Athens Journal of Sports

Quarterly Academic Periodical,
Volume 8, Issue 4 December 2021
URL: https://www.athensjournals.gr/ajspo
Email: journals@atiner.gr
e-ISSN: 2241-7915 DOI: 10.30958/ajspo

Front Pages

Athens Journal of Sports

Published by the Athens Institute for Education and Research (ATINER)

****

ATINER is an Athens-based World Association of Academics and Researchers based in Athens. ATINER is an independent and non-profit Association with a Mission to become a forum where Academics and Researchers from all over the world can meet in Athens, exchange ideas on their research and discuss future developments in their disciplines, as well as engage with professionals from other fields. Athens was chosen because of its long history of academic gatherings, which go back thousands of years to Plato's Academy and Aristotle's Lyceum. Both these historic places are within walking distance from ATINER's downtown offices. Since antiquity, Athens was an open city. In the words of Pericles, Athens"…is open to the world, we never expel a foreigner from learning or seeing". ("Pericles' Funeral Oration", in Thucydides, The History of the Peloponnesian War). It is ATINER's mission to revive the glory of Ancient Athens by inviting the World Academic Community to the city, to learn from each other in an environment of freedom and respect for other people's opinions and beliefs. After all, the free expression of one's opinion formed the basis for the development of democracy, and Athens was its cradle. As it turned out, the Golden Age of Athens was in fact, the Golden Age of the Western Civilization. Education and (Re)searching for the 'truth' are the pillars of any free (democratic) society. This is the reason why Education and Research are the two core words in ATINER's name.

****

The ***Athens Journal of Sports (AJSPO)*** is an Open Access quarterly double-blind peer reviewed journal and considers papers from all areas of sports and related sciences. Many of the papers published in this journal have been presented at the various conferences sponsored by the Sport, Exercise, & Kinesiology Unit of the **Athens Institute for Education and Research (ATINER)** & the Panhellenic Association of Sports Economists and Managers (PASEM). All papers are subject to ATINER's Publication Ethical Policy and Statement.

The Athens Journal of Sports

ISSN NUMBER: 2241-7915 - DOI: 10.30958/ajspo

Volume 8, Issue 4, December 2021

Download the entire issue (PDF)

Athens Journal of Sports
Editorial and Reviewers' Board

President's Message

All ATINER's publications including its e-journals are open access without any costs (submission, processing, publishing, open access paid by authors, open access paid by readers etc.) and is independent of presentations at any of the many small events (conferences, symposiums, forums, colloquiums, courses, roundtable discussions) organized by ATINER throughout the year and entail significant costs of participating. The intellectual property rights of the submitting papers remain with the author. Before you submit, please make sure your paper meets the basic academic standards, which includes proper English. Some articles will be selected from the numerous papers that have been presented at the various annual international academic conferences organized by the different divisions and units of the Athens Institute for Education and Research. The plethora of papers presented every year will enable the editorial board of each journal to select the best, and in so doing produce a top-quality academic journal. In addition to papers presented, ATINER will encourage the independent submission of papers to be evaluated for publication.

The current issue is the fourth of the eighth volume of the *Athens Journal of Sports,* published by the Sport, Exercise, & Kinesiology Unit of the ATINER under the aegis of the Panhellenic Association of Sports Economists and Managers (PASEM).

Gregory T. Papanikos, President, ATINER.

Athens Institute for Education and Research

A World Association of Academics and Researchers

22nd Annual International Conference on Sports: Economic, Management, Marketing & Social Aspects
9-12 May 2022, Athens, Greece

The Sport, Exercise, & Kinesiology Unit of ATINER organizes its **22nd Annual International Conference on Sports: Economic, Management, Marketing & Social Aspects, 9-12 May 2022, Athens, Greece** sponsored by the Athens Journal of Sports. The aim of the conference is to bring together academics and researchers of all areas of sports. Please submit a proposal using the form available (https://www.atiner.gr/2022/FORM-SPO.doc).

Academic Members Responsible for the Conference

Dr. Gregory T. Papanikos | Dr. Maria Konstantaki | Dr. Chris Sakellariou | Dr. Sharon Claire Bolton | Dr. Valia Kasimati | Dr. Cleopatra Veloutsou | Dr. Christos Anagnostopoulos

Important Dates

- Abstract Submission: **17 January 2022**
- Acceptance of Abstract: 4 Weeks after Submission
- Submission of Paper: **11 April 2022**

Social and Educational Program

The Social Program Emphasizes the Educational Aspect of the Academic Meetings of Atiner.

- Greek Night Entertainment (This is the official dinner of the conference)
- Athens Sightseeing: Old and New-An Educational Urban Walk
- Social Dinner
- Mycenae Visit
- Exploration of the Aegean Islands
- Ancient Corinth and Cape Sounion

More information can be found here: www.atiner.gr/social-program

Conference Fees

Conference fees vary from 400€ to 2000€

Details can be found at: http://www.atiner.gr/fees

Athens Institute for Education and Research

A World Association of Academics and Researchers

18th Annual International Conference on Sport & Exercise Science 25-28 July 2022, Athens, Greece

The Sport, Exercise, & Kinesiology Unit of ATINER will hold its **18h Annual International Conference on Sport & Exercise Science, 25-28 July 2022, Athens, Greece** sponsored by the Athens Journal of Sports. You may participate as stream leader, presenter of one paper, chair a session or observer. Please submit an abstract (email only) to: atiner@atiner.gr, using the abstract submission form (https://www.atiner.gr/2022/FORM-FIT.doc).

Important Dates

- Abstract Submission: **27 December 2021**
- Acceptance of Abstract: 4 Weeks after Submission
- Submission of Paper: **27 June 2022**

Academic Member Responsible for the Conference

Dr. Maria Konstantaki, Academic Member, ATINER & Senior Lecturer, Buckinghamshire New University, UK.

Social and Educational Program

The Social Program Emphasizes the Educational Aspect of the Academic Meetings of Atiner.

- Greek Night Entertainment (This is the official dinner of the conference)
- Athens Sightseeing: Old and New-An Educational Urban Walk
- Social Dinner
- Mycenae Visit
- Exploration of the Aegean Islands
- Delphi Visit
- Ancient Corinth and Cape Sounion

More information can be found here: https://www.atiner.gr/social-program

Conference Fees

Conference fees vary from 400€ to 2000€

Details can be found at: https://www.atiner.gr/fees

Athens Journal of Sports - Volume 8, Issue 4, December 2021 – Pages 231-246

Athletes' and Coaches' Impressions of Questionable Coaching Practices and Bullying (Emotional Abuse)

By Brad Strand[*]

Coaches have a profound and long-lasting impact on the athletes they coach. Coaches' behavior affects athlete anxiety, stress levels, burnout, and eventually, their mental health. This study aimed at gathering relevant information on coaches' use of inappropriate behaviors towards athletes as reported by athletes and to make comparisons between the responses of the athletes in this study with those of coaches in a previous study. Participants were 251 college students from ten midwestern states who completed a 25-item survey that included a listing of coaching actions described as bullying. Three specific research questions guided the study: 1) has your coach ever done the identified action to you, 2) do you think this is an inappropriate coaching action, and 3) do you consider this bullying. Results indicate that athletes and coaches' interpretation of the frequency of inappropriate actions, if the actions are considered inappropriate, and if the actions are considered bullying are markedly different. Athletes were more likely to report that the various physical, relational, and verbal actions occurred than were coaches.

Keywords: *coaching, bullying, athletes, inappropriate*

Introduction

It is commonly acknowledged that 70% of children who participate in youth sports drop out by age 13 (Dilworth 2015). More recently, it has been reported that about 80% quit after age 15 (Swanson 2019). Similarly, Møllerløkken et al. (2015), reported that one in every four young athletes will walk away from sports every year. Many (Fraser-Thomas and Cote, 2009, O'Sullivan 2015, Project Play 2019, Scandiffio 2021, Strand et al. 2021c, Strand et al. 2021d, Trudel and Gilbert, 2006) have searched to find the reason why so many children drop out of sport at such an early age and have posited a plethora of reasons

Many athletes recall the positive experiences they had with their coaches (Trudel and Gilbert 2006), while others remember the negative experiences (Fraser-Thomas and Cote 2009). In fact, young athletes, when asked to identify the most positive aspect of their youth sport coaches, described the relationships formed, the encouragement and praise, and their coaches being supportive and trustworthy (Strand et al. 2021c, Strand et al. 2021d). Those same athletes, when asked to identify the most negative aspect of their youth experience, stated the coaches. Further identifying spotlighting, yelling/scolding/bad attitude/rude, and picking favorites as the most negative attributes of the coaches.

Witt and Dangi (2018) suggested three main constraints, or hindrances, why young athletes drop out of their sport. The first is intrapersonal in that the children

[*]Professor, North Dakota State University, USA.

no longer enjoy the sport, have feelings of physical inadequacy, feel stressed out, and have negative feelings toward teammates and coaches (Brenner et al. 2019, Logan and Cuff 2019). The intrapersonal constraints are compounded by coaches or parents who push young athletes to win at any cost, pressure them to perform at unachievably high levels, and use negative feedback when the children fail to meet their oftentimes exceedingly high expectations (Elliott 2018, Most 2015).

The second constraint is interpersonal and includes pressure that comes from parents, from feeling a lack of ownership in the sport, and from reduced time for other appropriate activities. The interpersonal constraints that exist between the children, their parents, their coaches, and teammates are directly impacted by parents and coaches. When parents and coaches put high pressure on the athletes to perform, take away any control that the children have over the sport, and demand so much of the children's time that they have no time left over for other activities, they foster interpersonal constraints (Abrams 2002, Mazzella 2020).

The third constraint is structural and includes the time it takes for practices and travel to games, injuries, financial cost, and lacking facilities. Structural constraints are created by parents and coaches through making practices unnecessarily long, pushing the children to injury, demanding high pay-to-play fees, and using ill maintained facilities (Project Play 2020, Thompson 2018). Although none of the constraints point directly at coaches, they may be indirectly created or influenced by coaches.

It is well understood that coaches have a profound and long-lasting impact on the athletes they coach (Dohsten et al. 2020, Hanson n.a., Loy 2019 Stankovich 2011). Scholars (Mottaghi et al. 2013, Seongkwan et al. 2019) have described how coaches' behavior affects athlete anxiety, stress levels, burnout, and eventually, their mental health. Mottaghi et al. (2013), along with Weathington et al. (2010), implied that overt coaching behaviors are perceived and given meaning by each individual athlete. These perceived behaviors impact an athletes' attitude towards self, the coach, and the playing experience (Seongkwan et al.). When athletes perceive their coaches' actions or words as disrespectful, intentionally hurtful, demeaning, and embarrassing, it is easy to understand why they choose to quit.

With that as a preface, this study was aimed at gathering relevant information on coaches' use of inappropriate behaviors towards athletes as reported by athletes. Three specific research questions guided the study: 1) has your coach ever done the identified action to you, 2) do you think this is an inappropriate coaching action, and 3) do you consider this bullying? In addition, comparisons were made between the responses of the athletes in this study with those of coaches in a previous study (Strand 2021a).

Methods

Participants

Participants (251 college students, males [*N* = 136, 54.1%] and females [*N* = 115, 45.8%]) from ten midwestern states (MO, ND, MN, KS, UT, OR, LA, MT,

OK, TX) completed a 25-item survey that included a listing of actions described as bullying. Potential subjects received an email inviting them to participate in the survey. The email was distributed to students via an email sent from an identified colleague within seventeen universities. The email included an informed consent and a link to the survey. Data were collected via a Qualtrics survey. In additional to the usual demographic information, participants were asked to indicate if: 1) if they had ever done this action to an athlete, 2) if they think this is an inappropriate coaching action, and 3) if they consider this action bullying.

The racial composition of the sample was largely White/Caucasian (85.8%), followed by Black American (6.2%), Hispanic (3.5%), multiple ethnicity/other (2.7%), Asian/Pacific Islander (1.5%), and Native American (0.4%).

Measures

The survey used for this study contained seven questions with six of them being demographic in nature. Question one asked participants to review (twenty-two) coaching actions and indicate if: 1) a coach has ever done this to them, 2) they think this is an inappropriate coaching action, and 3) they consider this action bullying.

The twenty-two items that were evaluated came from an inventory titled "Bully-Spotter: What is Bullying in Sports?" (Haber 2004). Haber's original Bully Spotter included fifty-three items categorized as physical, relational, or verbal bullying and then as mild, moderate, or severe in nature. The Bully Spotter was initially designed to be used to identify student-to-student bullying. For our purposes, we elected not to include all the items because many are student-to-student actions, for example, towel snapping, taking possessions (clothing, equipment, etc.), blame-placing, and gossiping. This inventory has been used in previous research (Strand et al. 2017, Strand 2021a). Demographic questions asked about gender, race/ethnicity, participation in high school sports, if they had dropped out of sports due to a coaches' behavior, if they were a college athlete, and if they were a physical education and/or coaching major or minor, and age.

Procedures

Upon University Institutional Review Board approval, the questionnaire was formatted into the online data collection system of Qualtrics. Colleagues in ten different states were asked to email the survey invitation to students enrolled in a general education wellness course at the respective institutions. All individuals who participated were current college students. Each participant receiving the email was initially invited to participate in the study by opening a link that informed the recipient of the purpose of the study and content. In this same document, each participant was given the option to proceed with the survey by clicking a link to the actual survey. Clicking the link also indicated implied consent to participate in the study. The Qualtrics document was designed to accept only one response from each participant.

Data Analysis

All data were initially collected via Qualtrics. At the end of the data collection period, data were transferred to Statistical Package for the Social Sciences (SPSS, version 27) for further analysis. The methods applied were means and frequency distributions, cross tabulations, Pearson correlation tests, and Chi-square tests.

Results

Ninety six percent (n=251) of participants had played high school sports while only 4% (n=9) had not participated in high school sports. Fourteen percent (n=35) of participants had dropped out of a junior high or high school sport due to a coaches' behavior towards them or a teammate. Forty-eight percent (n=127) of the participants were college athletes while 51% (n=133) were not. Approximately one-third (35%, n=91) of the participants were physical education and/or coaching majors or minors.

As shown in Tables 1, 2 and 3, the coaching actions can be categorized as physical, relational, and verbal in nature. Also shown in these tables is the percentage of subjects who reported their coaches had done the listed action, the percentage who consider the action inappropriate, and the percentage who consider the action as bullying.

