor hockey.

Gallahue and Vannier (1978) included a section on floor hockey instruction in their textbook on elementary school physical education. A new chapter on floor hockey instruction by Gray is included in the second edition of a skills text for secondary school physical education published by the American Alliance for Health, Physical Education, Recreation, and Dance (Dougherty, in press). Similarly, a new chapter on floor hockey safety by Gray is included in the second edition of a sport and physical education safety text also published by the American Alliance for Health, Physical Education, Recreation, and Dance (Dougherty, in press). Gray (1989) identified various safety and teaching strategies related to appropriate planning for the teaching of floor hockey. Finally, Gray (1991) identified various specific risks related to participation in floor hockey and proposed specific strategies to reduce the probability and severity of injuries that might arise from those risks.

Floor hockey has been the subject of negligence litigation in various state courts. In *Berman v. Philadelphia Board of Educ.* (1983), an 11-year-old boy sustained extensive dental injuries as the result of being struck in the mouth with a floor hockey stick. Berman's instructor had requested protective equipment on more than one occasion. Berman was awarded over $84,000.00 for his injuries, which the court determined were reasonably foreseeable and which could have been prevented by wearing a mouth guard. The Court of Common Pleas determined that

Berman did not contribute to his own injury and that he did not assume the risk of injury by playing in the intramural floor hockey league. The lower court's ruling was affirmed by the Pennsylvania Superior Court.

In *Sutphen v. Benthian* (1979), a tenth-grade boy was struck in the eye with a plastic floor hockey puck during physical education class. As the result of the injury, Sutphen lost the use of his eye. Sutphen alleged that the class was conducted in an unreasonable manner and that eye guards, which were available, should have been required. Sutphen's parents had informed school officials that their son had a visual deficiency in one eye. The court addressed five important questions related to the situation which led to Sutphen's injury: 1) Did the floor hockey activity necessitate protective equipment? 2) Was the supervision adequate? 3) Were the instructions adequate? 4) Were the defendants negligent for allowing the students the option of using protective equipment? 5) Was the size of the area large enough to play the activity in a reasonable manner?

The trial court granted summary judgement (in favor of the defendants) on the grounds that the suit fell within the boundaries of governmental immunity in the state of New Jersey. The Superior Court, Appellate Division, reversed the decision of the lower court and said that the Tort Claims Act of New Jersey was improperly applied. It therefore reversed and remanded the case. Upon remand, the trial court ruled in favor of the defendants by determining that they had acted reasonably.

The purpose of this study was to determine the manner in which floor hockey is taught in school physical education programs. More specifically, this study sought to identify various risk management behaviors related to the teaching of floor hockey in K-12 physical education in Iowa schools.

■ METHODOLOGY AND DEMOGRAPHICS

A survey created by the investigator was mailed to 300 public school physical educators in Iowa. Subjects were randomly selected among elementary physical educators (n=186) and secondary physical educators (n=114) in the same proportion as represented in school employment. Completed surveys were received from 220 subjects (73.3%). Of the 220 respondents, 151 taught floor hockey as a unit in physical education at the time of this study (68.6%). Of this group of 151 subjects who taught floor hockey in physical education, 43 were women and 108 were men. Their mean age was 40.5 years.

Ninety-three of the respondents who taught floor hockey were elementary school physical educators while 58 were secondary school physical educators. The major field of study for 140 of these 151 subjects was physical education while 11 had other majors. Master's degrees were held by 51 of the 151 subjects. Among this group of 51, 38 had master's degrees in physical education while 13 had master's degrees in other majors. The 151 subjects had been physical education teachers for a mean of 15.6 years, with a mean of 11.8 years in their present schools. Data indicated that 116 of the 151 subjects had coaching duties in addition to teaching (76.8%). Of the 151 who taught floor hockey in physical education, 9.9% (n=15) also offered floor hockey as an intramural activity.

