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Abstract

Sports have been frequently explored in cross-cultural studies, yet scant attention has been paid to female participation. Here we coded the occurrence of sports and related activities for males and females in the societies comprising the Human Relations Area Files (HRAF) probability sample. We then tested several predictions derived from evolutionary theory. As predicted, in all 50 societies with documented sports, there were more male sports than female sports; hunting and combat sports were almost exclusively male activities; and the sex difference in sports was greater in patriarchal than in nonpatriarchal societies. These results show that a robust sex difference in direct physical competition co-occurs with meaningful variation in its expression.

Keywords

evolutionary psychology, anthropology, athletics, competitiveness, gender differences, aggression, universal

A game can be defined as an organized activity where two or more sides compete to win according to agreed-upon rules (Chick, 1984; Guttmann, 2004; Roberts, Arth, & Bush, 1959). Games occur in most or all societies (Chick, 1984, 1998; Craig, 2002; Sutton-Smith & Roberts, 1981), and, from

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a cross-cultural perspective, they are the most extensively studied expressive, noninstrumental aspect of culture (Chick, 2000). Previous studies have revealed, for example, that games of chance are associated with supernatural involvement in human affairs (Roberts et al., 1959), combative games correlate with the frequency of homicide (Chick, Loy, & Miracle,1997) and warfare (Sipes, 1973; see also Chick et al.,1997; Schlegel & Herbert, 1989), and games of strategy are associated with the severity of child training (Roberts & Sutton-Smith, 1962) and societal complexity (Chick, 1998; Roberts et al., 1959; Roberts & Barry, 1976; Sutton-Smith & Roberts, 1970).

Surprisingly, the sex of game participants has received almost no attention in previous cross-cultural studies (but see Schlegel & Herbert, 1989). This neglect might be due to assumptions that only males substantially participate or that there is insufficient information available for coding participants' sex in most societies. In any event, the present study is designed to redress this gap. In particular, we will systematically code participants' sex in games and related activities for the 60 societies in the Human Relations Area Files (HRAF) probability sample (Lagacé, 1979; Naroll, 1967). We will then test predictions regarding sex differences in participation and attempt to link variation in sex differences to social structure.

For two reasons, our study focuses on games that require physical skill, which we hereafter call "sports" (see Loy & Coakley, 2007). First, sports are by far the most common kind of game across societies (Chick, 1998; Roberts et al., 1959; Roberts & Sutton-Smith, 1962). Second, the theoretical predictions regarding sex differences seem strongest for sports (see below). Nonetheless, we will code other kinds of games, and some of our predictions address them.

We note that Schlegel and Herbert (1989) assessed the occurrence and importance of competitive games for male and female adolescents in the 186 societies that comprise the Standard Cross-Cultural Sample (Murdock & White, 1969). They reported that competitive games for males were documented in 60% of societies, whereas competitive games for females occurred in 30% of societies. Although highly valuable, this study did not differentiate kinds of games (i.e., sports, games of chance, games of strategy) or report whether there were any societies where female participation was similar to or greater than male participation.

In the next section, we provide the theoretical rationale for a hypothesis of a pronounced sex difference in sports participation and develop specific predictions to test it. We conclude the Introduction with a section explaining why variation in sex differences can be predicted to correlate with social structure, especially the empowerment of women.

Sex Differences

Numerous functions for sports have been hypothesized, all of which appear mutually compatible (Chick, 1984; Lombardo, 2012; Schlegel & Herbert, 1989). However, from an evolutionary perspective (i.e., linked to survival and reproduction), three hypotheses seem plausible (Lombardo, 2012). First, sports may function as culturally invented courtship rituals that reliably advertise quality to the opposite sex (de Block & Dewitte, 2009; Miller, 2000). Second, sports may function as physical competitions for status, differing from unrestrained combat or warfare because they reduce the risk of physical harm to competitors and more publicly and efficiently reveal the competitors' underlying competitive qualities (de Block & Dewitte, 2009; Faurie, Pontier, & Raymond, 2004; Lombardo, 2012; see also Miller, 2000). Third, sports may function to build skills necessary for physically demanding activities, especially combat, warfare, and hunting (e.g., Chick et al., 1997; Craig, 2002; Lombardo, 2012; Sipes, 1973).

To the extent that these hypotheses hold, especially the second and third hypotheses, it can be further hypothesized that, compared to girls and women, boys and men will, on average, have a far greater motivational predisposition to participate and monitor sports, especially sports involving combat-relevant skills and/or team play. This hypothesis follows from the following points. First, throughout human evolutionary history and during contemporary periods, men have been substantially more likely than women to engage in contests involving extreme physical aggression (Archer, 2009; Daly & Wilson, 1988; Walker, 2001), between-group raiding and warfare (Adams, 1983; Gat, 2006; Keeley, 1996), and cooperative hunting of large game (Marlowe, 2007; Murdock & Provost, 1973). Second, this history is revealed by pronounced sexual dimorphism in strength and related attributes (Lassek & Gaulin, 2009; Mayhew & Salm, 1990; Seiler, De Koning, & Foster, 2007). Similarly, men (but not women) possess secondary sexual characteristics (e.g., beards, pronounced jaws, deep voices) that function to threaten rivals (Neave & Shields, 2008; Puts, 2010). Third, another legacy of this history is a predisposition(s) to behaviorally prepare for physical contests, both individually and in groups. This is indicated by the fact that in all societies studied so far, boys engage in more rough-and-tumble play and play-fighting (DiPietro, 1981; Geary, 2010; Whiting & Edwards, 1973, 1988). Studies also consistently indicate that boys are more likely to form large same-sex groups, to differentiate roles within such groups, and to seek competition with other groups (Geary, 2010; Lever, 1978; Rose & Rudolph, 2006). Fourth, several kinds of evidence indicate that these sex-differentiated

play patterns are due, at least in part, to boys' typically greater exposure to androgens prior to birth (Berenbaum & Beltz, 2011).

There is considerable evidence for the hypothesis that males have an inborn predisposition to be interested in sports. First, studies in large contemporary societies ubiquitously report greater male interest in participating, watching, and excelling in sports. Evidence comes from self-reports of interest (summarized in Ellis et al., 2008) and from actual participation (e.g., Larson & Verma, 1999; Lunn, 2010; Stamatakis & Chaudhury, 2008). There is even a large sex difference in sports interest and participation in the contemporary United States, a society where great efforts have been made to equalize opportunities for females (Deaner et al., 2012). Second, females with congenital adrenal hyperplasia (a disease characterized by heightened prenatal androgen exposure) are more likely than typical females to show strong interest in stereotypically masculine sports (Berenbaum, 1999; Berenbaum & Snyder, 1995; Frisén et al., 2009). Third, historical reviews of sports in large, literate societies document that many societies had substantial female participation, but males are reported as being substantially more involved in most or all cases (Craig, 2002; Guttmann, 1991, 2004). Finally, as noted above, cross-cultural ethnographic studies of sports appear consistent with the prediction of greater male participation (e.g., Chick, 1984, 1998; Chick et al., 1997; Roberts et al., 1959; Sipes, 1973), and this is true of the one study that provided the most direct evidence (Schlegel & Herbert, 1989).

For the present study, it would be desirable to obtain data on the frequency of sports participation, but this cannot be extracted from ethnographic materials. Instead, we will focus on documenting the number of games and sports described in each society and whether males, females, or both regularly participate. To address the possibility that a larger number of male games might merely reflect ethnographers focusing more attention on males, we will also code nonsport games and noncompetitive play activities (i.e., amusements: see Roberts et al., 1959; Schlegel & Herbert, 1989). If there is substantial ethnographer bias, the sex difference should be similar in sports and in these other activities.

Additional predictions can be derived from the hypothesis of an evolved male tendency to be interested in sports. First, the sex difference should be especially pronounced for combat sports, such as wrestling and boxing, and for hunting sports, such as archery and spear throwing. The basis for this prediction is that combat and hunting generally have been male activities during human evolutionary history (see above). Nonetheless, sports that do not involve actions directly related to combat or hunting are still expected to show greater male participation because males appear generally more predisposed to engage in direct competition of almost any kind (Campbell, 1999,

2002; Deaner, 2012; Niederle & Vesterlund, 2011). Furthermore, many sports that do not require actions patently used in combat or hunting require related skills. For example, baseball, although not a hunting or combat sport, involves running, overhand throwing, and tracking projectiles.

A second prediction is that the sex difference should be especially pronounced for sports involving physical contact between opponents. This prediction follows because combative sports invariably entail aggressive physical contact and even noncombat sports often involve this. Thus, males are expected to participate relatively more in sports involving physical contact, even after combat and hunting sports are excluded.

A third prediction is that the sex difference should be especially pronounced for team sports rather than individual sports. This prediction follows from the male predispositions hypothesis because team sports require both motivation to engage in physical competition and motivation to engage in cooperative group challenges, especially in between-group contexts. Both kinds of motivation apparently are greater in males (Campbell, 1999, 2002; Geary Byrd-Craven, Hoard, Vigil, & Numtee, 2003; Puts, 2010; Rose & Rudolph, 2006; van Vugt, 2009). However, individual sports require only one kind of motivation, whereas team sports require both, suggesting that the sex difference should be larger there.

Female Power

Although we anticipate that males' sports participation will be substantially greater than females' in most or all societies, there is evidence of appreciable female sports participation in many of them (Craig, 2002; Guttmann, 1991; Schlegel & Herbert, 1989). Although we know of no existing framework to predict the cross-cultural variation, the three functional hypotheses outlined above provide a useful starting point.

If sports function, first, as culturally invented courtship rituals (de Block & Dewitte, 2009; Miller, 2000) or, second, as physical competitions for status that publicly and efficiently reveal underlying competitive qualities (de Block & Dewitte, 2009; Faurie et al., 2004; Lombardo, 2012), then females might be expected to participate in sports more in societies where females compete more to be chosen as mates or to gain status. There is a problem with this hypothesis, however: The qualities females mainly advertise when seeking mates or competing for status are physical attractiveness (e.g., youthfulness, femininity, health) and personal integrity (e.g., good sexual reputation; Campbell, 1999, 2002; Cashdan, 1996; Schmitt & Buss, 1996), and these qualities do not seem emphasized in most sports, which generally involve direct (i.e., simultaneous)

competition and potential physical contact. Indeed, playing sports is associated with greater attractiveness and higher status for males but not for females (Holland & Andre, 1994; see also Brewer & Howarth, 2012; Chase & Dummer, 1992). Similarly, physical dominance (a typical correlate of sport success) generally increases the attractiveness of men but not of women (Bryan, Webster, & Mahaffey, 2011; Sadalla, Kenrick, & Vershure, 1987). Although there are judged sports (e.g., figure skating, gymnastics, cheerleading) that emphasize physical attractiveness and do not involve direct competition, these sports apparently only occur in large nation-states and thus will be largely irrelevant for the HRAF probability sample.