Table 1. *Athletes Perceptions of Physical Actions*

Physical Actions	**Has a coach ever done this to you as an athlete?**	**Do you consider this an inappropriate coaching action?**	**Do you consider this bullying?**
Threw something at an athlete	18.3	71.3	47.4
Hit, slapped, or heckled an athlete with intent to hurt	8.0	83.3	77.7
Struck an athlete with equipment	7.6	79.3	68.1
Inappropriate unwanted touching towards an athlete	5.2	84.5	65.3
Locked an athlete in a room	3.6	81.3	69.7
Physical violence to deliberately inflict pain on an athlete	3.2	84.9	79.7
Threw something at an athlete with intent to hurt	2.8	83.3	74.9

Table 2. *Athletes Perceptions of Relational Actions*

Relational Actions	Has a coach ever done this to you as an athlete?	Do you consider this an inappropriate coaching action?	Do you consider this bullying?
Embarrassed an athlete in front of others	45.0	70.5	57.8
Dirty look meant to hurt an athlete	33.1	66.9	50.2
Critical comments meant to hurt an athlete	32.7	75.3	67.7
Set an athlete up to look foolish	23.5	74.1	59.4
Shunning an athlete from the team	13.5	77.7	65.3
Mild ethnic slurs towards an athlete	6.4	82.5	70.9
Obscene gestures toward an athlete	6.4	80.5	59.4
Hurtful ethnic slurs towards an athlete	2.8	83.7	78.9

Table 3. *Athletes Perceptions of Verbal Actions*

Verbal Actions	Has a coach ever done this to you as an athlete?	Do you consider this an inappropriate coaching action?	Do you consider this bullying?
Poked fun at an athlete	45.4	43.0	32.7
Name calling without hurtful intent	45.0	37.8	22.7
Taunting at athlete	18.7	72.1	53.4
Use of nickname when asked not to	17.1	65.7	45.4
Name calling with hurtful intent	12.0	77.3	73.3
Verbal threats of aggression towards an athlete	8.4	80.9	66.5
Inappropriate language towards an athlete; comments on sexual preferences	7.2	79.7	67.3

Did a Coach Ever do this to you as an Athlete?

Based on the percentage of affirmative responses, the top questionable actions reportedly done by coaches were: 1) poked fun at an athlete (verbal), with 45.4% of participants indicating a coach had done that to them; 2) embarrassed an athlete in front of others (relational), with 45% of participants indicating a coach had done that to them; 3) name calling without hurtful intent (verbal), with 45% of

participants indicating a coach had done that to them; 4) dirty look meant to hurt an athlete (relational), with 33.1% of participants indicating a coach had done that to them; and 5) critical comments meant to hurt an athlete (relational), with 32.7% of participants indicating a coach had done that to them.

No statistical differences were found when comparing college athletes to non-college athletes. By gender, a statistical difference was found for one action, "use of nickname when asked not to" (p.=0.039). Comparing physical education/coaching majors/minors to others, a statistical difference was found for one action, "inappropriate unwanted touching towards an athlete" (p.=0.025). When comparing sport drop outs to non-drop outs, a statistical difference was found for seven actions; "embarrassed an athlete in front of others" (p.=0.006), "dirty look meant to hurt" (p.=0.000), "critical comments meant to hurt an athlete" (p.=0.000), "set an athlete up to look foolish" (p.=0.008), "shunning an athlete from a team" (p.=0.006), "poked fun at an athlete" (p.=0.019), and "taunting an athlete" (p.=0.024). For each of the seven statements, sport drop outs were more likely to indicate the action had happened to them.

Do you Consider this Action as Inappropriate?

The two actions considered least inappropriate were: 1) poked fun at an athlete, with 43%; and 2) name calling without hurtful intent, with 37.8%. Eliminating the two actions mentioned above, between 70-85% of participants indicated they thought the remaining actions were inappropriate.

No statistical differences were found when comparing sport drop outs to non-drop outs. When comparing physical education/coaching majors/minors to others, a statistical difference was found for two actions; "dirty look meant to hurt" (p.=0.025), and "use of nickname when asked not to" (p.=0.025). By gender, three differences were noted; "embarrassed an athlete in front of others" (p.=0.018), "dirty look meant to hurt" (p.=0.002), and "taunting an athlete" (p.=0.007).

When comparing college athletes to others, statistical differences were noted for 16 of the 22 actions. Within the physical actions, a difference was noted for "locked an athlete in a room" (p.=0.032) and "threw something at an athlete with intent to hurt" (p.=0.037). Within the relational actions, differences ranged from (p.=0.006 to p.=0.024) 0.for all eight of the actions. Within the verbal actions, differences were noted for six of the seven actions, ranging from (p.=0.004 to p.=0.047). No difference was found for "name calling with hurtful intent". For all the actions with a statistical difference, college athletes were less likely to think the action was inappropriate than were non-college athletes.

Do you Consider this Action as Bullying?

The two actions considered least likely to be bullying were: 1) poked fun at an athlete, with 32.7%; and 2) name calling without hurtful intent, with 22.7%.

Eliminating the two actions mentioned above, between 45-79% of participants consider the remaining actions as bullying.

No statistical difference was found when comparing sport drop outs to non-drop outs. When comparing physical education/coaching majors/minors to others, a statistical difference was found for one action, "name calling without hurtful intent" (p.=0.049). When compared by gender, statistical differences were found for seven actions, five of them relational actions and two verbal actions. Statistical differences for the seven actions ranged from (p.=0.000 to p.=0.045). In all seven instances, female participants were more likely to indicate they considered the action as bullying.

When comparing college athletes to non-college athletes, statistical differences were found for seven of the actions. Three of the physical actions, three of the relational actions, and one verbal action. Statistical differences ranged from (p.=0.006 to p.=0.023). In all seven instances college athletes were less likely to consider the actions as bullying.

Discussion

A fundamental aspect of coaching is a coaches' and an athletes' ability to accurately perceive each other's thoughts and feelings, aka, emotional intelligence (Galli n.a., Goleman 2005). This coach – athlete relationship becomes the foundation of coaching and is a major factor in promoting a coach's ability to develop working partnerships and enhance optimal performance in his or her athletes (Enoksen et al. 2014, Yukhymenko-Lescroat et al. 2015). The coach – athlete relationship is important and influential and the behavior of coaches has a significant impact on the quality of the coaching performance, athlete performance, athlete satisfaction, and athletes' psychological and emotional well-being (Bachand 2017, Enoksen et al. 2014, Misasi et al. 2016, Pavlovich 2021).

Athlete-centered coaches plan diligently and meticulously for practice and contests and focus on developing positive psychological characteristics, i.e., self-confidence, self-worth, and motivation, along with competence (sport skills), connection (positive relationships), and confidence (self-belief) within their athletes (Gearity 2012, Gilbert 2017). Based on the results of the studies reported in this paper, athletes and coaches' interpretation of the frequency of inappropriate actions, if the actions are considered inappropriate, and if the actions are considered bullying are markedly different.

Specific coaching actions have been identified by athletes that have negatively affected their performance; for example, poor communication; poor personnel and selections decisions; equipment changes and problems; lack of support and encouragement; poor planning; tactical or strategic errors; lack of enthusiasm and effort; unfair treatment; sarcasm to demean; ignoring injuries, depression, and burnout; and negative attitude (Gearity and Murray 2010, Misasi et al. 2016, Nein 2013). Researchers have labeled some of these coaching actions as emotional abuse. In the past year, collegiate coaches (Niecee Nelson, Purdue-Fort Wayne; Marlene Stallings, Texas Tech; Cameron Newbar, University of Florida; AnnMarie

Gilbert, Detroit Mercy) have been accused of emotional abuse, among other things, and have lost their positions as coaches (Benbow 2021, Dodgson 2020, Pao 2020, Smith 2021, Solari 2021, Wimbley and Komer 2021, Zehntner 2019).

Emotional abuse, defined as controlling another person by using emotions to criticize, embarrass, shame, blame, or manipulate another person (Gordon 2020), has been reported to be an extremely common but underrecognized form of maltreatment (Stirling and Kerr 2014) and has been correlated with negative effects including poor self-esteem, depression, anxiety, eating disorders, and difficulties with relationships (Mwakanyamale and Yizhen 2019, Radell et al. 2021, Rai et al. 2019). Stirling and Kerr (2014) reported that emotionally abusive coaching practices are experienced by 22-25% of competitive athletes. Similarly, Shields et al. (2005) found that 45% of their respondents reported their coach had called them names, insulted them, or verbally abused them, and that 35% indicated their coach had angrily yelled at a player for a mistake. Further, Alexander et al. (2011) reported that 76% of their subjects reported at least one incident of emotional harm playing sports, and that 33% identified their coach as the main source of bullying. For many athletes, this manifests as a mental health issue. Martin (2020) wrote that 35% of elite athletes deal with mental health issues and some experts suggest that college athlete depression is at epidemic levels (NCAA 2020).

Unfortunately, emotional abusive behaviors are accepted in the sport environment and are often normalized in youth sports as athletes are reluctant or scared to report abusive experiences (Stirling and Kerr 2014, Wilinsky and Mccabe 2020). One's involvement in sport begins with an induction phase, typically during youth sport participation (Jayanthi et al. 2013). This initial engagement then transitions into an investment phase and a commitment to a coach. The inappropriate or abusive behaviors from a coach usually begin innocently enough, as a coach encourages, pushes, and challenges young athletes. As winning becomes more important and stakes increase, these once thought to be innocent comments, transition into degrading comments, personal criticisms, threats, acts of humiliation, belittlement, and the silent treatment appears (Stirling and Kerr 2013). For some, a coaches' nonverbal actions of kicking equipment, throwing things, glaring, and posturing, leads athletes to believe this is how successful coaches respond to the challenges of coaching. Athletes feel it themselves and they see it happening to fellow teammates. But if they want to continue participating, they must accept the coaches' behavior, no matter how disgraceful, intimidating, or hurtful it might be. If one plays sport for a length of time, these actions, in many cases, become normalized, and athletes often fail to recognize them as even being inappropriate (Merkel 2013).

In fact, parents, coaches, and other players and coaches are often present while these harmful practices occur. Mottaghi et al. (2013) suggested that if athletes do not have coping skills to appropriately deal with abusive experiences, they will be exposed to risk of poor performance, failure, loss of confidence and self-worth, and in some cases, serious injury. It is essential that coaches acknowledge the ramification of their verbal and nonverbal behaviors and actions on their athletes. Knowing such, coaches must then tailor behaviors directly to particular athletes in

an effort to positively affirm effort and influence motivation levels (Weathington et al. 2010).

As noted earlier in this paper, Strand (2021a) conducted a similar study with 500 high school coaches. Tables 4, 5, and 6 show the differences between the percentage of athletes versus coaches who reported using the action, if the action was considered inappropriate, and if the action was considered bullying (Strand 2021b).

Table 4. *Comparison of Athletes' and Coaches Perceptions of Physical Actions*

	Have you ever done this to an athlete?		**Do you think this is an inappropriate coaching action?**		**Do you consider this bullying?**	
Physical Actions	Athlete	Coach	Athlete	Coach	Athlete	Coach
Hit, slapped, or heckled an athlete with intent to hurt	9.0	2.3	88.8	82.4	84.1	64.8
Threw something at an athlete	21.8	9.8	86.2	77.3	57.3	45.3
Threw something at an athlete with intent to hurt	3.1	0.8	95.0	80.1	85.5	60.9
Struck an athlete with equipment	8.0	3.7	89.3	78.9	76.3	54.3
Physical violence to deliberately inflict pain on an athlete	3.1	1.0	95.1	82.0	88.9	62.1
Locked an athlete in a room	4.0	0.8	91.9	81.6	79.3	60.5
Inappropriate unwanted touching towards an athlete	5.33	1.6	94.7	82.0	73.3	49.4

Table 5. *Comparison of Athletes' and Coaches Perceptions of Relational Actions*

	Have you ever done this to an athlete?		**Do you think this is an inappropriate coaching action?**		**Do you consider this bullying?**	
Relational Actions	Athlete	Coach	Athlete	Coach	Athlete	Coach
Critical comments meant to hurt an athlete	35.6	6.6	84.1	77.0	75.7	56.1
Dirty look meant to hurt an athlete	38.5	13.7	80.3	70.3	59.6	43.0
Embarrassed an athlete in front of others	50.4	34.0	80.9	61.3	66.4	41.6
Set an athlete up to look foolish	27.3	7.6	84.1	75.8	68.2	49.2
Mild ethnic slurs towards an athlete	7.2	2.0	94.1	80.9	81.0	57.2
Hurtful ethnic slurs towards an athlete	3.1	1.0	95.0	81.1	89.6	60.2
Shunning an athlete from the team	15.6	5.7	91.6	75.0	76.3	50.6
Obscene gestures toward an athlete	7.3	1.8	93.2	81.1	69.4	51.8

Table 6. *Comparison of Athletes' and Coaches Perceptions of Verbal Actions*

	Have you ever done this to an athlete?		**Do you think this is an inappropriate coaching action?**		**Do you consider this bullying?**	
Verbal Action	Athlete	Coach	Athlete	Coach	Athlete	Coach
Poked fun at an athlete	55.0	44.9	56.0	43.0	42.5	25.4
Inappropriate language towards an athlete; comments on sexual preferences	8.3	3.1	93.5	80.5	79.6	51.6
Name calling without hurtful intent	56.0	30.9	50.0	50.4	30.0	26.2
Name calling with hurtful intent	14.2	1.6	90.4	81.1	84.4	61.3
Verbal threats of aggression towards an athlete	10.1	2.5	93.1	79.7	76.7	58.8
Use of nickname when asked not to	21.6	6.1	83.9	74.8	58.8	45.1
Taunting at athlete	22.6	3.3	86.8	78.7	64.6	54.4

When comparing the three categories of actions, coaches were least likely to do physical actions as reported by both coaches and athletes. This makes sense as one can often see the results of physical actions, that is, bruises and visible marks on the body. For many years, teachers and coaches have been instructed not to touch or physically engage with students and athletes.

Athletes were more likely to report that the various physical, relational, and verbal actions occurred than were coaches. This too is not surprising as many coaches value the knowledge of winning and experienced coaches more than that of coaching education instructors or programs (Zehntner 2019). The items reported being done most frequently by both coaches and athletes were: poked fun at an athlete (athletes 55%, coaches 45%), name calling without hurtful intent (athletes 56%, coaches 31%), embarrassed an athlete in front of others (athletes 50%, coaches 34%), critical comments meant to hurt an athlete (athletes 36%, coaches 7%), dirty look meant to hurt an athlete (38% athletes, coaches 14%), and set an athlete up to look foolish (athletes 27%, coaches 8%).

Both athletes and coaches reported the physical actions, as opposed to the verbal and relational actions, as being more inappropriate and labeled as bullying. Perhaps this is another reason why they are less likely to do the physical actions. Athletes, however, were more likely to think the actions were inappropriate and considered bullying than were coaches. For example, 81% of athletes compared to 61% of coaches considered embarrassing an athlete in front of others as inappropriate and 60% of athletes compared to 43% of coaches considered a dirty look meant to hurt an athlete as bullying. Verbal actions were least likely to be considered inappropriate and bullying but those were the actions that athletes and coaches both reported to happen most frequently. The simple reason why these actions happen more frequently is that they are not considered to be inappropriate or bullying. Collectively, for all actions, approximately three-fourths of the coaches indicated the actions were inappropriate, and approximately half indicated they considered the action as bullying. As mentioned earlier, responses for athletes were even higher.