Of the 69 who did not teach floor hockey in their physical education programs at the time of this study, 43 had taught floor hockey in the past. The most common

reasons cited for not teaching floor hockey were: 1) floor hockey is too dangerous, 2) not enough money to purchase equipment, 3) gymnasium is too small to play safely, 4) floor hockey is not included in district curriculum guide, 5) there are more "important" skills and activities to teach in physical education, 6) class sizes are too large, and 7) not enough time to include it in the curriculum.

RESULTS AND DISCUSSION

Data indicated that floor hockey units consisted of a mean of 7.6 class periods with a standard deviation (S.D.) of 4.8. Table 1 shows the results of the t-test indicating that men teachers devoted significantly more class periods to floor hockey units than did women teachers. There were no other significant differences between men and women among the 22 survey items. The mean percentage of class time spent in skill instruction was 24.8% (S.D.=15.4), while the mean percentage of class time spent scrimmaging was 67.5% (S.D.=19.5).

Table 1: Number of floor hockey class periods by gender

Gender	n	Mean	S.D.	T-Value	2-tailed prob.
Men	104	8.2500	.519	-3.39	.001
Women	42	5.9524	.435		

Table 2 shows the types of floor hockey sticks and pucks used by the students as reported by the respondents (N=151).

Table 2: Types of sticks and pucks used in floor hockey

Type of stick used:	All plastic	n = 130 (86.1%)
	Wood and plastic	n = 7
	All wood	n = 2
	Other	n = 12
Type of puck used:	Plastic puck	n = 100 (66.2%)
	Plastic or rubber ball	n = 34
	Other	n = 16
	Missing data	n = 1

Floor Hockey Injuries

The mean number of injuries reported by subjects was 3.1 per school year (S.D.=4.5). Subjects indicated that 12.7% of the reported injuries required first aid (S.D.=25.1%). Further, the subjects indicated that 0.39% of the reported injuries required treatment beyond first aid (S.D.=1.6%). That represents slightly more than one-third of one percent of the reported injuries. Table 3 describes the nature of the injuries reported by the subjects in response to an open-ended question that asked subjects to identify the most common injuries.

Table 3: Most common floor hockey injuries (N=151)

1. Hand/lower arm injuries	n = 83
2. Shin/lower leg injuries	n = 83
3. Bruises	n = 73
4. Mouth/face/head injuries	n = 20
5. Foot injuries	n = 16
6. Sprained ankles	n = 15
7. Small cuts	n = 13
8. Falls/collisions	n = 10

Use of Protective Equipment

Since both of the court cases described earlier in this article involved whether certain protective equipment should have been used, the data collected pertaining to the use of such protective equipment was of particular interest. Table 4 shows the data related to the use of various pieces of protective equipment and whether that equipment was required if provided.

Table 4: Use of protective equipment in floor hockey

Subjects who provided eye guards	n = 20 of 151
Subjects who required eye guards	n = 16 of 20
Subjects who provided mouth guards	n = 1 of 151
Subjects who required mouth guards	n = 1 of 1
Subjects who provided goalie face masks	n = 19 of 151
Subjects who required goalie face masks	n = 14 of 19
Subjects who provided protective gloves	n = 3 of 151
Subjects who required protective gloves	n = 3 of 3
Subjects who provided other equipment	n = 16 of 151

Elementary Versus Secondary School Comparisons

T-tests were conducted on each of the 22 survey items between mean responses of elementary and secondary school physical education teachers. Four of these comparisons yielded significant differences ($p<.05$). Elementary school physical educators spent significantly more time related to skill instruction than did secondary school physical educators ($p<.001$). The mean amount of time spent in skill instruction by elementary school physical educators was 28.64% while the mean amount of time spent in skill instruction by secondary school physical educators was 18.00%. Conversely, the secondary school physical educators spent significantly more time actually playing the game of floor hockey than did the elementary school physical educators ($p<.023$). The mean amount of time devoted to playing by secondary teachers was 72.36% while the mean among elementary teachers was 64.67%.