The third functional hypothesis, that sports function to build skills needed for physically demanding activities, might also seem improbable for explaining cross-societal variation female sports. The reason is that this hypothesis was developed by evolutionarily oriented scholars in reference to warfare and cooperatively hunting large game (e.g., Chick et al., 1997; Lombardo, 2012; Sipes, 1973), and females rarely participate in these activities in any society (Adams, 1983; Gat, 2006; Keeley, 1996; Marlowe, 2007; Murdock & Provost, 1973). Nonetheless, if this hypothesis is conceived more broadly, namely that sports foster skills for physically or socially demanding activities, then it becomes quite plausible (see Schlegel & Herbert, 1989). In fact, in large societies with organized sports, both historical and contemporary, there have been countless claims that sports promote physical and social development, including "building character" (e.g., Guttmann, 2004; Eccles, Barber, Stone, & Hunt, 2003). Although it has proven difficult to establish causal relationships, many studies document that sports participation correlates with a variety of positive outcomes outside of the sporting arena, and this holds for both males and females (Eccles et al., 2003; Rees & Sabia, 2010; Stevenson, 2010).

This "sports as training" hypothesis generates the prediction that female sports participation should be relatively greater in nonpatriarchal than in patriarchal societies. The logic for this prediction is that patriarchal societies can be generally considered low in female power, which can be defined as the capacity for women to control resources and exert political influence (Low, 1992; Yanca & Low, 2004). We will define patriarchal societies as those characterized by both patrilocality and patrilineality (Yanca & Low, 2004; see also Hrdy, 1999; Low, 1992; Smuts, 1995).

Methods

We used the electronic HRAF materials (eHRAF: http://ehrafworldcultures.yale.edu) and focused on the probability sample of 60 societies. The probability

sample is a cross-cultural sample designed to ensure representative coverage of traditional and peasant cultures of the world. Its developers randomly selected one well-described culture from each of 60 world regions (Lagacé, 1979; Naroll, 1967). We searched with three Outline of Cultural Materials (OCM) codes: 524-games, 525-gambling, and 526-athletic sports. For each society, we included information from all time periods and resources in HRAF. We did this to maximize the number of potentially coded activities and because it was often unclear from what time period the patriarchy information was derived from. Including information from all time periods means that some coded activities might seem unusual for a particular society (e.g., baseball in Copper Inuit).

We obtained data on descent (patrilineality) and residence (patrilocality) from Levinson and Wagner (1986). We classified a society as patriarchal if it was coded as both patrilineal and patrilocal; any other combination (e.g., matrilineal, neolocal; bilateral, patrilocal) was classified as nonpatriarchal.

Activity Coding

We followed Roberts and colleagues (1959; see also Chick, 1984, 1998) in defining games and kinds of games. A game was defined as an organized activity where two or more sides compete to win according to agreed-upon rules. A game of chance was defined as one whose outcome depends entirely on nonrational guesses or the operation of a mechanical device, such as a die or a spinning top. A game of strategy was defined as one that depends on players' moves (choices among alternatives), although it may also involve chance; examples include chess and poker. A sport was defined as a game that depends on physical skill, although it may also involve chance or strategy. We counted guessing games ("hide the moccasin") as games of chance, despite that they may involve bluffing or assessing body language.

For the sake of comparison, we also coded the occurrence of three activities that bear similarities to games. These were sham combats, duels, and amusements. Following Chick and Loy (2001), we defined a sham combat as a combat-like activity that does not meet the definition of a game because there are no criteria for determining a winner. We defined a duel as a formalized competition between two individuals that is undertaken to formally determine status or honor and purposely features the potential for lethal violence. Because we only documented four cases of sham combats and one duel (all with only male participants; see Appendix), we did not analyze them here.

We defined amusements as recreational or play activities that do not meet the above definition of a game. Examples include hide and seek, playing house, tag, sledding, and jumping rope (see Roberts et al., 1959;

Schlegel & Herbert, 1989). Amusements potentially could be defined very broadly and thus might entail nearly boundless coding effort. Therefore, we focused on children's amusements involving physical activity. For example, we did not code (noncompetitive) adult dances, courtship rituals, or verbal games.

In some cases, two or more described activities were highly similar or even were explicitly described as being variations of the same game or activity. In such cases, we considered these activities to be one activity. We generally only coded activities that were described with sufficient detail to be confidently classified as an amusement, sham combat, duel, game of skill, game of luck, or a sport. However, when an ethnographer labeled (but did not describe in detail) an activity as being identical to one that occurs in large nation-states, we considered the label to be sufficient for classification. Examples included "hide and seek," chess, and ice hockey. We only coded activities where the ethnographer had indicated they had observed an activity that was common in the community. The participants' sex in some coded activities could not be determined; although this information was retained, these activities were not analyzed in this study and are not included in the Appendix.

Sport Coding

Among sports, we made several classifications. First, we classified each sport as a combat sport, a hunting sport, or "other" (see Chick & Loy, 2001; Chick et al., 1997; Sipes, 1973). A combat sport was defined here as one emphasizing actions that would occur during actual combat for the purpose of subjugating an opponent and/or inflicting substantial physical harm. The most frequently occurring combat sports were wrestling (24 occurrences), boxing (7), and stick fighting (4; see Appendix). Sports such as arm wrestling and tug of war were not classified as combat sports because their actions are not generally employed in combat.

A hunting sport was defined as one involving actions and equipment that would occur during hunting (or possibly combat) in that society. The most popular one was archery (19) with nearly all the others involving throwing darts, stones, sticks, or spears. In all cases, the target could not be another person; if it was, the sport was considered a combat sport. Actions involving equipment substantially different than that which would be used in hunting were not considered hunting sports. For example, the sport played in many contemporary societies, often in pubs, where small darts are thrown at a hanging target would not be considered a hunting sport.

"Other" sports included a broad range of activities; the most frequently occurring were foot race (10) football/soccer (8), tug of war (7), baseball (6), boat race (6), hockey (6), marbles (6), darts (5), and shinny (5). Although some of these sports undoubtedly require skills that would be relevant for combat or hunting (see Sipes, 1973), they were not classified as combat or hunting unless they met the definitions above.

We also classified sports according to whether they included physical contact. In contact sports, individuals make direct bodily contact with an opponent (e.g., American football, rugby, arm wrestling, tug of war, hair-pulling contest) or else make contact with an opponent's body with a projectile (e.g., rock throwing) or implement (e.g., stick fighting). All combat sports were classified as including physical contact. Sports where participants make contact with a common object but do not regularly direct it towards an opponent's body (e.g., tennis) were not considered contact sports. Among sports with physical contact, we further classified them as requiring contact, frequently involving contact, or rarely involving contact. Examples of sports requiring contact are noted earlier in this paragraph. Examples of sports frequently involving contact were football (or soccer), basketball, lacrosse, and hockey. An example of a sport rarely involving contact is baseball (or softball); pitchers may target hitters or runners may deliberately collide with fielders, but these events are rare.

We also classified sports and games according to whether they were individual or team sports. Team sports required that two or more individuals compete against one or more opposing teams. In some societies, the same general sport activity is described as occurring among individuals and teams. In these cases, we classified it as both an individual sport and a team sport. All sports could be classified as team, individual, or both, save canoe racing in the Andaman.

We initially sought to code activities according to whether they were done by children, adolescents, adults, or by more than one age group. However, we found that there was often insufficient information to make such a determination. Thus, the analyses below pool individuals of all ages.

Variation Across Societies

To assess variation in sex differences in sports across societies, we calculated what we call the ratio of female to male sports (hereafter F:M sports), which is defined as the number of female sports (female-only sports plus sports played by both males and females) divided by the number of male sports (male-only sports plus ones played by both males and females). The F:M sports could be calculated for 50 societies and varied from 0 to 0.57.

Reliability

Initial coding was done independently by the two authors. Agreement was modest for identification of candidate activities of all kinds (i.e., amusements, sham combats, duels, games of chance, games of strategy, sports): ROD coded 473 activities, BAS coded 458, and 334 were common to both; nearly all of the common ones were included in the final list of 509 activities (see Appendix). Most disagreements involved, in descending order, the identification of amusements, distinguishing amusements from sports, or deciding whether two similar activities, especially games of chance, should be considered separate activities. The disagreements were resolved by discussion, usually involving the review of original materials.

For the 178 activities that were initially classified as sports by both coders, there was good agreement on sex (male, female, both) in 161 cases (Cohen's $\kappa = .86$). All disagreements involved whether a sport should be classified as involving participation by both males and females, rather than only males or only females; in other words, there were no cases where one coder initially classified a sport as exclusively done by males while the other coder initially classified it as exclusively done by females. Initial agreement for sex was good to moderate for mutually classified amusements ($n = 121$, $\kappa = .91$), games of chance ($n = 15$, $\kappa = .70$), and games of strategy ($n = 20$, $\kappa = .78$). There were again no cases of where one coder initially classified a sport as exclusively done by males while the coder initially classified a sport as exclusively done by females. For the 178 activities that were initially classified as sports by both coders, classification as individual, team, or both was good ($\kappa = .89$). Again, all disagreements were resolved by discussion. Both coders initially classified sports as hunting, combat, or "other" sports, and as involving various levels of physical contact. However, we refined these definitions after the completion of independent coding and revised the final codes accordingly.