Based on these results it is easy to understand how some coaches might be accused of inappropriate or abusive practices. When a coach does not believe an action is inappropriate, bullying, or emotionally abusive, there is no reason for that coach not to use that action when interacting with his or her athletes. For many coaches, their coaching practices reflect that of coaches for whom they had previously played (Moen et al. 2015), perhaps many years earlier when some of these actions were still considered acceptable, and they simply recycle the practices as acceptable (Zehntner 2019). Fortunately for today's athletes', coaching actions that were once acceptable (i.e., grabbing and twisting a facemask of a football player or hitting a player on the helmet) are no longer accepted (Zehntner 2019).

It is difficult, however, to understand how any coach today is not adequately informed to know what is acceptable, unacceptable, and emotionally abusive. Do some coaches believe they have freedom for their actions because they are coaching, and what happens during practice stays within the bounds of the practice field? Coaches use lots of excuses to rationalize their actions including moral justification ("All coaches lose it now and then"), backhanded apology ("I'm sorry, I got carried away a little bit; but we really need the athletes to try harder if we're going to win"), it could have been worse comparison ("I didn't touch anybody, it's not like I push them around"), escalation of stakes ("If you can't take how I am doing things, get off the team"), mental toughness argument ("We are tough on our athletes so they can handle the competition – we build mental toughness"), and secrecy and building team culture ("we'll handle this stuff in our family") (Swigonski et al. 2014, Strand et al. 2017).

Coaches also defend their actions in many ways (Stirling 2013). For example, a coach might say it was simply a spur of the moment thing. He or she might say, "I hate to lose and athletes need to be accountable and if not, there needs to be consequences." As mentioned previously, many coaches experienced ill treatment as athletes and learned bad coaching habits from their exposure to their coaches' harmful or inappropriate coaching practices.

For many coaches, there is a lack of knowledge for alternative strategies and they simply and quickly default to what they know best and have seen other coaches demonstrate. Unfortunately, athletes, and likewise, their parents, historically accept these questionable and inappropriate behaviors from their coaches. From an athlete's point of view, a coach's fame, or reputation of success, significantly impacts an athletes' acceptance of the coaching practices as an essential ingredient in their athletic development (Bloom et al. 2014). Over time, the questionable and inappropriate coaching practices become normalized for coaches, athletes, and parents, and no one questions them (Stirling and Kerr 2009).

Most coaches, despite their questionable behaviors, say they care about their athletes and the closeness and uniqueness of the relationship (Stirling 2013). Coaches care for their athletes as athletes and people and want them to achieve their athletic best. Many coaches say they enjoy watching talent development, love the athletes, and want them to become good citizens. Similarly, athletes say, "my coach would scream at me, but I knew she cared about me." Due to the closeness of the athlete-coach relationship, athletes come to trust their coaches and coaches take on the role of a parent figure and mentor (Becker 2009, Jowett 2017).

Conclusion and Further Research

From this study, insight into the differences in perceptions of coaches and athletes regarding the meaning of inappropriate and bullying practices came clearer. In many cases, what coaches perceive as appropriate, athletes perceive as inappropriate, and in fact, bullying. As coaches are increasingly being accused by players of emotional abuse, it is imperative that they (coaches) more clearly understand athlete perceptions of their (coaches) actions and the words they (coaches) use. Every coach wants to help his or her athletes to become more confident, competent, and connected, while building character. Results of this study provide an explanation why this may not be happening in a way a coach desires it would.

The racial composition of subjects in this study does not fully represent the racial composition of the population in the United States in general, or more specifically, colleges and universities. Further research should seek greater representation of minority athletes and coaches, and additionally, a greater representation of athletes and coaches from other sections of the United States. For example, how do athletes and coaches from the southern states of Texas, Mississippi, Alabama, Florida, Georgia, and Louisiana differ in their perceptions compared to athletes and coaches from the New England states?

Implications

A major challenge in coaching is to think critically about the distinctions between behaviors designed to instruct and motivate, behaviors that are teasing or engaging, and behaviors that cross a line into being hurtful or harassing toward a young person (Strand et al. 2017). One coach said, "There is a fine line sometimes in disciplining your team and challenging your team to get to another level. Even in conditioning. Kids get tired and they want to stop and you have to push them to another level. When kids are going through it, it's tough. But when it's all said and done, most kids appreciate being pushed because you find out more about your inner self having been through that than if somebody does not push you to demand your best."

It is certainly clear that not all coaches perceive and define inappropriate and bullying actions in the same way. It is therefore incumbent upon coaching education programs in colleges and universities, coaching associations, and sport/ coaching related organizations to more thoroughly help coaches understand what coaching practices are unacceptable and considered emotionally abusive and should not be used. Granted, some of these actions are difficult to interpret. For example, what is a dirty look meant to hurt? A coaches' glance at an athlete may be interpreted in different ways by different athletes, and certainly different from what a coach intended. Do we simply prevent this by telling coaches not to look at athletes? Of course, that is not the answer.

Coaching practices, be they good or bad, are interpreted by each athlete and result in an attitude toward both the coach and the sport experience (Gearity and

Murray 2010, Mottaghi et al. 2013). Coaches must be aware that words and actions carry many meanings and are understood differently by different people (Hjelseth 2020). For example, a nickname used in jest by a coach is deemed hurtful by an athlete because of previous issues of teasing or self-worth issues. Coaches must make every effort to listen to their athletes and eliminate or clarify those actions that are blatantly inappropriate. For example, throwing something at an athlete. Just do not do that. Problem solved.

Emotionally abusive coaching practices might be best prevented through an enhanced focus on the education of coaches on things such as ethical coaching, conduct, and alternative non-abusive strategies for athlete development (Stirling and Kerr 2014). Attending conferences, talking with assistant coaches, listening to athletes, and additional coaching education will help coaches better understand appropriate and inappropriate coaching practices and learn how athletes interpret questionable coaching behaviors.

For sure, coaches learn from mistakes and get better with maturity and experience. It was once said, "Wisdom comes from experience and experience comes from mistakes." To learn from mistakes and get better, the habit of self-reflection is essential. Reflecting on the effectiveness of specific behaviors, finding a new appreciation for athlete well-being, learning of a concern of personal reputation, and discovering that coaching in an emotionally abusive way is simply not enjoyable, all lead to positive coaching changes.

References

Abrams DE (2002) The challenge facing parents and coaches in youth sports: assuring children fun and equal opportunity. *Jeffrey S. Moorad Sports Law Journal* 8(2): 253–292.

Alexander K, Stafford A, Lewis R (2011) *The experiences of children participating in organised sport in the UK: summary report*. Edinburgh: The University of Edinburgh, NSPCC Child Protection Research Centre.

Bachand CR (2017) Bullying in sports: the definition depends on who you ask. *The Sport Journal* (Nov).

Becker AJ (2009) It's not what they do, it's how they do it: athlete experiences of great coaching. *International Journal of Sport Science & Coaching* 4(1): 93–119.

Benbow DH (2021, January 20). *Toxic abuse alleged inside Purdue-Fort Wayne women's basketball: "it was brutal"*. Indy Star.

Bloom GA, Falcão W, Caron J (2014) Coaching high performance athletes: implications for coach training. In AR Gomes, R Resende, A Albuquerque (eds.), *Positive Human Functioning from a Multidimentional Perspective* (chapter 6). Nova Science.

Brenner JS, LaBotz M, Sugimoto D, Straccioline A (2019) The psychological implications of sport specialization in pediatric athletes. *Journal of Athletic Training* 54(10): 1021–1029.

Dilworth K (2015, November 2) *Would you let your child quit a sport mid-season*? NAYS.

Dodgson L (2020, October 30) *Female college athletes from across the US say they've been bullied, manipulated, and psychologically abused by their coaches*. Insider.

Dohsten J, Barker-Ruchti N, Lindgren E (2020) Caring as sustainable coaching in elite athletics: benefits and challenges. *Sports Coaching Review* 9(1): 48–70.

Elliott P (2018, November 14) *Combating depression and anxiety in sports*. Psychology Today.

Enoksen E, Fahlstrom PG, Johansen BT, Hageskog C, Christensen JB, Hoigaard R (2014) Perceptions of leadership behavior and the relationship to athletes among Scandinavian coaches. *Scandinavian Sport Studies Journal* 5: 131–147.

Fraser-Thomas J, Cote J (2009) Understanding adolescents' positive and negative development experiences in sport. *Sport Psychologist* 23(1): 3–23.

Galli N (n. a.) *Improved coaching through emotional intelligence*. Association for Applied Sport Psychology.

Gearity B (2012) Poor teaching by the coach: a phenomenological description from athletes' experience of poor coaching. *Physical Education and Sport Pedagogy* 17(1): 79–96.

Gearity B, Murray MA (2010) Athletes' experiences of the psychological effects of poor coaching. *Psychology of Sport and Exercise* 12(3): 213–221.

Gilbert W (2017) *Coaching better every season: a year-round system for athlete development and program success*. Champaign, IL: Human Kinetics.

Goleman D (2005) *Emotional intelligence: why it can matter more than IQ*. NY: Bantam Books.

Gordon S (2020, September 17) *What is emotional abuse?* Very Well Mind.

Haber JD (2004) *Bully-spotter: what is bullying in sports?* Retrieved from: www.respectu. com. [Accessed 4 November 2021]

Hanson B (n.a.) *Coach-athlete relationships matter (Canadian Olympic Study)*. Athlete Assessments.

Hjelseth R (2020) *Winning words: speaking life to influence others.* Bloomington, ID: Westbow Press.

Jayanthi N, Pinkham C, Dugas L, Patrick B, LaBella C (2013) Sports specialization in young athletes: evidence-based recommendations. *Sports Health* 5(3): 251–257.

Jowett S (2017) Coaching effectiveness: the coach-athlete relationship at the heart. *Current Opinion in Psychology* 16(May): 154–158.

Logan K, Cuff S (2019) Organized sports for children, preadolescents, and adolescents. *Pediatrics* 143(6): e20190997.

Loy JM (2019, July 24). *Expectation, bias, and the profound effect coaches can have on youth sport.* College of Education, Health and Society, Miami University.

Martin D (2020, December 8) *How many athletes deal with mental health issues?* Donovan Martin Sports Mental Performance for Professional and Emerging Athletes.

Mazzella R (2020, March 2) *Overzealous parents are ruining youth sports. It's past time to sit quiet and let the kids play*. The Washington Post.

Merkel DL (2013) Youth sport: Positive and negative impact on young athletes. *Open Access Journal of Sports Medicine* 4(May): 151–160.

Misasi SP, Morin G, Kwasnowski L (2016) Leadership: athletes and coaches in sport. *The Sport Journal* (Dec).

Moen F, Giske R, Høigaard R (2015) Coaches' perceptions of how coaching behavior affects athletes: an analysis of their position on basic assumptions in the coaching role. *International Journal of Learning, Teaching and Educational Research* 11(1): 180–199.

Møllerløkken NE, Lorås H, Pederson AV (2015) A systematic review and meta-analysis of dropout rates in youth soccer. *Perceptual Motor Skills* 121(3): 913–922.

Most D (2015, October 22) *New CoachUp survey says parents push athletes too hard*. Boston Globe.

Mottaghi M, Atarodi A, Rohani Z (2013) The relationship between coaches' and athletes' competitive anxiety, and their performance. *Iran Journal of Psychiatry Behavior Science* 7(2): 68–76.

Mwakanyamale AA, Yizhen Y (2019) Psychological maltreatment and its relationship with self-esteem and psychological stress among adolescents in Tanzania: a community based, cross-sectional study. *BMC Psychiatry* 19(1): 176.

NCAA (2020) *Survey shows student-athletes grappling with mental health issues*. NCAA.

Nein B (2013, December 24) *Coaching attributes that lead to participant success*. The Sport Digest.

O'Sullivan J (2015, May 5) *Why kids quit sports*. Changing the Game Project.

Pao M (2020, August 7) *Texas Tech fires top women's basketball coaches amid abuse and allegations.* NPR.

Pavlovich L (2021) *The coach athlete relationship is a performance factor*. Athlete Assessments.

Project Play (2019, August 1) *Survey: why most kids quit sports by age 11*. Aspen Institute.

Project Play (2020, January 14) *Survey: low-income kids are 6 times more likely to quit sports due to costs*. Aspen Institute.

Radell ML, Hamza EGA, Daghustani WH, Perveen A, Moustafa AA (2021) The impact of different types of abuse on depression. *Depression Research and Treatment* 2021: 6654503.

Rai T, Mainali P, Raza A, Rashid J, Rutkofsky I (2019) Exploring the link between emotional abuse and anorexia nervosa: a psychopathological correlation. *Cureus* 11(8): e5318.

Scandiffio S (2021, March 3) *5 reasons tweens and teens drop out of sports – and what to do about it.* Active for Life.

Seongkwan C, Choi H, Kim Y (2019) The relationship between perceived coaching behaviors, competitive trait anxiety, and athlete burnout: a cross-sectional study. *International Journal of Environmental Research and Public Health* 16(8): 1424.

Shields DL, Bredemeier BL, LaVoi NM, Power FC (2005) The sport behavior of youth, parents, and coaches: the good, the bad, and the ugly. *Journal of Research in Character Education* 3(1): 43–59.

Smith E (2021, September 27) *Former Florida women's basketball players allege abuse by ex-coach Cameron Newbauer*. USA Today.

Solari C (2021, May 19) *Detroit Mercy women's basketballs AnnMarie Gilbert, AD address allegations, violations*. Detroit Free Press.

Stankovich C (2011) *The impact of the coach on student-athlete development*. National Federation of State High School Association.

Stirling AE (2013) Understanding the use of emotionally abusive coaching practices. *International Journal of Sports Science and Coaching* 8(4): 625–639.

Stirling AE, Kerr G (2009) Abused athletes' perceptions of the coach-athlete relationship. *Sport in Society* 12(2): 227–239.

Stirling AE, Kerr GA (2014) Initiating and sustaining emotional abuse in the coach-athlete relationship: an ecological transactional model of vulnerability. *Journal of Aggression, Maltreatment & Trauma* 23(2): 116–135.

Strand B (2021a) An analysis of coaches' perceptions of inappropriate coaching behaviors. *Athens Journal of Sport* 8(3): 189–200.

Strand B (2021b) Once you know better, you do better. Paper Presented at the *North Dakota High School Coaches Association Annual Meeting*. Fargo, ND.

Strand B, Brotherson S, Docheff D, Gorman S (2017) Athletes' recollection of inappropriate behaviors by their high school sport coaches. *The International Journal of Sport and Society* 8(4): 41–55.

Strand B, Schutzman S, Strand L, Ratzalf K, Spiess K (2021c) From the voice of athletes: positive and negative aspects of parent/athlete relationships. *International Journal of Kinesiology in Higher Education online journal* 1(1): 3–19.

Strand B, Strand L, Ratzlaff K, Spiess K (2021d) From the voice of athletes: youth sport experience and relationships with coaches. *Journal of International Association for Health, Physical Education, Dance and Sport* 1(1).

Swanson B (2019) *Youth sport participation by the numbers*. ActiveKids.