Statistical analysis indicated that if eye guards were provided, the elementary school physical education teachers were significantly more likely to require that

they be worn ($p<.014$). Similarly, if goalie face masks were provided, the elementary school physical education teachers were significantly more likely to require that they be worn ($p<.036$). No other significant differences were identified between elementary and secondary teachers on the survey items. One should interpret these last two findings with caution, however, since a relatively low percentage of teachers provided eye guards and goalie face masks.

Floor Hockey Unit Planning and Teaching Strategies

Subjects were asked, in an open-ended question, to identify planning and teaching strategies that they used to make floor hockey as safe as possible. The following nine categories of statements represent the responses, in rank order, from the respondents (N=151): 1) Control of stick: Teach proper grip and technique, practice keeping stick under control at all times (n=44). 2) Emphasize safety rules in all areas: Teach no body contact, low sticks, etc. (n=39). 3) Puck control: Teach and practice how to control the puck, passing, shooting, etc. (n=38). 4) Team size and positions: Limit the number of players on the floor at once and teach how to spread out and play one's position (n=31). 5) Penalties: Students are penalized for rule violations, dangerous play, etc. (n=29). 6) Teach skills: Teach basic skills that are essential to the game, such as passing, shooting, stick handling, goal tending, etc. (n=24). 7) Demonstrate actions to avoid: Show students how to avoid actions such as high backswing, high follow through, improper grip, etc. (n=17). 8) Supervision: Monitor students closely, referee games, etc. (n=12). 9) Ability grouping: Group by ability for instruction and play (n=5).

Floor Hockey Rules

Finally, subjects were asked, in an open-ended question, to identify rules that they used to make floor hockey as safe as possible. The following seven rules were the ones most commonly identified by the respondents in rank order (N=151): 1) No high sticking; keep backswing and follow through below waist (n=123). 2) No body checking or rough play (n=51). 3) Play assigned positions (n=36). 4) Keep sticks on floor while moving (n=35). 5) Keep both hands on stick at all times (n=35). 6) Only the goalie is allowed inside the goal crease (n=30). 7) Stay on the feet at all times (n=8).

■ IMPLICATIONS FOR TEACHERS

This study attempted to identify various risk management behaviors related to the teaching of floor hockey in Iowa schools. A survey collected data concerning the nature of instruction, the use of equipment, the development of rules, and other relevant factors related to the use of floor hockey as an activity unit in K-12 physical education. While many of the findings of this study related to the level of safety in floor hockey are encouraging, there are some areas of concern which should be addressed in the future.

The main concern is related to the relatively small number of schools who provide protective equipment for students to wear as they participate in floor hockey. This article began by identifying two court cases that occurred as a result of the failure to provide eye guards and mouth guards. A teacher should be

concerned not only with doing everything within reason to prevent becoming involved in a lawsuit but also doing everything possible to prevent injuries to students. It is, after all, a given injury that leads to the lawsuit. Even if a teacher and school district might successfully defend a case involving the failure to provide a certain piece of protective equipment to a floor hockey participant, the injury that motivated the lawsuit has still occurred. Teachers should do everything they can to foresee injuries that are likely to occur to their students and then do everything that is feasible and within reason to guard against those foreseeable injuries. Most suppliers of floor hockey sticks, pucks, and goals also market in their catalogs affordable protective equipment, including eye guards, mouth guards, and goalie face masks. Teachers should seriously consider purchasing such readily-available equipment.

Other specific concerns that should be addressed by teachers include planning appropriate units of instruction related to the teaching of floor hockey skills to minimize the likelihood that injuries will result from improperly controlled sticks, high-flying pucks, etc. Carefully planned instruction with individualized feedback also increases the likelihood of successful skill development by the students. Similarly, safety rules should be developed and consistently enforced. Particular attention should be devoted to encouraging students to be in control of their bodies and sticks at all times. Enhancing this sense of personal responsibility among students should facilitate a teacher's sincere attempt to minimize the number and severity of injuries and maximize not only safety but also the success of students.

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