Validity

After completion of our coding, we discovered that the eHRAF database provided opportunities to assess the validity of our sport coding. In particular, we used the advanced search function to obtain the total number of paragraphs in each society coded as including information about "athletic sports" (OCM code 526) and also containing one of the following words: "male," "men," "man," "boy," or "boys." We did the same for athletic sports and the corresponding female words. The HRAF coding does not indicate who, if anyone, is participating in the athletic sport(s) referenced in the paragraph and can

sometimes be misleading. For instance, the paragraph might state that males in society X never participate in sport Y or that the main spectators (not participants) in sport Y are male whereas the participants are female. Nonetheless, our impression is that this sort of incongruence was uncommon and that, in general, if a society had many more male than female sports paragraphs, males generally were much more involved in sports.

The coding of athletic sports was done by HRAF employees to facilitate efficient searching and thus is fully independent from our coding and hypothesis development. The OCM code definition for athletic sports was conceptually similar to ours but broader: "Forms of exercise (e.g., hiking, swimming, skating, skiing, riding, mountain climbing, calisthenics, gymnastics); sports of pursuit (e.g., hide and seek, paper chases); individual contests (e.g., foot races, jumping, weight lifting, boxing, wrestling, archery, hoop and dart game, javelin throwing, trap shooting, bowling, tennis, golf); team contests (e.g., tug of war, boat races, lacrosse, hockey, football, baseball, basketball, polo); occasions; participants and spectators; special equipment; rules; associated ideas (e.g., sportsmanship, amateur status, value of physical fitness); organizers and sponsors of sports (e.g., clubs, schools, business organizations, promoters); etc."

If our sport codes are valid, then the F:M sports will positively correlate with the ratio of female sports paragraphs to male sports paragraphs, what we call the F:M sports paragraphs. A significant positive correlation would constitute evidence for convergent validity (Campbell & Fiske, 1959).

In addition, if the sport codes are valid, then the F:M sports should not positively correlate with a measure of recreational noncompetitive social involvement. To test this we obtained the total number of paragraphs in each society coded as including information about "conversation" (OCM code 521) and either male or female words (see above). We thus calculated the F:M conversation paragraphs. If the F:M sports does not significantly correlate with F:M conversation paragraphs, this would be evidence of discriminant validity (Campbell & Fiske, 1959). The OCM code definition for conversation was "Loquacity and reserve; boasting and shyness; conversational patterns (e.g., idle chatter, rambling discourse, discussion, argument); occasions and places; participants; typical subjects (e.g., weather, news, gossip, politics); privilege and unprivileged communications; etc."

We can also test the validity of our results (and hence, of our sport codes) by testing the prediction about sex differences using the paragraph measures. In particular, there should be many more male sports paragraphs than female sports paragraphs. By contrast, the sex difference in conversation paragraphs should be nonexistent or substantially smaller.

Table 1. Participants' Sex as a Function of Activity

	Sex		
Activity	Female	Male	Both
Sports	13	198	37
Games of strategy	0	24	6
Games of chance	4	8	18
Amusements	61	54	80

Statistics

All analyses were conducted using two-tailed statistical tests.

Results

We documented 248 sports where the sex of participants was known. The most frequently occurring sports are noted in the Methods section. Most sports showed similarities with those found in large contemporary societies but were distinctive enough that we retained their unique names and/or briefly described them. The Appendix provides names or descriptions for each documented sport as well as the sex of participants and the other variables we analyzed (society where documented, kind of sport, physical contact, individual or team). The Appendix provides similar information for games of strategy, games of chance, amusements, duels, and sham combats.

Sex Differences in Activities

Of the 248 sports, both males and females participated in 37, only females participated in 13, and only males participated in 198 (Table 1). Thus, males were participants in 95% of sports, whereas females were participants in 20%. A similar sex difference in participation was found for the 30 games of strategy we documented (Table 1): Males were participants in 100% of them, whereas females were participants in 20%. The sex difference was smaller for the 30 documented games of chance (Table 1): Males were participants in 87% of them whereas females were participants in 73%. There was no appreciable sex difference for the 195 documented amusements (Table 1); males were participants in 69% of them, whereas females were participants in 72%.

When we considered each society as the unit of analysis, this pattern of sex differences generalized (Table 2). In particular, there were 50 societies with at least one male sport documented and 21 societies with at least one female sport documented. Moreover, males participated in more sports than females in all 50 societies where at least one sport was documented. This pattern differs significantly from the null hypothesis that there would be the same number of societies with more male sports as societies with more female sports (binomial test, $p < .0001$). In the 19 societies with at least one documented game of strategy, males participated more in 15 societies, and there were no societies where females participated more ($p < .0001$). In the 17 societies with at least one documented game of chance, males participated in more in six societies and females participated in more in three societies ($p = .25$). In the 47 societies with at least one documented amusement, males participated more in 14 societies and females participated more in 21 societies ($p = .08$).

Validity

As predicted, the F:M sports measure based on our coding was positively correlated with the F:M sports paragraphs measure derived from the established HRAF codes. The relationship was strong when we considered societies with at least three documented sports, $r(29) = .52$, $p = .002$, and became even stronger when we considered those with at least four documented sports, $r(23) = .70$, $p = .0001$.

Also as predicted, F:M sports was not positively correlated with F:M conversation paragraphs. This was true when considering societies with at least three documented sports, $r(29) = –.10$, $p = .62$, or at least four documented sports, $r(23) = –.01$, $p = .96$.

Also as expected, the sex difference we found for the number of coded sports was largely replicated when we considered sex-specific athletic sports paragraphs. There were 742 male-specific sports paragraphs and 322 female-specific sports paragraphs, a ratio of 2.3 to 1. By contrast, there were 631 male-specific conversation paragraphs, and 443 female-specific conversation paragraphs, a ratio of 1.42 to 1.

Combat and Hunting Sports

We documented 57 combat sports, and at least one occurred in 34 societies. Males were the exclusive participants in 55 combat sports, whereas both males and females participated in two cases (Table 3). We documented 36 hunting sports, and at least one occurred in 23 societies. Males were the exclusive

Table 2. Patriarchy and Participants' Sex for Activities in 60 Cultures

		Amusements			Chance			Strategy			Sports			
Region	Culture	F	M	B	F	M	B	F	M	B	F	M	B	Patriarchal
Africa	Akan	1							1			2		N
Africa	Amhara									1		6		Y
Africa	Azande		1	1						1		1		Y
Africa	Bemba	2												
Africa	Dogon	1	3	2			1					2	1	Y
Africa	Ganda			3			1		1			11		N
Africa	Hausa											2		N
Africa	Kanuri	2	1									1		N
Africa	Libyan Bedouin		1											Y
Africa	Lozi													N
Africa	Maasai	1		2					1			1		Y
Africa	Mbuti		1	2										Y
Africa	Shluh													
Africa	Somali	1	1	1					4			5		Y
Africa	Tiv					1			1					Y
Africa	Wolof	2										2		Y
Asia	Andaman											5		N
Asia	Central Thai	2	1	5			1		2			3	2	N
Asia	Chukchee	3	2	4								5	4	N
Asia	Eastern Toraja	2	1	1							2	5		N
Asia	Garo													N
Asia	Iban	2	2	1								4		N
Asia	Ifugao		1									1		N
Asia	Khasi			3								2		N
Asia	Korea	2	4	2			1		3	1		7	4	Y
Asia	Santal	1		3	1				2			3		Y
Asia	Sinhalese													N
Asia	Taiwan Hokkien	2	1				1			2		2		Y
Asia	Yakut	1	1	1								3		N
Europe	Highland Scots	1										3	1	N
Europe	Saami	1	1	2								6	2	N
Europe	Serbs		1	4								2		Y
Mid-Am Caribbean	Kuna		5						2			6		N
Mid-Am Caribbean	Tarahumara	1	1			1			1		3	5		N
Mid-Am Caribbean	Tzeltal	1	2	3								2		Y
Mideast	Kurds	1	1						2			4		Y
North America	Blackfoot	2	3	7	1		2				1	11	3	N
North America	Copper Inuit	2		7			1		1			9	2	N
North America	Hopi	5	2	5			1			1		7	3	N
North America	Iroquois	1					1				2	7	2	N
North America	Klamath			5		1	2				2	6	2	N
North America	Ojibwa	1	2			1	2		1		1	8	1	N
North America	Pawnee				1		1					2	1	N
North America	Tlingit	2	1	5	1	3	2		1			7		N

(continued)

Table 2. (continued)

		Amusements			Chance			Strategy			Sports			
Region	Culture	F	M	B	F	M	B	F	M	B	F	M	B	Patriarchal
Oceania	Aranda	2										3		N
Oceania	Chuuk	2	1	2							2	5	2	N
Oceania	Kapauka	4										3		Y
Oceania	Lau Fijians	2										7	1	Y
Oceania	Tikopia											2		Y
Oceania	Trobriands			3					1			2	2	N
South America	Aymara	1	1	3		1	1					3	2	N
South America	Bahia Brazil											3		N
South America	Bororo		1									2		N
South America	Guarani											1		N
South America	Kogi		3											N
South America	Mataco											1		N
South America	Ona	4	1	2								6	1	N
South America	Saramaka	1										1		N
South America	Tukano	1	6											Y
South America	Yanoama	1	1	1								1	1	N

Note: F = female; M = male; B = both; Y = patriarchal; N = nonpatriarchal.

Table 3. Participants' Sex as a Function of Sport Type

	Sex		
Sport type	Female	Male	Both
Combat	0	55	2
Hunting	0	36	0
Other	13	107	35

participants in all cases. To confirm that this sex difference was not driven by a subset of societies, for each of the 21 societies with at least one female sport, we computed the percentage of female sports that involved combat or hunting and the percentage of male sports that involved combat or hunting. A paired *t* test confirmed that there was a difference, $t(20) = 2.09$, $p < .05$.

Physical Contact

We documented 76 sports that required physical contact, 32 with frequent contact, 13 with rare contact, and 127 without contact. Contrary to our prediction, there was no indication that this varied substantially by participants'

Table 4. Participants' Sex as a Function of Physical Contact in Sport

	Sex		
Contact type	Female	Male	Both
None	7	99	21
Rare	1	9	3
Frequent	5	25	2
Required	0	65	11

Table 5. Participants' Sex as a Function of Team or Individual Sport

	Sex		
Sport type	Female	Male	Both
Individual	6	119	19
Both	0	8	4
Team	7	70	14

sex (Table 4). Most relevantly, 49% of sports with male participants involved physical contact of some kind, whereas 44% of sports with female participants did so.