Swigonski NL, Enneking BA, Hendrix KS (2014) Bullying behaviors by athletic coaches. *Pediatrics* 133(2): e73–75.

Thompson D (2018, November 6) *American meritocracy is killing youth sports*. The Atlantic.

Trudel P, Gilbert W (2006) Coaching and coach education. In D Kirk, D Macdonald, M O'Sullivan (eds.), *The Handbook of Physical Education*, 516–539. London: SAGE Publications.

Weathington BL, Alexander AC, Rodebaugh LL (2010) Coaching influences on student-athlete motivation, stress, and skill. *Athletic Insight Journal* 2(2): 1–18.

Wilinsky CL, Mccabe A (2020) A review of emotional and sexual abuse of elite child athletes by their coaches. *Sports Coaching Review* 10(1): 84–109.

Wimbley R, Komer D (2021, January 21) *Detroit Mercy cancels women's basketball season after abusive coach allegations surface*. FOX 2 Detroit.

Witt PA, Dangi TB (2018) Why children/youth drop out of sports. *Journal of Park & Recreation Administration* 36(3): 191–199.

Yukhymenko-Lescroart MA, Brown ME, Paskus TS (2015) The relationship between ethical and abusive coaching behaviors and student-athlete well-being. *Sport, Exercise, and Performance Psychology* 4(1): 36–49.

Zehntner C (2019, February 24) *Toughen up snowflake! Sports coaches can be emotionally abusive – here's how to recognize it*. The Conversation.

Athens Journal of Sports - Volume 8, Issue 4, December 2021 – Pages 247-260

Opposition Relationship in Handball and the Constant Reversibility of Attack and Defense

By Zeineb Zerai[*], Chedlia Fitouri[±], Ali khalifa Alshamli[+] & Hafsi Bedhioufi[°]

In opposition to the principles of traditional pedagogy which values the acquisition of gestural models through a technical approach, this article develops a theory of intervention based on the opposition between two teams, involving a logic of tactical decision-making and a succession of relevant tactical choices in attack and defense. By focusing on the fluctuations in the links between attack and defense, it thus presents a system of the main actions in handball, that is to say in this case a set of principles closely dependent on each other, constituting a whole of deep logical unity. With its functional character, this approach is based on a modeling of game play where the opposing relationships are characterizable. It is thus possible to reduce all game play situations to a few categories with stable characteristics.

Keywords: *handball, tactical decision, matrix of play, understanding, student-centered approach*

Introduction

Constant cooperation with partners and opposition to adversaries are at the heart of team sports, even more so in invasive team sports (Clemente et al. 2014, Gréhaigne et al. 2011). As expressed by Gréhaigne et al. (1999, p. 163), "the idea for each player is to cooperate with partners in order to better oppose the opponents either while attacking (keeping one's defense in mind) or while defending (getting ready to attack)". Thus, members of one team constantly remain in opposition to members of the other team, whether as attackers, mindful of a ball loss, or as defenders, ready to counterattack in case of a ball recovery.

In team sport, we observe that players must regularly take into account unexpected situations throughout a match. Nevertheless, in the organization, even the self-organization of the game, we find player movements that regularly recur depending on the evolution of the momentary configurations of the game. However, the regulation of this confrontation, made up of many balances and some imbalances in opposition relations, remains to be implemented by the participants and/or decoded by the adversaries. Play, time and space are at the heart of success in anything that produces or transmits movement. It is thus possible to associate players' movement in team sports and the relations among

[*]Assistant Professor, Manouba University, Tunisia & Sohar University, Oman & GRIAPS, University of Bourgogne Franche-Comté, France.
[±]Assistant Professor, Manouba University, Tunisia.
[+]Associate Professor, Sohar University, Oman.
[°]Professor, Manouba University, Tunisia.

them and with opponents with certain playing principles (Bayer 1979, Gréhaigne et al. 1989, Gréhaigne and Nadeau 2015). During a match, an unexpected response can change the configuration of the game with the aim of gaining an advantage over the opponent. This decision taken by the player(s) concerned is sometimes a surprise to the opponent and will force him to react in a predictable and anticipated way in order to get ahead. This situation is largely based on understanding the rules and principles of the game, on experience and detection of clues in the game, both from opponents and teammates (Cremonesi 2013, Zerai 2006). However, the use of handball, for boys or girls, as a means of action for teaching the principles of the game in team sports is very common in Tunisian schools. Handball is a collective activity of opposition and cooperation taking place in an interpenetrating and opposing space (Jeu 1977) where by handling a ball, the objective is to score goals in a guarded vertical target. The difference between the goals scored by each team designates the winner (Zerai 2006). Often, a classic learning of team sports consists, above all, in teaching students' technical gestures and in imposing order on the field, in the form of formal distribution of players. However, we would be tempted to say that it is just as important and maybe even more important to get players to optimally manage the mess in order to progress. So, we prefer to talk, along with Teodorescu (1965/2013), about individual and collective tactics. Individual tactics represent the set of individual actions consciously used by a player facing one or more opponents, both in attack and defense. It is therefore the conscious use on the part of a player of the most appropriate tactical and technical procedures, with the aim of achieving a partial task of the game; for example, elimination of an opponent with the help of ball control, followed by a shot on goal.

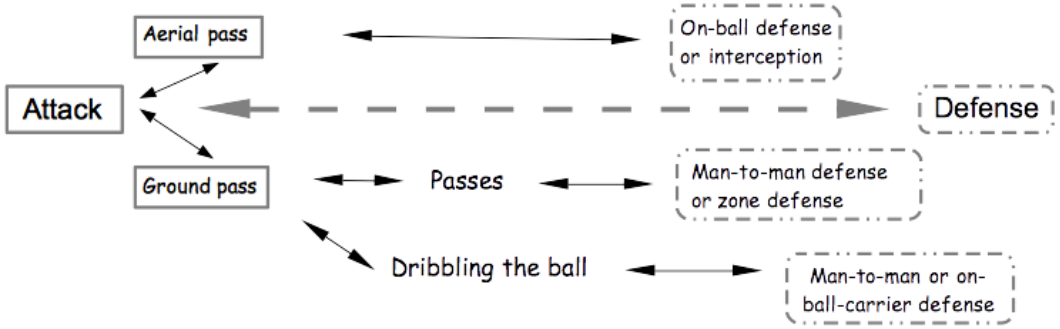
In this article, these opposition relations will be analyzed in order to try to better understand and judge the decisions in play based on the concepts of offensive and defensive matrices. The analysis of these movements should allow not only the perception of the factors contributing to regulate the game, but also the understanding of the different levels of players' regulation and their interdependence.

The Matrix System in Handball

Bayer's (1979) analysis is very close to and largely influenced by that of Mahlo (1969). For this handball specialist, the specificity of team games and sports lies in the presence at all times of partners and opponents who, through their continuous actions, modify situations and make them evolve. The author proposes, through a structural analysis, the existence of organizing principles, common to the various collective sports games. The rules and principles are intended to guide the responses and behaviors of each of the protagonists (Zerai 2011). In handball, the main constraints of the game are linked to the conditions of intervention on the ball: the ball is held in one hand and the movements are made on 3 supports. In defense, the right to charge is limited and a zone prohibited to players except for the goalkeeper exists in front of the goal. To progress, the student must overcome

motor skill or information-related problems, essential feature of the activity: (a) making choices and solving problems in a changing social environment under significant time constraints; (b) facing a transition game with constant status changes; (c) optimally managing the power balance/imbalance (*rapport de forces*) between both teams (Jeannin and Cremonesi 2009).

Figure 1. *Characterization of the Opposition Relationship in Handball*



Source: Adapted from Gréhaigne 2016.

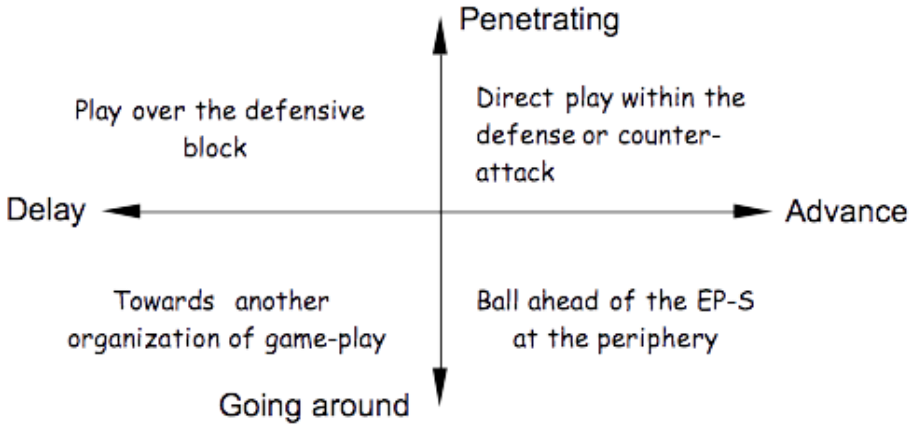
In a match, the opposition generates the unforeseen and the constant need to adapt to constraints resulting from the confrontation. Adapting consists therefore very rarely in a simple application of tactical combinations learned in training. In sequences of play where time is short and where complexity is present, the player must also know how to interpret the principles of play and the rules, how to play with them and, if necessary, how to break them or redefine them. In this sense, the player is expected to play knowingly, that is not to be dependent upon the evolution of game play but rather critical, even pragmatic at times.

Figure 1 illustrates a model of characteristic opposition links in handball. Conceived as a continuous movement, game play is synthesized into a general scaffold made of two opposing matrices of play, a “defensive matrix” and an "offensive matrix” (Deleplace 1979). This underlines that one can analyze the opposition links paying attention to the details and that it is perfectly possible to succeed in formulating them for their implementation in a conscious and methodical way, both during training sessions and during matches themselves as well.

The Offensive Matrix in Handball

The offensive matrix is in the first place the conscious choice of a strategy for penetrating the opposing defensive system according to its momentary configuration (Figure 2). This refers either to a counter-attack, or to an action aimed at rapidly attacking the momentarily weak dimension of the opposing defense or possibly an attack in the strong dimension of the opponents if one thinks it can be disorganized.

Figure 2. *Offensive Matrix: Illustrations of Game Actions Using the Concepts "Advance" and "Delay" as well as "Penetrating" and/or "Going Around"*



Source: Adapted from Gréhaigne 2007.

Depending on the defensive setup, the first choice is often, based on where the ball is recovered, the alternative of penetrating or bypassing, or even breaching or forcing the defensive system. It is therefore, by using players' paths and paths and trajectories of the ball, a matter of creating an imbalance by getting ahead of the opposing defensive replacement and shooting at goal. Here, several cases are to be considered.

The scoring of a goal through a counterattack determines the end of the other phases of the attack which could have been a slow passage in the attack zone and a positional attack on a defense well in barrage. In the face of such a defense, using intervals to go through defenders or going around them may bring success. Finally, in the absence of any imbalance, it is about exploiting the slightest careless fault of the opponents or an individual failure or forcing them to make mistakes. When faced with a well-established barrage defense, shooting over the defensive wall is also an appropriate response to this type of game configuration.

Any analysis of the organization of the game, both in attack and defense, has as a starting point: the incessant back and forth of the players' paths and the trajectories of the ball (Gréhaigne et al. 1999). For example, the possibility of "forcing the defensive barrage" is frequently due to its spreading out or to a regrouping due to a numerical insufficiency. Rapid ball circulation puts the defense in difficulty as the speed of a running or flying ball is usually greater than the speeds of defenders engaged in the defensive barrage. Thus, in the general movement, at every moment the question arises for the attacker whether to continue the collective movement in progress or to transform it. The increasing complexity of the matrix system is also due to the introduction of the dynamics of time in the game. From this point of view, the offensive and defensive matrices are based on dynamic principles of organization in play. In handball, as in other team sports, the objective for players is to get the ball into the goal scoring zone and score.

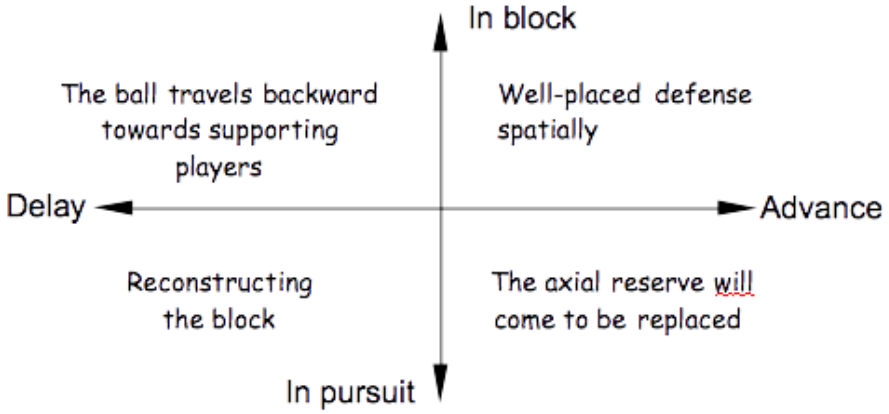
The Defensive Matrix in Handball

The defensive matrix, unlike the offensive matrix, is both the simplest and more general collective organization of defense likely to stop, whatever its form, deployment or successive twists and turns, the offensive movement attempted by the opponent momentarily in possession of the ball (Deleplace 1979). The defending team achieves "defensive balance" at a given moment in the game when, at that moment, the distribution of all of its players, in relation to the opponents, to the ball and to the effective-play space (EP-S) positioning on the field, is such that it is able to respond immediately and effectively to each of the contingencies the evolution of game play may bring about in the next moment. We know that in actual game play, it happens that two moments of defensive balance may succeed one another or that a moment of defensive balance may be followed by an instant of imbalance, and vice versa. In other words, an imbalance can just as well be the consequence of a bad distribution the moment before as that of a bad use of a good distribution which existed the moment before, thus creating an imbalance. The collective defensive system is therefore built on a principle of constant instantaneous distribution of the 6 players in relation to a necessary axial coverage. In this instant distribution, the players engaged near the ball trade places with teammates of the axial cover according to the principle of circulation which responds to the uninterrupted "movement" of the whole confrontation, their purpose being to recover the ball. In this case, with the example of football, Duprat (2005) identifies four fundamental rules of defense.

- Place yourself in a barrage in relation to the ball and/or its direct opponent to protect its goal.
- Prioritize taking charge of the ball carrier, harassing him without being eliminated, pushing him to make a mistake. Wait for the right moment to get into the action of reconquest.
- Curtail or minimize play in the middle of the field and orient it to the sides to keep the ball away from the center, thus, lessening the shooting angles.
- Maintain a "combative" attitude throughout the action by putting pressure on the opponents. Exercise unwavering vigilance until the ball is recovered.

Figure 3 illustrates the main actions and configurations that can be observed in the defense using the concepts "advance" and "delay" as well as "in block" and/or "in pursuit".

Figure 3. *Defensive Matrix: Illustrations of Game Actions Using the Concepts "Advance" and "Delay" as well as "In Block" and/or "In Pursuit"*



Source: Adapted from Gréhaigne 2007.

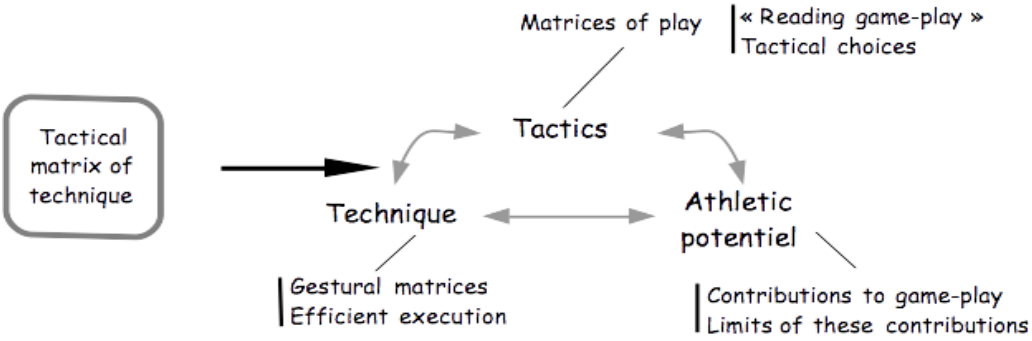
When the attack is moving the ball toward the scoring zone, should the defense be late or in pursuit, it becomes necessary to maneuver in such a way as to delay the offensive in order to allow the defenders to return and reestablish a barrage in front of the ball. In handball, time is very limited to perform these maneuvers. It should be noted that in a counterattack, at the time of a back pass while moving the ball towards the scoring zone (passing the ball in the back of the defenders), the attackers best placed to continue the counterattack are those who are back and behind the player in possession of the ball. Last and not the least, within the framework of this matrix, the goalkeeper constitutes a defensive, fundamental screen all by himself. As both last defender and first attacker, the goalkeeper actively participates in his team's play.

In a confrontational situation, any decision must be as relevant as possible regardless of the context and it only becomes valid if it can be effectively translated into action. This implies that the player actually has at his disposal a minimum of corresponding tactical and gestural responses in the form of immediately available resources.

The "Tactical Matrix" of Movement Execution

Any game activity is necessarily a tactical act whatever the player's level because it consists in solving, during action and in compliance with the primary rules of the game, a large number of problems generated by the various game situations. "The level of decision-making tactics always remain the first level, the source of everything, hence certain consequences in the way of working both in initiation and improvement" (Deleplace 1979, p. 11). The effectiveness and increasing adaptation in the execution of a movement result in a gesture-learning process itself intelligent, constantly evolving, constantly renewed over time and in opposition situations as often as possible.

Figure 4. *Constituent Elements of the Tactical Matrix of Gestural Execution*



Source: Gréhaigne et al. 2005.

In a given team sport, the tactical matrix of gestural execution interrelates the tactical, technical and energetic assets of the player, in order to face a specific problem posed by the opposition. If necessary, this first level of treatment can be specified further with a deepening of these first three elements.

This tactical matrix (Figure 4) is built over time, by integrating more and more elements processed at the level of conscious control but also, most often, in the background in a non-conscious way in order to let the cognitive channel available for other tasks. Here, cognition is considered as the set of mental processes which relate to the function of knowledge and bring into play memory, language, reasoning, learning, decision-making, perception or attention, etc. In addition, the construction of this "tactical matrix" of gestural execution is the sine qua non of open gesture resources:

- promoting the achievement of the maximum number of responses as the game progresses, facilitating the fast and efficient execution of a decision imposed by the momentary balance of power;
- capable of renewal and evolution throughout the player's physical life, the way of playing changing with the evolution of age.

When one wants to work on tactical decisions, only game-play situations involving an opponent are very suitable. It is from this interpretation of the facts that the expression of the tactical matrix of gestural execution, where gestures and tactics work in symbiosis, must also be understood. In this conception of learning setups, gestures are at the same time "ready" when they are constructed and "revisited" with each new execution according to a more or less specific context. Instead of conditioning players to a particular positioning system, where information no longer plays a primary role, it is necessary to create learning situations in which the information coming from the active presence of the opponent is the basis, the guide of the action and literally becomes fundamental to the tactical resolution of the task and its execution. The links of opposition can be characterized and categorized. Thus, only working with opponents makes it possible to provide access to a "category" of situations which makes it entirely possible to work on mastering the evolution of game situations, as soon as certain similar conditions appear (Zerai et al. 2013, 2020).

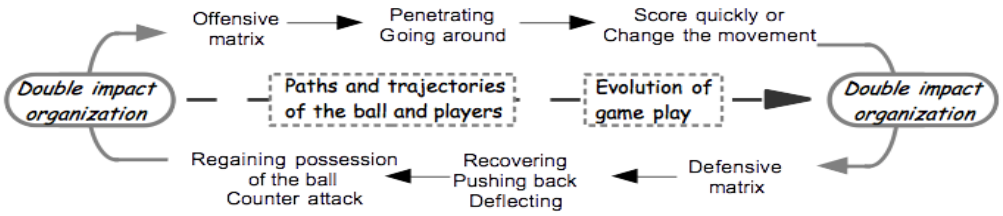
Finally, it is good to specify that this matrix serves as a common thread for the decisions taken in the game where the athletic aspects are not to be neglected (Bouthier 1993). Together with individual tactics, it is assumed that the intervention of cognitive processes in the use of the objects of technique is decisive. Taking into account the tactical matrix of gestural execution is therefore choosing the individual tactic, well executed, tactically correct and performed at the right time depending on the evolution of the game. Engaged in the game, the player adjusts not only to what he sees, but also to what he foresees because he also decides according to the probabilities of evolution of the game with, as much as possible, an overall appreciation and instantaneous minimum of useful information. It is, therefore, a complex and continuous entanglement of data but few that the player collects in relation to his knowledge and motor skills already available or in the process of evolving. Thus, the player frequently faces a triple uncertainty: (a) a temporal one, referring to the duration of the action and its speed; (b) a spatial one, as to where the action is located and whether it is in contraction or expansion; (c) an informational one, about the probability of evolution of the momentary configuration of the game.

Movement in the Game

In handball, the dynamics of the game offer rapid changes in game situations calling for fast reactions and great mobility. The general movement of the players and the ball constitutes a dynamic network constantly in transformation where the different sequences of play engender one in the other (Zerai and Gréhaigne 2020).

In the course of the game, the double-acting organization (Deleplace 1966, 1979, Gréhaigne and Dietsch 2015) organically links offense and defense, emphasizing the immediacy of the transition from attacker to defender (Figure 5). For this organization, it should be noted this particularity of handball which allows to play "back-to-back" to the zone. Under these conditions, it is absolutely essential that the basic organization that constitutes the defensive matrix also respond to the possibility of a counter-attack situation. This means that these fundamental elements do indeed constitute an organizational "unity-totality" with a double effect, constantly implemented by the simultaneity and the succession of individual initiatives (Deleplace 1979, p. 45).

Figure 5. *Didactical Model of Game Play Based on an Analysis of Configurations of Play in Handball*



Source: Gréhaigne et al. 2010.

One must therefore be able to move from the defensive phase to the offensive phase (and vice versa) in a very short time and at any position by making the appropriate choices. This is an important job to do at the learning level during training. When you are in defense, you must already have one or more game plans that allow you to launch the counter-attack as soon as the ball is recovered with the help of players placed in front. If one is in attack, the players placed in support, that is to say behind the ball carrier, must also consider that the actions they plan to carry out also constitute the first line of defense in the event of a ball loss. A player must constantly deploy a critical tactical analysis, while adapting to the tactical initiatives of his partners and opponents. This approach to team confrontation makes it possible to understand team sports from a systemic perspective where opposition relations are the basis of the game (Gréhaigne 1989).

Thus, in play in action, players are faced with the immediacy of the transition from the role of attacker to that of defender. This reversibility of situations represents a fundamental aspect of team sports in relation to the fact that both teams attack and defend in turn. Therefore, there is always a part of defense in the attack and a part of attack in the defense (Figure 5). It follows that we can speak of a real "co-construction" of the attack/defense system, this system being made and unmade as the action takes place. This type of team organization aims, when in defense, at launching the attack as soon as the ball is recovered with the help of the players placed in support. If attacking, supporting players should think of themselves as the first defense against the counterattack if the ball is lost and prepare accordingly. The transition into the double-acting situation is often a key moment, especially during the recovery of the ball because in this phase of the game, the last attack becomes defense and must be reorganized: either oppose the front of the ball (recoil brake) to try to recover the ball quickly; either retreat or breakaway to reconstitute the defensive curtains in the depth of the court; either, if the defensive curtains are in place, oppose the penetrations of the opponent. As for defense having turned into attack, choices are: either a fast counterattack with few ball exchanges and little time to succeed; either a rapid breach if the defense is only partly in barrage, hoping for a shot on goal despite time running out; or, in the event of failure of the action towards the goal, a tactical switch to other attack options where the conservation of the ball makes it possible to wait for another opportunity (Gréhaigne et al. 2009).

In a socio-semio-constructivist conception (Wallian and Gréhaigne 2004) of learning handball (Darnis 2019, Zerai 2015), it is therefore necessary to conceive the organization of the game as a totality which amounts to thinking of the attack/defense and defense/attack together where, at any moment, everything can change. Of course, this abstraction and this meaning given to the confrontation emphasizes (a) the defensive precautions to be considered in the present attack movement (making sure to conserve the ball) and (b) the offensive anticipation to be considered in the current defense (preparing to recapture the ball and counterattack). It is therefore appropriate to consider the phases of the game as deeply intertwined, even entangled, in which micro-states of balance and imbalance succeed one another (Zerai et al. 2013).

As learning increases, one observes an improvement in the refinement of the tactical matrix of skill execution and a greater speed in the final phase of orderly attacks. We also note that the counter-attack is systematically sought and that defenders become more offensive to counter this type of movement and thus try to recover the ball. All teams have several types of defenses depending on the opponents encountered. Defenses are characterized by a great mobility of players (Roche and Belmessaoud 2016).

After these considerations on what constitutes a good level of play, we will come to the characteristics of a work cycle (lesson sequence) with beginner players from Thala high school (Zerai 2011) to see how these opposition links constitute indeed the background. of the educational process.

Young Tunisian Girls and Handball

For young Tunisian girls in school programs, the teaching of team sports/ games and handball begins in high school. We submit that if these lessons began in middle school, or even in elementary school, female students' relationships with their body would develop differently. Team sports could thus contribute to the construction of new motor skills mastery. These ideas come from a long cycle of eleven handball lessons (Zerai 2015) using a small-sided games approach and the debate of ideas. Here, students were asked to organize themselves collectively and individually to observe, analyze and develop action projects in order to defeat an opposing team. Then, it was a matter of evaluating and regulating this project, the debates of ideas constituting the common thread to analyze the evolution of the game.

For these beginners, learning consisted in building new knowledge and motor skills because they had little technical background (and that is saying something). During this learning cycle, the gradual construction of individual tactics provided students with capacities enabling them to achieve progress. The new motor skills did not remain isolated, but maintained close relationships with other knowledge (information, tactics, social skills, self-knowledge, etc.). At first, decisions made in the game seemed neither planned nor guided by a project. Students had difficulty passing the ball and often lost it. Getting closer to the goal to take shots was a problem, the ball being very frequently intercepted in the midfield. As a result, the retention of the ball was short (loss of balls, hits or fouls) and the few attempts to shoot from distance were almost all doomed to failure. The girls had great difficulty in matching what they wanted to do with regard to their own motor skills.

This cycle, with a systematic recourse to opposing situations, generated a lot of progress because it was not only a matter of performing techniques in the strict sense of the term but, also, of analyzing the conditions of doing and of knowing by doing. In other words, the results obtained reflected all the elements that girls had learned to master and these transformations had largely reorganized their resources. From an acted-out situation, the girls were called upon to put into words and verbalize in order to build effective rules of action making it possible to overcome the obstacles encountered in the game. The use of handball in physical and sports

education is appropriate because it allows, relatively easily, exchanges and a co-construction with others. In addition, we can affirm that if tactical skills are built in part thanks to these cognitive tools, verbal interactions between peers greatly help their development.

Conclusion

From our point of view, living tactical knowledge and motor skills, built in the game from the usual motor skills in relation to simple rules of the organization of the game, constitutes the bases of a renewed didactics of team sports and games at school. In team sports, it is game play that comes first with the right decisions made at the right time for the players to keep things running smoothly. The principles of play (theoretical foundations regarding the functioning of the opposing forces) establish the bases of the logic of the game in the systematic taking into account of the opposition relationship between an attack and a defense (Duprat 2019). The essence of the game is to simultaneously manage the conservation of the ball for his team and the hitting of the opponent's goal; for the opponents, it will be about recovering the ball and defending their own goal. From this point of view, analyzing, explaining the opposition and using it as a source of any reflection makes it possible to design effective learning situations in terms of player development. So, it will be necessary to reflect, discuss and exchange in the future on current questions concerning the forms of evolution of the game and on the transformations of players in the context of complex learning.

Acknowledgments

The authors thank Paul Godbout for his help in editing the paper in English.

References

Bayer C (1979) *L'enseignement des jeux sportifs collectifs* (Teaching team sports). Paris: Vigot.

Bouthier D (1993) *L'approche technologique en STAPS* (Technological approach in S.T.A.P.S.) Doctoral Dissertation in S.T.A.P.S. Paris-Sud Orsay University.

Clemente FM, Martins FML, Mendes RS, Figueiredo AJ (2014) A systemic overview of football game: the principles behind the game. *Journal of Human Sport & Exercise* 9(2): 656–667.

Cremonesi B (2013) *Les règles au service des apprentissages* (Rules at the service of learning). *Contrepied Special Edition* no. 6, 13–15.

Darnis F (2019*) Une approche socio-constructiviste en EPS* (Socio-constructivist approach in the teaching of physical education). Doctoral Dissertation (Unpublished). University of Bordeaux.

Deleplace R (1966) *Rugby.* Paris: Colin-Bourrelier.

Deleplace R (1979) *Rugby de mouvement - Rugby total* (Rugby in movement - Total rugby). Paris: Éducation Physique et Sport.

Duprat E (2005) *Approche technologique de la récupération du ballon lors de la phase défensive en football, contributions à l'élaboration de contenus de formation innovants.* (Technological approach to the recovery of the ball during the defensive phase in football, contributions to the development of innovative training content). Unpublished Doctoral Thesis. ENS: Cachan.

Duprat E (2019) L'opposition au cœur de l'analyse en spot collectif (The opposition at the heart of the analysis of team sports). *eJRIEPS* 40: 26–50.

Gréhaigne J-F (1989) *Football de mouvement: vers une approche systémique du jeu* (Movement football. Towards a systemic approach to play). Doctoral Dissertation (Unpublished). Université de Bourgogne.

Gréhaigne J-F (Ed.) (2007) *Configurations du jeu, débat d'idées et apprentissage des sports collectifs* (Configurations of play, debate of ideas and learning of team sports). Besançon: Presses of the University of Franche-Comté.