All 57 combat sports required physical contact, whereas none of the 36 hunting sports did, and males were the near exclusive participants in these kinds of sports. We therefore reexamined these patterns after excluding combat and hunting sports. For the remaining sports, 42% of those with male participants involved physical contact of some kind, and 42% of those with female participants involved physical contact of some kind.

Individual Versus Team Sports

We documented 144 sports that were played only by individuals, 91 played by teams, and 12 that were played by both individuals and teams. Contrary to our prediction, there was no substantial relationship between participants' sex and whether the sport was an individual or team sport (Table 5). In particular, 59% of sports with male participants involved teams at least occasionally, whereas 50% of sports with female participants did so.

Of the 57 combat sports, 42 were classified as individual, 13 were team, and 2 were both; of the 36 hunting sports, 33 were individual and 3 were

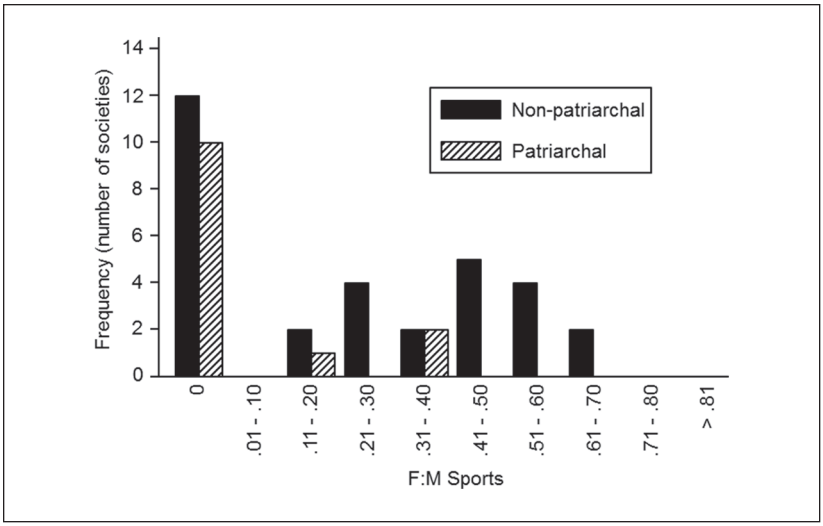

Figure 1. Histograms of F:M sports for patriarchal and nonpatriarchal societies.
Note: F:M sports = ratio of female to male sports.

team. With combat and hunting sports excluded, 45% of sports with male participants involved teams at least occasionally, whereas 48% of sports with female participants did so.

Female Power

As predicted, F:M sports was significantly greater in nonpatriarchal than (M = 0.19, SD = 0.21) than patriarchal societies (M = .05, SD = 0.12), $t(48)$ = 2.34, p = .024. Some societies had limited available information regarding recreational activities, and F:M sports might therefore include much random error because sports are poorly documented in that society. Supporting the idea that few documented sports reflect, in part, poor coverage, we found a significant positive correlation across societies between the total number of amusements and the total number of sports documented, $r(58)$ = .60, $p <$ .0001. We therefore repeated our analyses after excluding the seven societies with only one documented sport. As shown in Figure 1, F:M sports was again significantly greater in nonpatriarchal than patriarchal societies, $t(41) = 2.52$, $p = .016$. Also, as expected, the effect size was slightly greater ($d = 0.91$) than when including all 50 societies with documented sports ($d = 0.79$)

One concern about these comparisons is that F:M sports is skewed rightward, with a modal value of zero (Figure 1). We therefore repeated our comparisons

using a binary classification, that is, whether or not female sports occurred. Again, patriarchal and nonpatriarchal societies differed significantly, $\chi^2(1, n = 50) = 4.23$, $p = .039$, and societies with at least two sports, $\chi^2(1, n = 43) = 4.95$, $p = .026$.

Discussion

This study had three main findings. First, there was a large overall sex difference in sports played, with 235 sports played by males and 50 played by females. Furthermore, males played more sports in all 50 societies with at least one documented sport. Second, the sex difference was pronounced for combat and hunting sports, with males being the exclusive participants in all 36 hunting sports, and 55 of 57 combat sports. Third, the sex difference in sports played was smaller in nonpatriarchal societies. Before considering the theoretical significance of these findings, we examine their potential limitations.

Limitations

The quality of coding is an important consideration in cross-cultural studies, but we took steps to address this issue. First, to promote precision and reliability, as our measure of participation we counted the number of well-described games, rather than using a binary classification (i.e., sports occurred or not) or more subjective judgments (e.g., importance to participants; Schlegel & Herbert, 1989). Although our explorations of interobserver reliability indicated appreciable error in identifying sports, the coding reliability of participants' sex was good ($\kappa = .86$). We are thus confident that anyone using our methods would obtain substantially similar results. Second, we demonstrated the validity of our sports coding by showing that, across societies, the ratio of female sports to male sports (i.e., F:M sports) correlated substantially with the ratio of female-to-male HRAF-coded sports paragraphs (e.g., $r = .70$) but not with the ratio of female-to-male HRAF-coded conversation paragraphs (e.g., $r = -.01$). Similarly, the overall sex difference we found for coded sports was also replicated in the number of sex-specific sports paragraphs.

Another potential concern is that ethnographers may have frequently overlooked females' sports participation. This is plausible but difficult to test. We did show, however, that there was no sex difference in the number of amusements. Similarly, the sex difference in sports paragraphs was substantially greater than the sex difference in conversation paragraphs. Thus, if the ethnographic record is biased, it is biased in a specific way, one that fits evolutionarily derived predictions quite well.

A third potential concern is that females might participate in fewer sports yet might play more frequently or in a somehow more meaningful way. Although this may be true in some cases, it is very unlikely to hold generally. This is because in cases where both males and females participated in a sport, there were often clear statements that males played more frequently or formally (e.g. baseball in Chuuk: Gladwin & Sarason, 1953; foot races in Ona: Chapman, 1982). Similarly, we noted several examples of sports that were described as having great social significance, with most or all of a community paying close attention; in all cases, all participants were men (e.g., lacrosse in Iroquois: Beauchamp, 1896; dart throwing in Tikopia: Firth, 1930; hockey in Mataco: Alvarsson, 1988).

Although we do not believe that the number of sports overestimates the sex difference in sports participation, this measure could be biased in addressing other questions. For example, we found no support for the predictions that males play proportionally more games with teams or featuring physical contact, yet we suspect that these predictions would be supported if better measures of participation were available (see Deaner et al., 2012).

There are genuine limitations of our investigation of female power. One is the possibility that our result is due to chance. This is plausible because even in the most favorable test for the prediction, the p value did not far surpass significance ($p = .016$, two-tailed). A second potential limitation is the statistical nonindependence of societies (Borgerhoff Mulder, 2001; Chick, 2000; Nunn, 2011). In future studies, this issue should be addressed with formal phylogenetic comparative methods. Finally, the codes for residence and descent (Levinson & Wagner, 1986) that were the basis for our patriarchy classification might include substantial error. Although we are unaware of problems with these particular codes, inaccuracies have been shown for other cross-cultural residence codes (Alvarez, 2004; see also Hill et al., 2011).

A Universal Sex Difference

Despite their enormous variability, all human societies exhibit many universal (or "near-universal") characteristics, and several involve sex differences (Brown, 1991). Examples include women doing more primary childcare (Gray & Anderson, 2010; Marlowe, 2000) and men engaging in more same-sex physical aggression (Archer, 2009; Daly & Wilson, 1988). Could greater male participation in sports be another universal?

The results of this article constitute the most direct test of this hypothesis, and, although based on only 50 societies, they are clearly supportive. Moreover, as reviewed in Introduction, all previous cross-societal and historical studies,

although not designed to address this question, appear fully consistent with it. It also is relevant that, despite anthropologists' penchant for celebrating the exotic (Brown, 1991), none apparently has found a society where females play sports as frequently as males do. Indeed, one apparent candidate does not hold up: Among the Khasi, a matrilineal society, women were significantly more competitive than men in a high-stakes ball-tossing experiment, a pattern that differs from that found in several other societies (Gneezy, Leonard, & List, 2009); however, the ethnographic materials indicate that only males regularly play sports in this society (Table 2).

The case for a universal sex difference seems especially strong for hunting and combat sports. In our sample, females did not participate in any hunting sports and in only two combat sports, and neither poses a strong challenge to the claim of universality: Among the Aymara, boys and girls were noted as often wrestling but without formalized rules (Tschopik, 1946); among the Chukchee, women wrestle but with less preparation, ritual, and formality than the men (Bogoraz-Tan, 1909). We have also searched for additional evidence of women's combat sports in HRAF societies outside the probability sample. Although we have found several additional cases, whenever there is substantial description, the corresponding male combat sport invariably is reported to occur more frequently and receive greater attention (e.g., wrestling in Tongans: Anderson, 1967).

What factors could explain the apparently universal sex difference in sports participation, at least for sports involving direct competition? One possibility is that females are, on average, equally interested in participating but they are unable to do so because they are discouraged, prohibited, or lack the time. Although these issues must be important in some cases, much data suggest they have limited general explanatory value. First, studies of large contemporary societies ubiquitously find that males self-report greater interest in participating, watching, and excelling in sports (Ellis et al., 2008). Moreover, in contemporary societies where many individuals, especially youths, have sufficient free time to watch television for several hours per day, the sex difference in participation remains strong (e.g., Larson & Verma, 1999; Lunn, 2010; Stamatakis & Chaudhury, 2008). Most tellingly, a recent study in the United States showed that although there is no reliable sex difference in the frequency of noncompetitive physical activity (i.e., exercise), males participate in sports more than 3 times as much as females, and this pattern holds even in sports such as soccer and basketball that require minimal facilities and equipment (Deaner et al., 2012).

Males' apparently greater motivation to participate in sports is likely due to several factors. One view is that individual and intersexual variation in

sports motivation is driven mainly or entirely by differential socialization. In other words, some individuals, particularly boys, are more likely to become interested in sports because they receive greater sports encouragement or opportunities (e.g., Fredricks & Eccles, 2005; Hogshead-Makar & Zimbalist, 2007). Although socialization seems undeniably important, there are few demonstrations that rule out alternative explanations. For example, if parents are less likely to enroll their daughters than their sons in soccer leagues, this can be interpreted as boys receiving greater sports encouragement or as reflecting that fewer young girls express early interest in this sort of activity (Lever, 1978; Sandberg & Meyer-Bahlburg, 1994). Likewise, similar valuation of sport by parents and their children fits a socialization view (Fredricks & Eccles, 2005), but it also might be ascribed to heritable genetic variation (e.g., Hur, McGue, & Iacono, 1996).

One factor known to contribute to males' greater sports motivation is their typically greater exposure to androgens before birth (e.g., Berenbaum, 1999; Berenbaum & Snyder, 1995; Frisén et al., 2009; see also Berenbaum & Beltz, 2011). Because this difference is unlikely to be socially malleable, the sex difference in sports participation probably is a genuine societal universal. If corroborated, this universal sex difference would provide strong support for evolutionary models emphasizing the importance of male-male competition (Geary, 2010; Puts, 2010), including in sports (Lombardo, 2012). Of course, within each society this sex difference occurs only as a statistical generality, and many girls and women show high sports interest and many boys and men show minimal interest.

Variation Across Societies

Despite the consistent overall sex difference in sports participation observed in our sample, there was substantial variability in its magnitude, with no female sports occurring in many societies but several sports occurring in others. That such variation can be explained with a functional, evolutionary framework is suggested by the association between patriarchy and relatively fewer female sports: Apparently natural selection has produced mechanisms that allow individuals (e.g., parents) to calibrate and socialize others' (e.g., their daughters) competitiveness to levels that are advantageous for their society (Gneezy et al., 2009; Low, 1989). As noted above, however, our patriarchy result should be corroborated with larger samples, phylogenetic comparative methods, and perhaps refined data on patriarchy. Variation in sex differences in sports participation also might be illuminated with more refined measures of female power, such as control of resources (Schlegel &

Barry, 1986; Yanca & Low, 2004) or quantitative estimates of the number of kin and female allies present (Hill et al., 2011).

Our patriarchy result complements the finding that competitive games in adolescent females occur more frequently in societies that promote female competition (Schlegel & Herbert, 1989). More generally our result supports previous studies indicating the importance of female empowerment across societies (e.g., Hrdy, 1999; Smuts, 1995; Yanca & Low, 2004). For example, in the Standard Cross-Cultural Sample, high female contribution to subsistence is associated with greater polygyny, more permissive attitudes toward premarital sex (Schlegel & Barry, 1986), and, in girls, greater inculcation of achievement and aggression and lesser inculcation of obedience (Low, 1989; see also Munroe, Hulefeld, Rodgers, Tomeo, & Yamazaki, 2000).

It has also been reported that, across contemporary nations, greater female empowerment correlates with a smaller sex difference in several aspects of mate preference (Eagly & Wood, 1999; Kasser & Sharma, 1999). This latter result has suggested to some that female empowerment, and the social roles they usually engender, might explain virtually all sex differences in motivations and preferences (i.e., social role theory: Eagly & Wood, 1999; Wood & Eagly, 2002), including in sports (Diekman & Eagly, 2000). However, there are reasons to question this interpretation. First, the cross-national associations of women's empowerment and mating preferences are unreliable (Gangestad, Haselton, & Buss, 2006). Second, sex differences in some preferences seem large in all nations. Examples include men's greater desire for sex in short-term or uncommitted contexts (Baumeister, Catanese, & Vohs, 2001; Lippa, 2009; Schmitt, 2005) and women's relatively greater occupational preference to work with people rather than things (Lippa, 2010; see also Hansen, 1988; Su, Rounds, & Armstrong, 2009). Finally, evolutionarily informed studies of cross-national variation in sex differences have shown that variables seemingly unrelated to sex differences can explain substantial variation in them. For example, parasite load predicts sex differences in mate preferences (Gangestad et al., 2006; see also Low, 1990) and general economic development predicts sex differences in line angle judgments (Lippa, Collaer, & Peters, 2010) and personality (Lippa, 2010; Schmitt, Realo, Voracek, & Allik, 2008).

In conclusion, our study complements previous research by showing that a robust, probably universal, sex difference can co-occur with meaningful variation in its expression. We suggest that future research seeking to explain variation in sports participation and motivation, both across and within societies, may benefit from an explicitly evolutionary perspective.

Appendix

Codes for All Activities

Region	Culture	Name or brief description	Activity	Sport type	Physical contact	Team	Sex
Africa	Akan	Dolls	A	NA	NA	NA	F
	Akan	Wrestling	SP	CO	RQ	IN	M
	Akan	Shooting party	SP	CO	RQ	IN	M
	Akan	Dáme (like checkers)	ST	NA	NA	IN	M
Africa	Amhara	Whip fights	SP	CO	RQ	BO	M
	Amhara	Spear fights	SP	CO	RQ	IN	M
	Amhara	Wrestling	SP	CO	RQ	IN	M
	Amhara	Javelin throwing	SP	HU	NO	IN	M
	Amhara	Field hockey	SP	OT	FR	TM	M
	Amhara	Kwas (like baseball)	SP	OT	R	TM	M
	Amhara	Gabata (board game)	ST	NA	NA		BO
	Azande	Cat's cradle	A	NA	NA	NA	BO
	Azande	Acrobatics	A	NA	NA	NA	M
	Azande	Tip-cat	SP	OT	NO	IN	M
	Azande	Banga (draughts)	ST	NA	NA	IN	BO
Africa	Bemba	Catching stones/seeds	A	NA	NA	NA	F
	Bemba	Mbusa	A	NA	NA	NA	F
Africa	Dogon	Blind man's bluff	A	NA	NA	NA	BO
	Dogon	Kicking girls and chase circle game	A	NA	NA	NA	BO
	Dogon	Dolls	A	NA	NA	NA	F
	Dogon	Top spinning	A	NA	NA	NA	M
	Dogon	Swinging honey gathering practice	A	NA	NA	NA	M
	Dogon	War game	A	NA	NA	NA	M
	Dogon	Hidden object game	CH	NA	NA	BO	BO
	Dogon	Sham fights	SC	NA	RQ	IN	M
	Dogon	Cat's cradle	SP	OT	NO	IN	BO
	Dogon	Wrestling	SP	CO	RQ	IN	M
	Dogon	Archery	SP	HU	NO	IN	M
Africa	Ganda	Playing house	A	NA	NA	NA	BO
	Ganda	String game	A	NA	NA	NA	BO
	Ganda	Sledding	A	NA	NA	NA	BO
	Ganda	Dust building	CH	NA	NA	NA	BO
	Ganda	Stick fight	SP	CO	RQ	IN	M
	Ganda	Wrestling	SP	CO	RQ	IN	M
	Ganda	Team kick fight	SP	CO	RQ	TM	M
	Ganda	Battle while riding bulls	SP	CO	RQ	TM	M
	Ganda	Archery	SP	HU	NO	IN	M
	Ganda	Soccer	SP	OT	FR	TM	M
	Ganda	Reed piercing	SP	OT	NO	IN	M
	Ganda	Stick throwing	SP	OT	NO	IN	M
	Ganda	Marbles	SP	OT	NO	TM	M
	Ganda	Stick rolling	SP	OT	NO	TM	M
	Ganda	Berry game	SP	OT	NO	TM	M
	Ganda	Mweso	ST	NA	NA	IN	M

(continued)

Appendix (continued)

Region	Culture	Name or brief description	Activity	Sport type	Physical contact	Team	Sex
Africa	Hausa	Boxing	SP	CO	RQ	IN	M
	Hausa	Soccer	SP	OT	FR	TM	M
Africa	Kanuri	Dance game with girl tossing	A	NA	NA	NA	F
	Kanuri	Dolls	A	NA	NA	NA	F
	Kanuri	Horsemanship	A	NA	NA	NA	M
	Kanuri	Soccer	SP	OT	FR	TM	M
Africa	Libyan Bedouin	Horsemanship displays	A	NA	NA	NA	M
Africa	Maasai	Playing house	A	NA	NA	NA	BO
	Maasai	Tag	A	NA	NA	NA	BO
	Maasai	Dolls	A	NA	NA	NA	F
	Maasai	Stick fight	SP	CO	RQ	IN	M
	Maasai	Board game	ST	NA	NA	IN	M
Africa	Mbuti	Playing house	A	NA	NA	NA	BO
	Mbuti	Tug of war	A	NA	NA	NA	BO
	Mbuti	Spear throwing	A	NA	NA	NA	M
Africa	Somali	Playing house	A	NA	NA	NA	BO
	Somali	Dolls	A	NA	NA	NA	F
	Somali	Camel rearing	A	NA	NA	NA	M
	Somali	Stick fight	SP	CO	RQ	TM	M
	Somali	Hockey	SP	OT	FR	TM	M
	Somali	Tipcat	SP	OT	NO	IN	M
	Somali	Ball game like rugby	SP	OT	RQ	TM	M
	Somali	War game	SP	OT	RQ	TM	M
	Somali	Board game	ST	NA	NA	IN	M
	Somali	Chess	ST	NA	NA	IN	M
	Somali	Chinese checkers	ST	NA	NA	IN	M
	Somali	Card game	ST	NA	NA	TM	M
Africa	Tiv	Kuta	CH	NA	NA	IN	M
	Tiv	Cards	ST	NA	NA	IN	M
Africa	Wolof	Dolls	A	NA	NA	NA	F
	Wolof	Hopscotch	A	NA	NA	NA	F
	Wolof	Soccer	SP	OT	FR	TM	M
	Wolof	Tennis	SP	OT	NO	IN	M
Asia	Andaman	Wrestling	SP	CO	RQ	IN	M
	Andaman	Archery	SP	HU	NO	IN	M
	Andaman	Stone throwing	SP	HU	NO	IN	M
	Andaman	Diving competition	SP	OT	NO	IN	M
	Andaman	Canoe race	SP	OT	NO		M
Asia	Central Thai	Luk chuang (ball game)	A	NA	NA	NA	BO
	Central Thai	Hide and seek	A	NA	NA	NA	BO
	Central Thai	Ring around rosy	A	NA	NA	NA	BO
	Central Thai	Tag	A	NA	NA	NA	BO
	Central Thai	Tree tag	A	NA	NA	NA	BO
	Central Thai	Hopscotch	A	NA	NA	NA	F
	Central Thai	Jump rope	A	NA	NA	NA	F