Gréhaigne J-F (2016) Le défi du football dans l'enseignement sco*laire* (The challenge of football in school education). *Revue EP&S* 370: 44–46.

Gréhaigne J-F, Billard M, Guillon R, Roche J (1989) Vers une autre conception de l'enseignement des sports collectifs (Towards another conception of the teaching of team sports). In G Bui-Xuan, P Boyer, P Chifflet Y Leziart (eds.), *Methodology and didactics of physical education and sports*, 201–216. Paris: AEEPS.

Gréhaigne J-F, Caty D, Godbout P (2010) Modelling ball circulation in invasion team sports: a way to promote learning games through understanding. *Physical Education and Sport Pedagogy* 15(3): 257–270.

Gréhaigne J-F, Dietsch G (2015) *Quelques aspects théoriques de la didactique des sports collectifs* (Some theoretical aspects of team sports didactics). *eJRIEPS* (Special Issue 1).

Gréhaigne J-F, Godbout P, Bouthier D (1999) The foundations of tactics and strategy in team sports. *Journal of Teaching in Physical Education* 18: 159–174.

Gréhaigne J-F, Godbout P, Zerai Z (2011) How the "rapport de forces" evolves in a soccer match: the dynamics of collective decisions in a complex system. Revista de Psicología del Deporte, 20 (2) 747–764.

Gréhaigne J-F, Nadeau L (2015) Le mouvement, la dynamique du jeu et l'espace-temps (The movement, the dynamics of game play and space – time). *eJRIEPS* (Special Issue 1): 79–91.

Gréhaigne J-F, Richard J-F, Griffin L (2005) *Teaching and learning team sports and games*. New York: Routledge Falmer.

Gréhaigne J-F, Zerai Z, Caty D (2009) Prototypic configurations of play in handball in physical education: a strategy to promote student understanding in team sports. In T Hopper, J Butler, B Storey (eds.), *TGFU simply good pedagogy; understanding a complex challenge*, 51–62. Physical and Health Education Canada.

Jeannin P, Cremonesi B (2009) *Handball*. Contrepied. Retrieved from: https://www.contrepied.net. [Accessed 29 January 2021]

Jeu B (1977) *Le sport, l'émotion, l'espace* (Sport, emotion, space). Paris, France: Vigot.

Mahlo F (1969) *L'acte tactique en jeu* (Tactical act in play). Paris, France: Vigot.

Roche L, Belmessaoud S (2016) Video analysis at the service of handball performance: current uses and perspectives. *Approches du Handball* 154: 52–57.

Teodorescu L (1965/2013) Principes pour l'étude de la tactique commune aux jeux sportifs collectifs (Principles for the study of tactics common to team sports-games). *Revue de la S.I.E.P.E.P.S.* 3: 29-40.

Wallian N, Gréhaigne J-F (2004) Vers une approche sémio-constructiviste des apprentissages moteurs (Towards a semio-constructivist approach to motor learning).

In G Carlier (ed.), *Si l'on parlait du plaisir d'enseigner l'éducation physique*, 167–179). Montpellier: AFRAPS.

Zerai Z (2006) *How do girls learn in handball? Contribution of verbalization*. Master degree in Didactics of Physical and Sports. Tunis: ISEFC.

Zerai Z (2011) *Apprentissage du handball chez les jeunes filles tunisiennes et françaises; apport de la verbalisation* (Learning handball for young Tunisian and French girls; Contribution of verbalization). Doctoral Dissertation (Unpublished). University of Franche-Comté, Besançon.

Zerai Z (2015) Effect of the debate of ideas on learning handball among beginners: the case of young Tunisians. *eJRIEPS* 35: 86–104.

Zerai Z, Gréhaigne J-F (2020) Action in project, learning through understanding and observation setting in the lessons of team sports. *International Journal of Physical Education* LVII(3): 11–20.

Zerai Z, Gréhaigne J-F, Godbout P (2013) Configurations of play in invasion team sports and learning by analogy. *International Journal of Physical Education* L(1): 18–28.

Zerai Z, Gréhaigne, J-F, Godbout P (2020) Student understanding and learning in team sports: understanding through game-play analysis. *Athens Journal of Sports* 7(4): 215–234.

Athens Journal of Sports - Volume 8, Issue 4, December 2021 – Pages 261-270

Reliability and Differences of Jump Kinetics Related to Different Load in College Male Athletes

By Chia-Hung Chuang[*]*, Ching-Hung Lin*[±]*, Cheng-Wen Wu*[°] *& Kuo-Chuan Lin*[•]

The purpose of this study was to explore reliability and differences of jump kinetics related to different training load in college male athletes. The subjects were required to perform countermovement jump (CMJ) and loaded countermovement jump (LCMJ-0%, LCMJ-20% and LCMJ-80% of one-repetition maximum squat) three times for each load which were recorded by a force plate. One-way repeated measures ANOVA and the LSD post hoc method were employed to evaluate the results. The results reveled that jump kinetics-related parameters increased/decreased by the load. Compared with the loading jumps, the CMJ incorporate with an arm swing directly led to an increase in eccentric contraction duration during jumping. Most of the jump mechanical parameters under substantially different load conditions fall within the good to excellent reliability. It appears that the CMJ and CMJ with extra load were reliable in explore the kinetics related parameters.

Keywords: *countermovement jump, one-repetition maximum, arm swing, eccentric contraction*

Introduction

In volleyball, basic movements such as blocking, spiking, scrambling, and fast shifting are linked with indicators of physical fitness. Lower limbs' explosive power, agility, and muscle strength play an important part. Players compete in the field for a long time and perform high-intensity intermittent exercise. Therefore, lower limb neuromuscular power output has a great influence on sports performance in this arena which related to muscle strength, power, and neural function. Through the relationship between the ground reaction force that players generate when they jump and the time series, different kinetics parameters related to the evaluation of the explosive power state can be calculated, such as the development of the maximum rate of force, impulse, hang time, and other force parameters. In the past, peak power output (PPO) was a common means of evaluating athletes' overall performance. However, in recent years, new research results have led to the suggestion that a single PPO index should not be used to evaluate the jumping state as far as possible because PPO may be affected by the final result due to the jumping mode and the muscle mechanism (Fàbrica et al. 2020, Ruddock and Winter

[*]Assistant Professor, Department of Recreation and Hospitality Management, Dahan Institute of Technology, Taiwan.
[±]Associate Professor, Physical Education Office, Yuan Ze University, Taiwan.
[°]Assistant Professor, Physical Education Office, Yuan Ze University, Taiwan.
[•]Associate Professor, Office of Physical Education, Chung Yuan Christian University, Taiwan.

2015). Gathercole et al. (2015b) used the countermovement jump (CMJ), which is the most common method of monitoring lower limb explosive power, to evaluate nerve adaptation. In their study, maximum power, impulse, concentric contraction time, eccentric contraction time, flight time, and other parameters were evaluated at different time series stages. The results revealed that many parameters showed recovery within 24 hours, indicating that fatigue evaluation using multiple indicators would be a feasible approach.

In volleyball, which is a high-intensity intermittent sport, muscles must produce strong contractions to power rapid explosive whole-body movements such as sprinting and jumping. Therefore, lower limb explosive power is a common indicator of athletic ability. There will be differences in muscle development morphology and ability among different athletes due to their positions. Previous research found differences in muscle thickness, fascicle length, and isokinetic muscle strength, identified correlations between squat jump (SJ) height and countermovement jump (CMJ) height, and sprint performance (Alegre et al. 2009, Nimphius et al. 2012, Spiteri et al. 2015). As a test to monitor athletes' neuromuscular status, the CMJ has also been widely used in different fields, and common CMJ test methods often take average peak, jump height, and maximum power as indicators (Cormack et al. 2008, Cormie et al. 2009). Previous studies have pointed out that information related to muscle fatigue may be overlooked when exclusively considering the above indicators, which can result in inaccurate judgement of the current status due to the lack of reproducibility and sensitivity (Knicker et al. 2011). Cormie et al. (2009) studied nerve and muscle adaptability and mechanisms during training using a time-domain analysis of strength parameters, based on CMJ strength signals and subsequent calculations; this method allowed for the effective observation of fatigue changes in muscles and nerves, so as to observe the states of and changes in external load stimulation and muscle eccentric contraction. Traditionally, muscle contraction state and ability are synoptically observed through CMJ analysis. Due to the combined eccentric and concentric contractility, this phenomenon is caused by the stretch shortening cycle (SSC), which involves material metabolism, mechanical energy, and nerve conduction factors (Nicol et al. 2006).

For many athletes, the ability to generate a lot of power in a short time is very important, and performing loaded jump training by applying an external load is an effective means of increasing muscle strength and power (Dugan et al. 2004, Zink et al. 2006). Vertical jumping is also commonly used to evaluate individuals' muscle strength and power (Carlock et al. 2004, Hori et al. 2006). Countermovement jumping (CMJ) is the most frequently used vertical jumping technique for evaluating muscle strength and power. Measuring athletes' jump height and monitoring the act of jumping (Cronin et al. 2004, Dugan et al. 2004, Garcia-Lopez et al. 2005) is an effective means of evaluating vertical jump power (Hori et al. 2009) and monitoring the neuromuscular state (Heishman et al. 2020, Legg et al. 2017). To improve the explosive power of lower limbs for volleyball player, the loaded squat jump is one of the most commonly used training method which provides positive benefits for jumping performances. However, the players usually used an arm swing CMJ in the field but not only squat jump without arm swing. Therefore, the

purpose of this study was to quantify the pattern of within-subject variability in kinetic variables in college male volleyball players. This study also sought to determine the changes in jump mechanical parameters with different training load. This investigation should provide valuable insight to coaches on basic physical training to establish effective training modes.

Methods

Participants

Sixteen elite male college volleyball players were used as the study participants (mean age = 21.5 ± 1.5 years; mean height = 185.5 ± 3.5 cm; mean weight = 79.5 ± 5.2 kg). All the participants in the study had participated in professional volleyball training for over five years and were registered in the Division I men's University Volleyball League in Taiwan. The subjects were free of major musculoskeletal system disorders within the year preceding the study. During the experiments, verbal cues were used in the experiment, and the participants were required to make their best effort. Approval from the relevant local Institutional Review Board (Landseed International Hospital Institutional Review Board, NO.18-015-B1) and individual written informed consent from all participants were obtained beforehand. All experiments were performed in accordance with relevant local guidelines and regulations.

Research Tools and Test Methods

In this study, the CMJ with an arm swing and the loaded countermovement jump (LCMJ) were used to measure the lower limbs' maximum explosive power, and the parameters (Table 1) were calculated based on the force exerted on the ground (Gathercole et al. 2015b). Each subject stood on a force plate (9260AA, Kistler Ltd., Switzerland) to perform the experiment in triplicate, the mean value was taken as the calculation parameter, and then the individual's bodyweight was taken as the benchmark for standardization. The weight plate's sampling frequency was set to 1,000 Hz for data collection. The weight-bearing devices used in the experiment were the Olympic standard men's barbell and weight plates. The barbell was 220 cm in length and 20 kg in weight. The bar body was 131 cm in length and 2.8 cm in diameter. The CMJ and LCMJ methods adopted in this study are as follows:

I. CMJ with arm swing (Figure 1a): In this study, the CMJ entailed the subject standing upright on the force plate, with the chest and both legs straightened. After preparing, the subject quickly squatted to the optimal take-off point, and then jumped vertically as rapidly and as high as possible. The process must be continuous, without pause, and both arms must swing.
II. LCMJ (Figure 1b): In this study, the LCMJ entailed that the subject stand on the force plate and perform a high-bar back squat. The barbell was fixed

on the upper back, with both the subject's hands holding the bar. The feet were separated at shoulder width, and the back was kept upright. After preparation, the subject squatted quickly to the optimal take-off point and jumped vertically as high as possible. The purpose of this jump movement was to observe the SSC response during load-bearing take-off. For LCM-0% load, plastic water pipes were used instead of barbells.

Figure 1a. *CMJ with Arm Swing* **Figure 1b.** *LCMJ with Barbell*

Table 1. *The Calculated Variables of Jump Performances*

Variable	Abbreviation	Description
Peak force	PF	Greatest force achieved during the jump
Mean force	MF	Mean power generated during the concentric phase of the jump
30ms-Maximum rate of force development	30ms-mRFD	Largest force increase during a 30-ms epoch
50ms-Maximum rate of force development	50ms-mRFD	Largest force increase during a 50-ms epoch
Time to peak force	TTPE	Time from jump initiation to peak force
Flight time	FT	Time spent in the air from jump take-off to landing
Jump height	JH	The maximum jump height achieved
Eccentric duration	Ecc-Dur	Time required to perform the eccentric CMJ phase
Concentric duration	Con-Dur	Time required to perform the concentric CMJ phase
Total duration	Toltal-Dur	Time required to perform the entire CMJ

Source: Gathercole et al. 2015b.

Experimental Procedures

First, the one-repetition maximum (1RM) was measured. Before the 1RM test, the subjects were given appropriate guidance, and the test procedures were explained to ensure that they understood how to correctly perform the experimental steps and movements. In accordance with the instructions, the subjects used appropriate

weights to practice squat weightlifting. While holding the opposite sides of the barbell with their hands, they extended from 90 degrees to 180 degrees, with the knee joints as the center, and then returned to the original position. For warm-up, six to ten repetitions were performed with an estimated load of about 50% to 1RM. The warm-up allowed the subjects to familiarize with the test devices and the squat weightlifting movements. After warm-up, the subjects rested for 3 minutes and then made up to three attempts to lift the 1RM weight, with intervals of at least 15 minutes. After a rest period of at least 15 minutes, the weight was increased by 5–10 kg until failure to perform a single complete movement. The mean 1RM measured in this study was 99.34±8.14 kg.

The interval between the formal experiment and 1RM measurement was 72 hours. During formal measurement, the CMJ test was performed first. The subjects were required to perform the CMJ test three times on the force plate, following the given instructions, and then perform LCMJ-0% three times, after taking a 10-minute break. After completion, the subjects took another 10-minute break, and then LCMJ-20% was performed three times. After completion, the subjects took another 10-minute break, and then LCMJ-80% was performed three times. A total of 12 jump measurements were taken.

Statistical Analysis

Data from all the tests were processed using a custom-written MATLAB script (Version R2008a; MathWorks Inc., USA) including peak force (PF), mean force (MF), 30ms maximum rate of force development (30ms-mRFD), 50ms maximum rate of force development (50ms-mRFD), time to peak force (TTPF), flight time (FT), jump height, (JH), eccentric duration (Ecc-Dur), concentric duration (Con-Dur) and total duration (Total-Dur). The results of PF and MF were standardized according to the body weight (BW) of each participant. The Statistical Package for the Social Sciences (SPSS) 20.0 software (version 20.0; SPSS Inc., Chicago, IL, USA) was used for the statistics and data analysis. First, the reliability of the measured data was tested using the intra-class correlation coefficient (ICC) for each calculated variable. One-way repeated measures ANOVA and the LSD post hoc method were employed to evaluate the results of CMJ, LCMJ-0%, LCMJ-20% and LCMJ-80%. The level of significance was set at $\alpha = 0.05$.

Results

The analyzed results for jump performances variables including CMJ, CMJ-0%, LCM-20% and LCMJ-80% are outlined in Table 2. Based on the distinction of ICC value, it can be divided into the following parts, medium reliability (0.5 to 0.75), good reliability (0.75 to 0.90), and excellent reliability (above 0.9). According to the analysis of the results, it is shown that most of the jump mechanical parameters under substantially different load conditions fall within the range of good (0.75-0.90) to excellent (above 0.90), and only five values fall into the medium reliability (0.50-0.75), which are 30ms-mRFD (LCMJ-80%), Ecc-Dur

(LCMJ-0%, LCMJ-20%, LCMJ-80%), Total-Dur (LCMJ-0%). This results demonstrated that the results of this study meet the reliability after repeated measurement. The results of descriptive statistics show that PF, MF, 30ms-mRFD, 50ms-mRFD, FT, JH, and Ecc-Dur decrease as the load increases. However, the parameter values of TTPF, Con-Dur and Total-Dur are increasing. After repeated measures ANOVA, PF, FT and JH showed the same significant difference results ($p<0.01$) (CMJ>LCMJ-0%>LCMJ-20%>LCMJ-80%). There are also significant differences in the MF ($p<0.01$) (CMJ>LCMJ-0%>LCMJ-80%; CMJ>LCMJ-20%> LCMJ-80%). A significant difference was reached in the Ecc-Dur ($p<0.01$) (CMJ> LCMJ-0%; CMJ>LCMJ-20%; CMJ>LCMJ-80%). Significant difference was reached in the part of TTPF ($p<0.01$) (LCMJ-80%>LCMJ-20%>CMJ; LCMJ-80%>LCMJ-0%). A significant difference was reached in the Con-Dur part ($p<0.01$)(LCMJ-80%>LCMJ-20%>CMJ; LCMJ-80%>LCMJ-20>LCMJ-0%). There is a significant difference in Total-Dur ($p<.01$) (LCMJ-80%>LCMJ-20%; LCMJ-80%>LCMJ-0%; LCMJ-80%>CMJ).

Table 2. *The Intraclass Correlation Coefficient (ICC) and Comparison of Different Loaded Countermovement Jump*

	CMJ (ICC)	**LCMJ-0% (ICC)**	**LCMJ-20% (ICC)**	**LCMJ-80% (ICC)**	**F**
PF	2.69±0.25 (0.963)	2.36±0.20 (0.933)	2.12±0.20 (0.973)	1.79±0.10 (0.919)	183.826**
MF	1.52±0.13 (0.869)	1.35±0.11 (0.820)	1.31±0.11 (0.855)	1.23±0.05 (0.856)	22.336**
30ms-mRFD	17.81±10.59 (0.828)	15.96±12.88 (0.942)	15.52±7.21 (0.814)	14.82±8.17 (0.689)	0.326
50ms-mRFD	20.36±11.32 (0.860)	15.84±12.80 (0.932)	14.76±6.89 (0.756)	13.37±6.39 (0.785)	0.123
TTPF	0.56±0.16 (0.885)	0.59±0.18 (0.871)	0.65±0.16 (0.911)	0.78±0.16 (0.942)	20.505**
FT	0.60±0.05 (0.971)	0.55±0.04 (0.930)	0.46±0.04 (0.947)	0.31±0.05 (0.928)	470.409**
JH	44.23±6.65 (0.970)	37.37±6.00 (0.938)	26.38±4.98 (0.950)	12.22±3.56 (0.938)	379.990**
Ecc-Dur	0.41±0.09 (0.838)	0.34±0.08 (0.746)	0.32±0.06 (0.503)	0.29±0.08 (0.668)	7.664**
Con-Dur	0.52±0.12 (0.948)	0.57±0.17 (0.930)	0.66±0.17 (0.949)	0.80±0.15 (0.955)	29.919**
Total-Dur	0.93±0.13 (0.842)	0.91±0.17 (0.669)	0.98±0.18 (0.836)	1.09±0.15 (0.840)	8.816**

Discussion

According to analysis of variance with repeated measures, data such as PF, MF, TTPF, FT, JH, Ecc-Dur, Con-Dur, and Total-Dur all research the level of significant difference. The results for PF, MF, FT, JH, and Ecc-Dur showed that these parameters' values decreased with a load increase, while TTPF, Con-Dur, and Total-Dur increased. Although 30ms-mRFD and 50ms-mRFD did not show significant differences, their values also decreased with an increased load.

The vertical jump adopted in this experiment was an SJ with an arm swing. We found that PF, MF, FT, JH, and Ecc-Dur showed similar phenomena, and that the parameter values obtained under CMJ were the highest. Previous research

pointed out that when CMJ tests are performed with an arm swing, the results will be affected by specific sports' particularities and that skilled jumpers' familiarity with the relevant sport would increase, thus improving the reliability of the results (McMahon et al. 2018, Slinde et al. 2008, Vaverka et al. 2016). Since the participants in this study were excellent volleyball players for whom jumping is a fundamental physical performance factor, the parameters' credibility increased. In sports science, because the main goal is to improve athletes' performance through sports training, accurate performance tests are very important. Furthermore, sports testing results must be reliable and precise in order to detect minimal but meaningful changes caused by exercise training. Furthermore, exceptional athletes' sports training outcomes need to be tested regularly. Therefore, the test methods must be reproducible and allow for the identification of subtle differences within the subject. Measurement errors can occur in all types of tests, so it is important to analyze retest reliability, since retests demonstrate repeated measurements' reproducibility. Confidence level analysis of this study's results demonstrated the feasibility of good reliability in volleyball players' CMJ test results.

Previous studies pointed out that changing the movement involved in CMJ may influence each jump's strength relative to its time signal curve (Feltner et al. 2004, Gathercole et al. 2015a, Gathercole et al. 2015b, Laffaye et al. 2014). The LCMJ mode adopted in this study eliminated the arm swing, but retained the movement characteristics of the squat, i.e., the dynamic muscle movement (SSC) was used to retain the functions that require concentric and eccentric muscle contractions during jumping. Therefore, the results of comparing CMJ and LCMJ-0% show that higher PF, FT, JH, and Ecc-Dur values were obtained for CMJ, mainly due to the influence of the arm swing movement. When performing a CMJ, swinging the arms in the countermovement direction increased squat amplitude, which directly led to an increase in Ecc-Dur (17.07%). The subsequent upward arm swing increased the kinetic energy and directly affected PF, FT, and JH. Hence, it is speculated that omitting the arm swing during CMJ changed the movement and thus the test's reproducibility, especially in sports that require a lot of jumping (Heishman et al. 2020, Klavora 2000). Similar phenomena were observed for TTPF, Con-Dur, and Total-Dur. Although the same verbal prompts, i.e., "jump as high as you can" and "jump naturally," were given to the experiment subjects before they performed each test, the parameter values obtained for LCMJ-80% were the highest. This was mainly due to the increase in the magnitude of the load. That is, when external resistance increased, it took more time to complete the muscle contraction movement. From the perspective of training, shortening the movement's duration is the most important means of improving muscle contractibility and strength output. The results of this study showed that LCMJ-80% training could improve muscle contractibility, as well as TTPF, Con-Dur, and Total-Dur.

Conclusion

In this study, a CMJ with different loads was used to test the lower limbs' neuromuscular status. This method allowed for an understanding of the current status of the subject's body quickly and practically, with relatively low physiological pressure and a relatively light load. It is therefore considered to be an effective method of evaluating neuromuscular fatigue during jumping. In volleyball competitions, jumping is performed repeatedly, as it is needed to complete many of the sport's required movements. Evidently, performing jump-related movements as tests can correspond well to athletes' abilities. Previous assessment methods using CMJ have been proven to be methods for monitoring lower limb performance and fatigue factors. In this study, different intensities were continuously added as a reference. The results showed significant differences in movement mode and sports performance due to load status. In the future, daily training modes in the high load process could be evaluated, thereby preventing injuries and improving training efficiency.

Acknowledgments

This research was supported by the Ministry of Science and Technology in Taiwan (MOST-107-2410-H-033-036-).

References

Alegre LM, Lara AJ, Elvira JLL, Aguado X (2009) Muscle morphology and jump performance: gender and intermuscular variability. *Journal of Sports Medicine and Physical Fitness* 49(3): 320–326.

Carlock JM, Smith SL, Hartman MJ, Morris RT, Ciroslan DA, Pierce KC, et al. (2004) The relationship between vertical jump power estimates and weightlifting ability: a field-test approach. *The Journal of Strength & Conditioning Research* 18(3): 534–539.

Cormack SJ, Newton RU, McGuigan MR, Doyle TL (2008) Reliability of measures obtained during single and repeated countermovement jumps. *International journal of Sports Physiology and Performance* 3(2): 131–144.

Cormie P, McBride JM, McCaulley GO (2009) Power-time, force-time, and velocity-time curve analysis of the countermovement jump: impact of training. *The Journal of Strength & Conditioning Research* 23(1): 177–186.

Cronin JB, Hing RD, McNair PJ (2004) Reliability and validity of a linear position transducer for measuring jump performance. *The Journal of Strength & Conditioning Research* 18(3): 590–593.

Dugan EL, Doyle TL, Humphries B, Hasson CJ, Newton RU (2004) Determining the optimal load for jump squats: a review of methods and calculations. *The Journal of Strength & Conditioning Research* 18(3): 668–674.

Fàbrica CG, Ferraro D, Mercado-Palomino E, Molina-Molina A, Chirosa-Rios I (2020) Differences in utilization of lower limb muscle power in squat jump with positive and negative load. *Frontiers in Physiology* 11(Jun): 573.

Feltner ME, Bishop EJ, Perez CM (2004) Segmental and kinetic contributions in vertical jumps performed with and without an arm swing. *Research Quarterly for Exercise and Sport* 75(3): 216–230.

Garcia-Lopez J, Peleteiro J, Rodgriguez-Marroyo JA, Morante JC, Herrero JA, Villa JG (2005) The validation of a new method that measures contact and flight times during vertical jump. *International Journal of Sports Medicine* 26(4): 294–302.

Gathercole RJ, Sporer BC, Stellingwerff T, Sleivert GG (2015a) Comparison of the capacity of different jump and sprint field tests to detect neuromuscular fatigue. *The Journal of Strength & Conditioning Research* 29(9): 2522–2531.

Gathercole R, Sporer B, Stellingwerff T, Sleivert G (2015b) Alternative countermovement-jump analysis to quantify acute neuromuscular fatigue. *International Journal of Sports Physiology and Performance* 10(1): 84–92.

Heishman AD, Daub BD, Miller RM, Freitas ED, Frantz BA, Bemben MG (2020) Countermovement jump reliability performed with and without an arm swing in NCAA Division 1 intercollegiate basketball players. *The Journal of Strength & Conditioning Research* 34(2): 546-558.

Hori N, Newton RU, Nosaka K, McGuigan MR (2006) Comparison of different methods of determining power output in weightlifting exercises. *Strength and Conditioning Journal* 28(2): 34.

Hori N, Newton RU, Kawamori N, McGuigan MR, Kraemer WJ, Nosaka K (2009) Reliability of performance measurements derived from ground reaction force data during countermovement jump and the influence of sampling frequency. *The Journal of Strength & Conditioning Research* 23(3): 874–882.

Klavora P (2000) Vertical-jump tests: a critical review. *Strength and Conditioning Journal 22*(5): 70–75.

Knicker AJ, Renshaw I, Oldham AR, Cairns SP (2011) Interactive processes link the multiple symptoms of fatigue in sport competition. *Sports Medicine* 41(4): 307–328.

Laffaye G, Wagner PP, Tombleson TI (2014) Countermovement jump height: gender and sport-specific differences in the force-time variables. *The Journal of Strength & Conditioning Research* 28(4): 1096–1105.

Legg J, Pyne DB, Semple S, Ball N (2017) Variability of jump kinetics related to training load in elite female basketball. *Sports* 5(4): 85.

McMahon JJ, Suchomel TJ, Lake JP, Comfort P (2018) Understanding the key phases of the countermovement jump force-time curve. *Strength & Conditioning Journal* 40(4): 96–106.

Nicol C, Avela J, Komi PV (2006) The stretch-shortening cycle. *Sports Medicine* 36(11): 977–999.

Nimphius S, McGuigan MR, Newton RU (2012) Changes in muscle architecture and performance during a competitive season in female softball players. *The Journal of Strength & Conditioning Research* 26(10): 2655–2666.

Ruddock A, Winter E (2015) Jumping depends on impulse not power. *Journal of Sports Sciences* 34(6): 584–585.

Slinde F, Suber C, Suber L, Edwén CE, Svantesson U (2008) Test-retest reliability of three different countermovement jumping tests. *The Journal of Strength & Conditioning Research* 22(2): 640–644.

Spiteri T, Newton RU, Binetti M, Hart NH, Sheppard JM, Nimphius S (2015) Mechanical determinants of faster change of direction and agility performance in female basketball athletes. *The Journal of Strength & Conditioning Research* 29(8): 2205–2214.

Vaverka F, Jandačka D, Zahradník D, Uchytil J, Farana R, Supej M, et al. (2016) Effect of an arm swing on countermovement vertical jump performance in elite volleyball players. *Journal of Human Kinetics* 53(1): 41–50.

Zink AJ, Perry AC, Robertson BL, Roach KE, Signorile JF (2006) Peak power, ground reaction forces, and velocity during the squat exercise performed at different loads. *The Journal of Strength & Conditioning Research* 20(3): 658–664.

Athens Journal of Sports - Volume 8, Issue 4, December 2021 – Pages 271-278

Top Bins: An Exploration of Qatar's Use of Sport and Capital to Strengthen Diplomatic Visibility

By Anay Katyal[*]

Globalization has given new life to previously benign leisures and vices, allowing states and their respective cultural industries to export (and import) their agenda and visibility. Cultural industries have long played an important role in exercising soft power, and the advent of new communication technologies and newfound spending power amongst the world's working class has only strengthened and opened opportunities on this front. Sports, particularly ones that translate well to global competition, have become a new frontier for states to leverage assets and wealth to construct more prominent messaging surrounding their larger diplomatic work around the globe. By examining Qatari investment in football, track & field, and other international sports — especially through vehicles like the 2022 FIFA World Cup, the Qatar Investment Authority, Aspire Academy, Paris Saint-Germain, etc. — we are offered a clear understanding as to how Qatar uses its wealth to exploit the global cultural marketplace and entrench itself as an important component of global sporting culture, and the diplomatic utility they aim to reap with such investments.

Keywords: *Qatar, FIFA, diplomacy, football, capital*

Why Sport as a Diplomacy?