(continued)

Appendix (continued)

Region	Culture	Name or brief description	Activity	Sport type	Physical contact	Team	Sex
	Central Thai	Slingshot	A	NA	NA	NA	M
	Central Thai	Roulette, lottery, and card games of chance	CH	NA	NA	NA	BO
	Central Thai	Jacks	SP	OT	NO	IN	BO
	Central Thai	Marbles	SP	OT	NO	IN	BO
	Central Thai	Kick boxing	SP	CO	RQ	IN	M
	Central Thai	Dekwat (tossing pennies)	SP	OT	NO	IN	M
	Central Thai	Boat race	SP	OT	NO	TM	M
	Central Thai	Chess	ST	NA	NA	IN	M
	Central Thai	Checkers	ST	NA	NA	IN	M
Asia	Chukchee	Football dodgeball but informal	A	NA	NA	NA	BO
	Chukchee	Ball play without rules	A	NA	NA	NA	BO
	Chukchee	Chase game	A	NA	NA	NA	BO
	Chukchee	Crawling on knees	A	NA	NA	NA	BO
	Chukchee	Cat's cradle	A	NA	NA	NA	F
	Chukchee	Dolls	A	NA	NA	NA	F
	Chukchee	Jump rope	A	NA	NA	NA	F
	Chukchee	Maintaining body positions to show strength	A	NA	NA	NA	M
	Chukchee	Top spinning	A	NA	NA	NA	M
	Chukchee	Wrestling duel	D	NA	RQ	IN	M
	Chukchee	Wrestling	SP	CO	RQ	IN	BO
	Chukchee	Foot race	SP	OT	NO	IN	BO
	Chukchee	Lasso game	SP	OT	NO	IN	BO
	Chukchee	Acrobatics/jumping on walrus hide	SP	OT	NO	IN	BO
	Chukchee	Lance fighting	SP	CO	RQ	IN	M
	Chukchee	Dog sled race	SP	OT	NO	IN	M
	Chukchee	Reindeer sled race	SP	OT	NO	IN	M
	Chukchee	Arm wrestling	SP	OT	RQ	IN	M
	Chukchee	Hand pulling	SP	OT	RQ	IN	M
Asia	Eastern Toraja	Memory games	A	NA	NA	NA	BO
	Eastern Toraja	Hot potato	A	NA	NA	NA	F
	Eastern Toraja	Motela (striking bamboo slats)	A	NA	NA	NA	F
	Eastern Toraja	Shooting game	A	NA	NA	NA	M
	Eastern Toraja	Sham fights	SC	NA	RQ	IN	M
	Eastern Toraja	Mosipati (like jacks)	SP	OT	NO	IN	F
	Eastern Toraja	Shell throwing	SP	OT	NO	IN	F
	Eastern Toraja	Spear throwing	SP	HU	NO	TM	M
	Eastern Toraja	Top spinning	SP	OT	NO	BO	M

(continued)

Appendix (continued)

Region	Culture	Name or brief description	Activity	Sport type	Physical contact	Team	Sex
	Eastern Toraja	Stilt race	SP	OT	NO	IN	M
	Eastern Toraja	Stick throwing	SP	OT	NO	IN	M
	Eastern Toraja	Calf kicking	SP	OT	RQ	IN	M
Asia	Iban	Swimming	A	NA	NA	NA	BO
	Iban	Dolls	A	NA	NA	NA	F
	Iban	Playing house	A	NA	NA	NA	F
	Iban	Top spinning	A	NA	NA	NA	M
	Iban	Pole climbing	A	NA	NA	NA	M
	Iban	Shin kicking	SP	CO	RQ	IN	M
	Iban	Wrestling	SP	CO	RQ	IN	M
	Iban	Stick pulling test of strength	SP	CO	RQ	IN	M
	Iban	Arm wrestling	SP	OT	RQ	IN	M
Asia	Ifugao	Block throwing	A	NA	NA	NA	M
	Ifugao	Wrestling	SP	CO	RQ	IN	M
Asia	Khasi	Greasy pole	A	NA	NA	NA	BO
	Khasi	Hop scotch	A	NA	NA	NA	BO
	Khasi	Top spinning	A	NA	NA	NA	BO
	Khasi	Archery	SP	HU	NO	TM	M
	Khasi	Hockey	SP	OT	FR	TM	M
Asia	Korea	Blind man's bluff	A	NA	NA	NA	BO
	Korea	Hide and seek	A	NA	NA	NA	BO
	Korea	Cat's cradle	A	NA	NA	NA	F
	Korea	See-saw	A	NA	NA	NA	F
	Korea	Foot juggling hacky sack	A	NA	NA	NA	M
	Korea	Skating	A	NA	NA	NA	M
	Korea	Sledding	A	NA	NA	NA	M
	Korea	Swimming	A	NA	NA	NA	M
	Korea	Dice	CH	NA	NA	IN	BO
	Korea	Jacks	SP	OT	NO	IN	BO
	Korea	Stick game	SP	OT	NO	IN	BO
	Korea	Swinging	SP	OT	NO	IN	BO
	Korea	Tug of war	SP	OT	RQ	TM	BO
	Korea	Boxing	SP	CO	RQ	IN	M
	Korea	Wrestling	SP	CO	RQ	IN	M
	Korea	Stick stone fights	SP	CO	RQ	TM	M
	Korea	Archery	SP	HU	NO	IN	M
	Korea	Soccer football	SP	OT	FR	TM	M
	Korea	Kite flying	SP	OT	NO	IN	M
	Korea	Pitch penny	SP	OT	NO	IN	M
	Korea	Yut chess checkers	ST	NA	NA	IN	BO
	Korea	Cards	ST	NA	NA	IN	M
	Korea	Chess	ST	NA	NA	IN	M
	Korea	Checkers	ST	NA	NA	IN	M

(continued)

Appendix (continued)

Region	Culture	Name or brief description	Activity	Sport type	Physical contact	Team	Sex
Asia	Santal	Blind man's bluff	A	NA	NA	NA	BO
	Santal	Duck duck goose	A	NA	NA	NA	BO
	Santal	Tug of war	A	NA	NA	NA	BO
	Santal	Counting game	A	NA	NA	NA	F
	Santal	Guessing game	CH	NA	NA	IN	F
	Santal	Sham wrestling	SC	NA	RQ	TM	M
	Santal	Archery	SP	HU	NO	IN	M
	Santal	Pitching pot shards into holes	SP	OT	NO	IN	M
	Santal	Knocking pieces of wood	SP	OT	NO	IN	M
Asia	Taiwan Hokkien	Jump rope	A	NA	NA	NA	F
	Taiwan Hokkien	Playing house	A	NA	NA	NA	F
	Taiwan Hokkien	Kites	A	NA	NA	NA	M
	Taiwan Hokkien	Gambling game	CH	NA	NA	NA	BO
	Taiwan Hokkien	Pool	SP	OT	NO	IN	M
	Taiwan Hokkien	Baseball	SP	OT	R	TM	M
	Taiwan Hokkien	Cards	ST	NA	NA	IN	BO
	Taiwan Hokkien	Chess	ST	NA	NA	IN	BO
Asia	Yakut	Falcons and ducks chase game	A	NA	NA	NA	BO
	Yakut	Dolls	A	NA	NA	NA	F
	Yakut	Archery	A	NA	NA	NA	M
	Yakut	Wrestling	SP	CO	RQ	IN	M
	Yakut	Lasso game	SP	HU	NO	IN	M
	Yakut	Running	SP	OT	NO	IN	M
Europe	Highland Scots	Dolls	A	NA	NA	NA	F
	Highland Scots	Bowling	SP	OT	NO	BO	BO
	Highland Scots	Shinty	SP	OT	FR	TM	M
	Highland Scots	Soccer	SP	OT	FR	TM	M
	Highland Scots	Darts	SP	OT	NO	TM	M
Europe	Saami	Rope game	A	NA	NA	NA	BO
	Saami	Wild-reindeer chase	A	NA	NA	NA	BO
	Saami	Dolls	A	NA	NA	NA	F
	Saami	Ski	A	NA	NA	NA	M
	Saami	Stone/ball throwing	SP	CO	RQ	IN	BO
	Saami	Tug of war	SP	OT	RQ	TM	BO

(continued)

Appendix (continued)

Region	Culture	Name or brief description	Activity	Sport type	Physical contact	Team	Sex
	Saami	Wrestling	SP	CO	RQ	IN	M
	Saami	Archery	SP	HU	NO	IN	M
	Saami	Sling competition	SP	HU	NO	IN	M
	Saami	Long jump-high jump	SP	OT	NO	IN	M
	Saami	Fireball-baseball	SP	OT	R	TM	M
	Saami	Hand wrestling	SP	OT	RQ	IN	M
	Saami	Chess	ST	NA	NA	IN	M
	Saami	Tablo	ST	NA	NA	IN	M
Europe	Serbs	Pilica	A	NA	NA	NA	BO
	Serbs	Swinging	A	NA	NA	NA	BO
	Serbs	Blind man's bluff	A	NA	NA	NA	BO
	Serbs	Desetek jacks	A	NA	NA	NA	BO
	Serbs	Target practice	A	NA	NA	NA	M
	Serbs	Wrestling	SP	CO	RQ	IN	M
	Serbs	Toss game	SP	OT	NO	IN	M
Mid-Am Caribbean	Kuna	Blind man's bluff	A	NA	NA	NA	M
	Kuna	Circle game	A	NA	NA	NA	M
	Kuna	Guessing game	A	NA	NA	NA	M
	Kuna	Playing ghost	A	NA	NA	NA	M
	Kuna	Running of the gauntlet	A	NA	NA	NA	M
	Kuna	Archery	SP	HU	NO	IN	M
	Kuna	Basketball	SP	OT	FR	TM	M
	Kuna	Foot race	SP	OT	NO	IN	M
	Kuna	Stone recovery/diving	SP	OT	NO	IN	M
	Kuna	Boat race	SP	OT	NO	TM	M
	Kuna	Baseball	SP	OT	R	TM	M
	Kuna	Checkers	ST	NA	NA	IN	M
	Kuna	Dominoes	ST	NA	NA	IN	M
Mid-Am Caribbean	Tarahumara	Play cooking	A	NA	NA	NA	F
	Tarahumara	Pretend bullfight	A	NA	NA	NA	M
	Tarahumara	Dice	CH	NA	NA	IN	M
	Tarahumara	Shinny tákwari ball game	SP	OT	FR	IN	F
	Tarahumara	Doubleball nakburi ball game	SP	OT	FR	TM	F
	Tarahumara	Hoop and stick foot race	SP	OT	NO	TM	F
	Tarahumara	Archery	SP	HU	NO	IN	M
	Tarahumara	Lacrosse	SP	OT	FR	TM	M
	Tarahumara	Patole stick throwing	SP	OT	NO	IN	M
	Tarahumara	Disk throwing quoits horseshoes	SP	OT	NO	TM	M
	Tarahumara	Ball race	SP	OT	NO	TM	M
	Tarahumara	Quince domabóa parcheesi	ST	NA	NA	IN	M
Mid-Am Caribbean	Tzeltal	Chase	A	NA	NA	NA	BO
	Tzeltal	Playing house / adult imitation	A	NA	NA	NA	BO
	Tzeltal	Catch with ball	A	NA	NA	NA	BO

(continued)

Appendix (continued)

Region	Culture	Name or brief description	Activity	Sport type	Physical contact	Team	Sex
	Tzeltal	Dolls	A	NA	NA	NA	F
	Tzeltal	Hide and seek	A	NA	NA	NA	M
	Tzeltal	Horse riding and drinking game	A	NA	NA	NA	M
	Tzeltal	Wrestling	SP	CO	RQ	IN	M
	Tzeltal	Marbles	SP	OT	NO	IN	M
Mideast	Kurds	Playing house	A	NA	NA	NA	F
	Kurds	Hide and seek	A	NA	NA	NA	M
	Kurds	Rock fight	SP	CO	RQ	TM	M
	Kurds	Ball-catching game	SP	OT	NO	BO	M
	Kurds	Knucklebones or marbles	SP	OT	NO	IN	M
	Kurds	Throwing stones for accuracy	SP	OT	NO	IN	M
	Kurds	Checkers	ST	NA	NA	IN	M
	Kurds	Backgammon	ST	NA	NA	IN	M
North America	Blackfoot	Hide and seek	A	NA	NA	NA	BO
	Blackfoot	Hobby horse	A	NA	NA	NA	BO
	Blackfoot	Playing house	A	NA	NA	NA	BO
	Blackfoot	Tag	A	NA	NA	NA	BO
	Blackfoot	Sledding	A	NA	NA	NA	BO
	Blackfoot	Pretend Buffalo/bear hunt	A	NA	NA	NA	BO
	Blackfoot	Skating	A	NA	NA	NA	BO
	Blackfoot	Crack the whip	A	NA	NA	NA	F
	Blackfoot	Dolls	A	NA	NA	NA	F
	Blackfoot	Acrobatics	A	NA	NA	NA	M
	Blackfoot	Fire game	A	NA	NA	NA	M
	Blackfoot	War game	A	NA	NA	NA	M
	Blackfoot	Guessing game, stick game, hand game	CH	NA	NA	BO	BO
	Blackfoot	Dice	CH	NA	NA	IN	BO
	Blackfoot	Travois	CH	NA	NA	NA	F
	Blackfoot	Shinny	SP	OT	FR	TM	BO
	Blackfoot	Cree "women's game"	SP	OT	NO	IN	BO
	Blackfoot	Tossing boy in air	SP	OT	NO	TM	BO
	Blackfoot	Arrow throwing	SP	OT	NO	IN	F
	Blackfoot	Wrestling	SP	CO	RQ	IN	M
	Blackfoot	Clay war game	SP	CO	RQ	TM	M
	Blackfoot	Mud fight	SP	CO	RQ	TM	M
	Blackfoot	Team kick fight	SP	CO	RQ	TM	M
	Blackfoot	Archery	SP	HU	NO	IN	M
	Blackfoot	Top spinning	SP	OT	NO	BO	M
	Blackfoot	Wheel hoop pole arrow game	SP	OT	NO	BO	M
	Blackfoot	Foot race	SP	OT	NO	IN	M
	Blackfoot	Horse race	SP	OT	NO	IN	M
	Blackfoot	Snow snake throwing	SP	OT	NO	IN	M
	Blackfoot	Pool	SP	OT	NO	IN	M

(continued)

Appendix (continued)

Region	Culture	Name or brief description	Activity	Sport type	Physical contact	Team	Sex
North America	Copper Inuit	Acrobatics	A	NA	NA	NA	BO
	Copper Inuit	Blind man's bluff	A	NA	NA	NA	BO
	Copper Inuit	Jump rope	A	NA	NA	NA	BO
	Copper Inuit	Swimming	A	NA	NA	NA	BO
	Copper Inuit	Tag wolf raven	A	NA	NA	NA	BO
	Copper Inuit	Cat's cradle	A	NA	NA	NA	BO
	Copper Inuit	Keep away with ball	A	NA	NA	NA	BO
	Copper Inuit	Hide and seek	A	NA	NA	NA	F
	Copper Inuit	Skating	A	NA	NA	NA	F
	Copper Inuit	Guessing game	CH	NA	NA	IN	BO
	Copper Inuit	Foot race	SP	OT	NO	IN	BO
	Copper Inuit	Tug of war	SP	OT	RQ	TM	BO
	Copper Inuit	Boxing	SP	CO	RQ	IN	M
	Copper Inuit	Wrestling	SP	CO	RQ	IN	M
	Copper Inuit	Archery	SP	HU	NO	IN	M
	Copper Inuit	Shooting gun	SP	HU	NO	IN	M
	Copper Inuit	Hockey	SP	OT	FR	TM	M
	Copper Inuit	Street hockey	SP	OT	FR	TM	M
	Copper Inuit	Volleyball	SP	OT	NO	TM	M
	Copper Inuit	Baseball	SP	OT	R	TM	M
	Copper Inuit	Arm finger wrestling	SP	OT	RQ	IN	M
	Copper Inuit	Poker	ST	NA	NA	IN	M
North America	Hopi	Blind man's bluff	A	NA	NA	NA	BO
	Hopi	Tag	A	NA	NA	NA	BO
	Hopi	Top spinning	A	NA	NA	NA	BO
	Hopi	Object arrangement puzzle	A	NA	NA	NA	BO
	Hopi	Ring toss	A	NA	NA	NA	BO
	Hopi	Alatami	A	NA	NA	NA	F
	Hopi	Breaking the piki stone	A	NA	NA	NA	F
	Hopi	Circle game London bridge	A	NA	NA	NA	F
	Hopi	Pursuit game	A	NA	NA	NA	F
	Hopi	Dolls	A	NA	NA	NA	F
	Hopi	Playing witch	A	NA	NA	NA	M
	Hopi	Rolling tires or hoops	A	NA	NA	NA	M
	Hopi	Hidden object game	CH	NA	NA	TM	BO
	Hopi	Shinny	SP	OT	FR	TM	BO
	Hopi	Foot race	SP	OT	NO	BO	BO
	Hopi	Tug of war	SP	OT	RQ	TM	BO
	Hopi	War game	SP	CO	RQ	TM	M
	Hopi	Archery	SP	HU	NO	IN	M
	Hopi	Dart throwing	SP	HU	NO	IN	M
	Hopi	Stick throwing	SP	HU	NO	IN	M
	Hopi	Top spinning	SP	OT	NO	BO	M
	Hopi	Kick ball race	SP	OT	NO	TM	M

(continued)

Appendix (continued)

Region	Culture	Name or brief description	Activity	Sport type	Physical contact	Team	Sex
	Hopi	Softball	SP	OT	R	TM	M
	Hopi	Totolospi parchesi	ST	NA	NA	IN	BO
North America	Iroquois	Dolls	A	NA	NA	NA	F
	Iroquois	Game of the bowl	CH	NA	NA	BO	BO
	Iroquois	War game sham	SC	NA	RQ	TM	M
	Iroquois	Softball	SP	OT	R	TM	BO
	Iroquois	American football	SP	OT	RQ	TM	BO
	Iroquois	Shinny	SP	OT	FR	TM	F
	Iroquois	Double ball throwing game	SP	OT	FR	TM	F
	Iroquois	Archery	SP	HU	NO	IN	M
	Iroquois	Javelin throwing	SP	HU	NO	IN	M
	Iroquois	Lacrosse	SP	OT	FR	TM	M
	Iroquois	Hockey	SP	OT	FR	TM	M
	Iroquois	Throwing snow snakes	SP	OT	NO	BO	M
	Iroquois	Hoop and pole	SP	OT	NO	TM	M
	Iroquois	Baseball	SP	OT	R	TM	M
North America	Klamath	Dolls	A	NA	NA	NA	BO
	Klamath	Top spinning	A	NA	NA	NA	BO
	Klamath	Cat's cradle	A	NA	NA	NA	BO
	Klamath	Ring and pin/cup and ball game—not serious Competition	A	NA	NA	NA	BO
	Klamath	Splashing	A	NA	NA	NA	BO
	Klamath	Dice/four stick guessing game	CH	NA	NA	IN	BO
	Klamath	Four stick guessing game	CH	NA	NA	IN	BO
	Klamath	Men's guessing game	CH	NA	NA	IN	M
	Klamath	Foot race	SP	OT	NO	IN	BO
	Klamath	Hair pulling	SP	OT	RQ	IN	BO
	Klamath	Shinny double ball	SP	OT	FR	TM	F
	Klamath	Jumping up and down for endurance	SP	OT	NO	IN	F
	Klamath	Wrestling	SP	CO	RQ	IN	M
	Klamath	Archery	SP	HU	NO	IN	M
	Klamath	Dart throwing	SP	HU	NO	IN	M
	Klamath	Spear throwing	SP	HU	NO	IN	M
	Klamath	Shinny	SP	OT	FR	TM	M
	Klamath	Strength contests—carrying rocks, bending saplings	SP	OT	NO	IN	M
North America	Ojibwa	Dolls	A	NA	NA	NA	F
	Ojibwa	Horsemanship	A	NA	NA	NA	M
	Ojibwa	Pin game	A	NA	NA	NA	M
	Ojibwa	Dice	CH	NA	NA	IN	BO
	Ojibwa	Game of the bowl	CH	NA	NA	IN	BO
	Ojibwa	Moccasin guessing game	CH	NA	NA	IN	M
	Ojibwa	Canoe race	SP	OT	NO	IN	BO

(continued)

Appendix (continued)

Region	Culture	Name or brief description	Activity	Sport type	Physical contact	Team	Sex
	Ojibwa	Double ball throwing game	SP	OT	NO	TM	F
	Ojibwa	Boxing	SP	CO	RQ	IN	M
	Ojibwa	Basketball	SP	OT	FR	TM	M
	Ojibwa	Hockey	SP	OT	FR	TM	M
	Ojibwa	Lacrosse	SP	OT	FR	TM	M
	Ojibwa	Horse race	SP	OT	NO	IN	M
	Ojibwa	Tag with mushpots	SP	OT	NO	IN	M
	Ojibwa	Baseball	SP	OT	R	TM	M
	Ojibwa	American football	SP	OT	RQ	TM	M
	Ojibwa	Bridge	ST	NA	NA	IN	M
North America	Pawnee	Guessing game, hand game	CH	NA	NA	BO	BO
	Pawnee	Plum stones dice game	CH	NA	NA	IN	F
	Pawnee	Foot race	SP	OT	NO	IN	BO
	Pawnee	Stick throwing; hoop and pole	SP	HU	NO	IN	M
	Pawnee	Archery	SP	HU	NO	IN	M
North America	Tlingit	Cat's cradle	A	NA	NA	NA	BO
	Tlingit	Dolls	A	NA	NA	NA	BO
	Tlingit	Blindfold capture game	A	NA	NA	NA	BO
	Tlingit	No-smile game	A	NA	NA	NA	BO
	Tlingit	Roller skating	A	NA	NA	NA	BO
	Tlingit	Jumping	A	NA	NA	NA	F
	Tlingit	Playing house	A	NA	NA	NA	F
	Tlingit	Ball toss	A	NA	NA	NA	M
	Tlingit	Cards	CH	NA	NA	IN	BO
	Tlingit	Dice	CH	NA	NA	IN	BO
	Tlingit	Bingo	CH	NA	NA	IN	F
	Tlingit	Stick and toggle	CH	NA	NA	BO	M
	Tlingit	Top spinning as die	CH	NA	NA	IN	M
	Tlingit	Guessing game	CH	NA	NA	TM	M
	Tlingit	Wrestling	SP	CO	RQ	IN	M
	Tlingit	Archery	SP	HU	NO	IN	M
	Tlingit	Spear throwing	SP	HU	NO	IN	M
	Tlingit	Basketball	SP	OT	FR	TM	M
	Tlingit	Marbles	SP	OT	NO	IN	M
	Tlingit	Canoe race	SP	OT	NO	TM	M
	Tlingit	Eating contest	SP	OT	NO	TM	M
	Tlingit	Checkers	ST	NA	NA	IN	M
Oceania	Aranda	Cat's cradle	A	NA	NA	NA	F
	Aranda	Pretend cooking	A	NA	NA	NA	F
	Aranda	Spear throwing	SP	CO	RQ	IN	M
	Aranda	Bark throwing	SP	CO	RQ	TM	M
	Aranda	Tip cat	SP	OT	NO	IN	M
Oceania	Chuuk	Swimming	A	NA	NA	NA	BO
	Chuuk	Hide and seek	A	NA	NA	NA	BO

(continued)

Appendix (continued)

Region	Culture	Name or brief description	Activity	Sport type	Physical contact	Team	Sex
	Chuuk	Dolls	A	NA	NA	NA	F
	Chuuk	Net game	A	NA	NA	NA	F
	Chuuk	Tag	A	NA	NA	NA	M
	Chuuk	Baseball	SP	OT	R	TM	BO
	Chuuk	Tug of war	SP	OT	RQ	TM	BO
	Chuuk	Jumping	SP	OT	NO	IN	F
	Chuuk	Softball	SP	OT	R	TM	F
	Chuuk	Wrestling	SP	CO	RQ	IN	M
	Chuuk	Pool	SP	OT	NO	IN	M
	Chuuk	Reed throwing	SP	OT	NO	IN	M
	Chuuk	Boat race	SP	OT	NO	TM	M
	Chuuk	Arm wrestling	SP	OT	RQ	IN	M
Oceania	Kapauka	Bouncing tree ring	A	NA	NA	NA	F
	Kapauka	Playing harp	A	NA	NA	NA	F
	Kapauka	Playing house	A	NA	NA	NA	F
	Kapauka	String game	A	NA	NA	NA	F
	Kapauka	Reed battle	SP	CO	RQ	TM	M
	Kapauka	War game	SP	CO	RQ	TM	M
	Kapauka	Archery	SP	HU	NO	IN	M
Oceania	Lau Fijians	Cat's cradle	A	NA	NA	NA	F
	Lau Fijians	Jumping	A	NA	NA	NA	F
	Lau Fijians	Disk sliding kitia	SP	OT	NO	BO	BO
	Lau Fijians	Boxing	SP	CO	RQ	IN	M
	Lau Fijians	Wrestling	SP	CO	RQ	IN	M
	Lau Fijians	Archery	SP	HU	NO	IN	M
	Lau Fijians	Spear throwing	SP	HU	NO	IN	M
	Lau Fijians	Foot race	SP	OT	NO	IN	M
	Lau Fijians	Reed throwing	SP	OT	NO	TM	M
	Lau Fijians	Cricket	SP	OT	R	TM	M
Oceania	Tikopia	Stick fight	SP	CO	RQ	IN	M
	Tikopia	Dart throwing	SP	HU	NO	TM	M
Oceania	Trobriands	Hide and seek	A	NA	NA	NA	BO
	Trobriands	Bathing games	A	NA	NA	NA	BO
	Trobriands	Cat's cradle	A	NA	NA	NA	BO
	Trobriands	Cricket	SP	OT	R	TM	BO
	Trobriands	Tug of war	SP	OT	RQ	TM	BO
	Trobriands	Wrestling/stick throwing	SP	CO	RQ	IN	M
	Trobriands	Dart throwing	SP	HU	NO	IN	M
	Trobriands	Draughts	ST	NA	NA	IN	M
South America	Aymara	Playing house	A	NA	NA	NA	BO
	Aymara	Cat's cradle	A	NA	NA	NA	BO
	Aymara	Rope swimming	A	NA	NA	NA	BO
	Aymara	Dolls	A	NA	NA	NA	F
	Aymara	Top spinning	A	NA	NA	NA	M
	Aymara	Guessing game	CH	NA	NA	NA	BO

(continued)

Appendix (continued)

Region	Culture	Name or brief description	Activity	Sport type	Physical contact	Team	Sex
	Aymara	Game of rogues	CH	NA	NA	IN	M
	Aymara	Wrestling	SP	CO	RQ	IN	BO
	Aymara	Foot race	SP	OT	NO	IN	BO
	Aymara	Soccer	SP	OT	FR	TM	M
	Aymara	Marbles	SP	OT	NO	IN	M
	Aymara	Stone throwing	SP	OT	NO	IN	M
South America	Bahia Brazil	Capoeira (martial arts)	SP	CO	RQ	IN	M
	Bahia Brazil	Soccer	SP	OT	FR	TM	M
	Bahia Brazil	Basketball	SP	OT	FR	TM	M
South America	Bororo	Swimming race	A	NA	NA	NA	M
	Bororo	Relay race	SP	OT	NO	TM	M
	Bororo	Wheel race	SP	OT	NO	TM	M
	Guarani	Marbles	SP	OT	NO	IN	M
South America	Kogi	Tag	A	NA	NA	NA	M
	Kogi	Archery	A	NA	NA	NA	M
	Kogi	Climb trees	A	NA	NA	NA	M
South America	Mataco	Hockey	SP	OT	FR	TM	M
South America	Ona	Ceremonial wrestling	A	NA	NA	NA	BO
	Ona	Ball toss	A	NA	NA	NA	BO
	Ona	Dolls	A	NA	NA	NA	F
	Ona	Playing house	A	NA	NA	NA	F
	Ona	Hide and seek	A	NA	NA	NA	F
	Ona	Swings	A	NA	NA	NA	F
	Ona	Ball game	A	NA	NA	NA	M
	Ona	Foot race	SP	OT	NO	BO	BO
	Ona	Wrestling	SP	CO	RQ	BO	M
	Ona	Kick boxing	SP	CO	RQ	IN	M
	Ona	Torch fight	SP	CO	RQ	IN	M
	Ona	Team push game	SP	CO	RQ	TM	M
	Ona	Archery	SP	HU	NO	IN	M
	Ona	Sling competition	SP	HU	NO	IN	M
South America	Saramaka	Dolls	A	NA	NA	NA	F
	Saramaka	Wrestling	SP	CO	RQ	IN	M
South America	Tukano	Dolls	A	NA	NA	NA	F
	Tukano	Cat's cradle	A	NA	NA	NA	M
	Tukano	Stilt walking	A	NA	NA	NA	M
	Tukano	Top spinning	A	NA	NA	NA	M
	Tukano	Break out	A	NA	NA	NA	M
	Tukano	Archery	A	NA	NA	NA	M

(continued)

Appendix (continued)

Region	Culture	Name or brief description	Activity	Sport type	Physical contact	Team	Sex
	Tukano	Ball game	A	NA	NA	NA	M
South America	Yanoama	Volleyball	A	NA	NA	NA	BO
	Yanoama	Cat's cradle	A	NA	NA	NA	F
	Yanoama	Batting ball in air	A	NA	NA	NA	M
	Yanoama	Chest striking	SC	NA	NO	IN	M
	Yanoama	Tug of war	SP	OT	RQ	TM	BO
	Yanoama	Wrestling	SP	CO	RQ	IN	M

Note: A = amusement; BO = both; CH= game of chance; CO = combat; D = duel; F = female; FR = frequent; HU = hunting; IN = individual; M = male; NA = not applicable; NO = none; OT = other; R = rare; RQ = required; SC = sham combat; SP = sport; ST = game of strategy; TM = team.

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