Globalization has given new life to previously benign leisures and vices, allowing states and their respective cultural industries[1] to export (and import) their agenda and visibility through art and media. Cultural industries have long played an important role in exercising soft power, and the advent of accessible cellular and satellite communication, juxtaposed against the concept of what it means to have a "disposable income" amongst the world's working class — "the towering structures of capital surrounding us make us all unwitting consumers" (Van Grieken and Kantorowicz 2021) — has only strengthened and opened opportunities on this front.

Sports, particularly ones that translate well to global fervor, have become a new frontier for states to leverage their assets and wealth to wield more prominent influence surrounding their larger diplomatic work around the globe. By examining Qatari investment in football, track & field, and other international sports — especially through vehicles like the 2022 FIFA World Cup, Aspire Academy, the Qatar Investment Authority (and by extension, football clubs like Paris Saint-Germain, etc.) — we are offered a clear understanding as to how the government of Qatar uses its stately wealth for strategic diplomatic gain. Through a variety of diverse and strategic financial transactions with the West, Qatar can "launder" its diplomatic influence and reputation through legacy fixtures of capital and leisure,

[*]Researcher, Humboldt-Universität zu Berlin, Germany.

[1]Not to be confused with how Horkheimer coins "culture industries" in Horkheimer et al. (2020).

alongside the larger global cultural marketplace, for the purpose of integrating itself as a key component of the greater global discourse.

This paper seeks to illustrate how pure, "unadulterated", and massively accumulated wealth can be a deeply integral component in constructing diplomatic leverage, soft power, hard power, and — ergo — the agency to influence global decisions with very little precedent that warrants such power, all thanks to tools of the capital class like globalization. The insidiousness of capital has become a conventional tenet in modern statecraft, and states like Qatar illustrate that. I will explore this fact through the state's sporting investments, the strategy that drove these investments, and the ultimate role they intended to play in the larger landscape of interstate relationships and diplomatic power.

Concrete Financial Strides Made

The State of Qatar has made significant financial investments in the West, largely through a sovereign wealth fund called the Qatar Investment Authority. Per (Debre 2021), "According to the Las Vegas-based Sovereign Wealth Fund Institute, the Qatar Investment Authority holds assets of $295 billion" — and the majority of these assets are behemoth institutions based both in the West and Global South, sporting institutions being among the most notable. In this paper I will outline and emphasize the contemporary diplomatic importance of the sporting investments Qatar has approximately made in the past decade.

Tangible Footballing Investments

The main two vehicles the State of Qatar uses to make these investments are: a. The Qatar Investment Authority (QIA), a "sovereign wealth fund located in Doha Qatar" with ~$295,200,000,000 in state-owned assets (Furtado 2012), b. Aspire Academy, a "state-constructed sports academy with global aim to scout, train, mould Qatari athletes for long-term institutional success" (Gásquez and Royuela 2014), and another example of one of the many aforementioned sporting investments on the part of the state.

QIA had a spending spree in the early aughts, purchasing the likes of Harrod's, placing stakes in major corporations like Volkswagen, investing in property developments in Washington D.C. and New York City (Kabalan 2019), but what was their most important (and mammoth) of an acquisition was their purchase of Paris Saint-Germain Football Club (PSG) in 2011 for $130 million, with an immediate discretionary cash injection of $340 million following (Gásquez and Royuela 2014).

Since this time, QIA has spent 1.3 billion euros on player transfers (Nieto 2021), and the European football market has grown from approximately 16.9 billion euros to 25.2 billion euros — a difference of nearly 8.5 billion euros (Lange 2021). Since their acquisition, PSG has seen its total operating revenue grow from 225 million euros to 542 million euros, and its commercial revenues grow from 150 million euros to 309 million euros (Sartori 2021). In 2019, PSG signed a shirt

sponsorship deal with French multinational hospitality company Accor S. A. (Carp 2019) — whose French-domiciled assets alone are valued at approximately 10.546 billion euros (Accor S. A. 2021) — to the tune of 80 million euros annually, from 2019 to 2032 (Sartori 2021).

In a vacuum, these numbers are meaningless drivel, but in the context of financial incentive for the French Republic, the State of Qatar's role — through its proxy of PSG — cannot remain unstated. The purpose of these figures is to illustrate how deeply important the State of Qatar is to numerous and towering French industries. From hospitality, to tourism, to retail, to cultural capital outright, the sheer size of Qatar's financial contributions (and the fruit they financially bore) to France via PSG alone makes Qatar's domino-like effect on the French economy almost impossible to quantify, indicating a level of geopolitical leverage Qatar has on one of the most important member states of the European Union.

World Cup

The Fédération Internationale de Football Association, or more commonly known as FIFA, has been the international governing body for the sports of association football (also known as "football" or "soccer")[2], futsal and beach soccer since 1904 — but a majority of its operating costs are dedicated toward football (FIFA 2020). In that century since the growth of the sport, FIFA has been plagued with allegations of corruption, bribery, "pay-for-play" schemes, and the like. As recently as 2015, former Vice President of FIFA and President of The Confederation of North, Central America and Caribbean Association Football (CONCACAF), Austin "Jack" Warner, had an arrest warrant issued by the U.S. Department of Justice for allegations of wire fraud, racketeering and money laundering (Apuzzo et al. 2017), and following his 2019 indictment for misappropriating 79 million U.S. dollars (Hays 2019), evidence was revealed in 2020 that Warner had directly received financial remuneration in exchange for a pledge to lobby and vote for Russia to host the 2018 World Cup (Coote 2020). While the political agenda behind most of these corrupt allegations differed under various FIFA presidents, a precedent had confidently been set by FIFA and its various bureaucrats that they are not immune to corruption, bribery being the particular issue (Homburg 2008). This is where Qatar's relationship with the event enters.

These allegations of corruption came to a head in the 2000s, ultimately reaching its apex during the bid for the 2018 and 2022 FIFA World Cups. While the process officially started in 2009 with 13 countries in contention, on the 2nd of December, 2010, Russia and Qatar respectively secured hosting rights to the events, and the decision was immediately dogged by allegations of corruption and bribery that had occurred throughout the process (Apuzzo et al. 2017). The allegations (and the simultaneously mounting evidence of unchecked corruption being investigated at FIFA) had reached such geopolitical seriousness that the U.S. Department of Justice officially accused both Russia and Qatar of utilizing entertainment companies as

[2]Football will be used to illustrate the sport in question henceforth.

proxies to pay bribes for their host status (United States Department of Justice 2020) and served indictments indicating such.

FIFA's affinity for corruption is not the subject of interrogation within this paper, though. What is key to highlight is Qatar's resolute willingness to spend state money on securing football's biggest event — the World Cup — and global capital's role in enabling their activities. Even beyond the extrapolation one could make of millions of dollars of bribery spent on FIFA bureaucrats, Qatar is also on track to spend approximately 300 billion U.S. dollars in infrastructure projects toward the World Cup alone (Farhad 2013), and the state is expecting the tournament to add 20 billion U.S. dollars to the local economy, the majority of which is made up of either state-owned or Western-partnered enterprise (Foxman 2021). But looking beyond Qatar as a sole actor in enabling this ostentatious spending, identifying the web of entertainment, leisure, financial, etc. corporations that helped contribute, largely thanks to the profit-motivated state of contemporary global finance, is an equally scholarly measure.

The Fox Broadcasting Corporation (Fox), an American commercial broadcast television network owned by media giant and billionaire Rupert Murdoch, had paid 425 million U.S. dollars to secure American broadcasting rights for the 2018 and 2022 FIFA World Cups in a transparent broadcast network bid process. While that was being established, in 2013 FIFA was simultaneously holding talks to move Qatar's World Cup to November (or later), angering Fox due to both the investment it already pledged, and the preexisting broadcast commitments it already held with the National Football League (Rumsby 2013). Two years later, Fox was granted American broadcasting rights for the 2026 edition of the World Cup in a closed-doors, no bid process (Deitsch 2015), raising suspicions of a quid pro quo arrangement between the state and corporation. All of this information points to two key points worth underscoring: 1. FIFA already knew of Qatar as their "chosen" host as early as 2013, adding more water to their bribery allegations, 2. Multinational corporations like Fox ultimately hold the leverage and power in enabling grander Qatar's World Cup initiative.

Fox are likely not the only benefactors of Qatari efforts in securing the World Cup. Multinational infrastructure contractors, textile manufacturers, publishers, travel and leisure conglomerates, etc. all benefited and will continue to benefit — directly or indirectly — from the event and the activities that went into lobbying for it. Not only are the major corporate actors involved in the staging of the World Cup evidence of this, but the aforementioned indictment of entertainment companies being used as proxies for bribery also illustrates the willingness of how far capital will go in the name of profit. This is where we find how Qatar successfully used capital, as a singular entity, to achieve its dreams of not only securing the World Cup — but an ultimately reluctantly granted level of respect on the global stage, particularly from the West, as well.

The Dichotomy between Fan and Capital

Qatar's approach toward PSG, the World Cup, and football as a whole has fans at a fork in the road regarding their sentiments, such sentiments illustrating the enormity of influence Qatari capital has.

When speaking of the World Cup in particular, fans have significant negative reactions to the event even taking place — so much so that American football fans polled in 2021 indicated 59% of participants believed the U.S. Men's National Team (USMNT) should boycott the event altogether. Per Danny McLoughlin, the pollster responsible, "There are potentially a number of issues that would lead to fans wanting to boycott the World Cup in Qatar next year. We specifically asked about two sets of human rights issues: the treatment of migrant workers and the treatment of women and the LGBT+ community in Qatar" (Kidd 2021). American fans are one subset of many other contingents of national football team fans expressing concrete rejection of Qatar's World Cup bid, with examples of Norwegian clubs and fans alike organizing and forcing the Norwegian Football Federation to put the prospect of boycotting participation in the event to vote (AFP 2021).

By contrast, Norway's actual footballing federation still rejected the prospect (AFP 2021). No countries or corporations have put out statements condemning the event, and as previously mentioned only increased advertisement and exposure of their participation in the various fixtures of the event. PSG ticket sales have increased to an enormous degree, to the point where Parc Des Princes — PSG's home venue — has regularly had "sold out" signage at its ticket windows since 2017 (Paris Saint-Germain F. C. 2019). What becomes clear here is the separation between classes and their respective class interests. Institutions, which include both private corporations and bureaucratic agencies like football federations, are heavily invested in the success of capital return on the 2022 World Cup, as previously indicated. By contrast, the actual football viewing populace — individuals with remotely no interest in the capital structures that hoist up the World Cup — have shown evidence of, in the very least, implicit rejection or disapproval of the event occurring. The conflict between capital and population values is illustrated, and as precedent indicates, those with vested capital interests have their intentions prioritized over the viewers they supposedly cater to. How powerful capital is in the face of actual citizenry is not to be understated here.

Evidence of mass fan displeasure in Qatar has been quite obvious for years. Despite this, investment in the event continues, advertisements increase, and despite this fan displeasure "the show still goes on," so to speak. The power capital — and the interests of its various gatekeepers — are not to be underestimated, especially when juxtaposed against denizens of nations involved in football. Qatar's own use of its capital resources on the global marketplace to enable the World Cup — and the diplomatic fruit it sowed — showcase how allegedly easy it is to exploit current diplomatic frameworks using nothing more than enormous hoards of wealth.

One's Enormity of Success Can Hold Others Hostage, and Other Concluding Thoughts

Efforts in exercising state power, be it soft or hard, often leave client states in coerced positions. Akin to the Chinese Belt and Road Initiative saddling smaller states with financial and diplomatic baggage that will ultimately serve to bring China's foreign policy initiatives to fruition (Van Grieken and Kantorowicz 2021), modern-day Qatar has penetrated the West — particularly components integral to its financial markets — to a point where their voice is one that doesn't go unheard, diplomatically speaking. Much of this is a result of the state's involvement in football, and while as seemingly benign as a sport it is, Qatar has understood how strong of a cultural industry it is, and how to use the tools of global finance to exploit it for geopolitical clout (Furtado 2012).

While comparisons between Chinese debt financing to Pacific states and Qatari involvement in football are arguably hyperbolic, there are functional similarities worth noting that shed light on the decisions Qatar made entering football, and the diplomatic position they have sowed from their actions. As a state today rich in natural gas, commanding approximately 14% of the world's reserves (only after Iran and Russia), and an active crude oil exporter (Al-Kaabi 2021), Qatar found itself in an excess of wealth after decades as a Middle Eastern backwater nation. While this newfound wealth was mainly directed into the monarchy and its various apparatuses, the general sentiment that permeated Qatar's government was that this wealth and capital should be used as a tool for self-preservation and sustainable existence as a state (Peterson 2006), especially as Gulf rivalries grow more tenuous geopolitical atmospheres engender themselves in the region (Vertin 2019). These circumstances created fertile ground for the State of Qatar to sow the seeds of opportunity in parking and growing the state's wealth to an extent that both enriched the monarchy and served as an insurance policy against any possible future threats from other Persian Gulf states or Saudi Arabia (Ulrich 2018), which later paid dividends during 2017's Saudi Arabia-led Qatari diplomatic blockade and crisis that created a stranglehold on the availability of goods and services in the country.

Akin to the Chinese government using capital as one of many solutions to their foreign policy initiatives, Qatar took a similar route — but rather than doing so in the name of forming stronger interstate relationships (Van Grieken and Kantorowicz 2021), Qatar purposefully entrenched itself within the economies of major Western countries, so much so that a state cannot hear Qatar say something and not listen. Even beyond the property, shopping, retail, etc. investments made on the part of Qatar by QIA, a sport like football served the country's needs almost perfectly due to how multinational it is. As previously outlined, through PSG and its various relationships with the French entertainment industry, Qatar commands a very strong presence in the French economy. That in itself is diplomatic leverage most countries cannot remotely reach, but PSG fans aren't purely restricted to the French Republic either.

As PSG grew, so did their ability to leverage said growth. Deals have been signed with Air Jordan to sponsor their team shirts, plans to open an apparel store

in Los Angeles, California have begun, and signing superstar footballers to PSG like Neymar Jr. and Lionel Messi — who command sizeable international fan bases and brands themselves — have resulted in PSG becoming one of the most important football teams in Europe, if not the world. The shirts regularly purchased, the digital content engaged with, the gate receipts generated, the brand value growth have all created an economic web integral to not only the French economy, but the economy of football itself — one that involves the livelihood of multiple countries and carries weight in creating diplomatic inertia. As Qatar has exponentially grown the footballing industry through PSG as a proxy, it has parasitically inserted itself into the economic (and inadvertently diplomatic) affairs of multiple countries (Ulrich 2018). Capital historically garners states' attention, and significant control of capital can almost always guarantee a "seat at the table" in important decision making processes. Qatar has already become a bridge between the East and West, simultaneously brokering deals between Hamas and the Taliban, exerts influence over OPEC, and has become an important ally for the Global North in conflict zones like Afghanistan, Syria, Sudan and Yemen (Vertin 2019). The timing of Qatar's importance and presence in such circumstances prior to their capital expenditures versus before paints a stark picture in the effectiveness of the state's "football diplomacy".

Securing the World Cup, and enriching multiple countries and their local enterprises in the process quite similarly to the paradigm-shifting effect PSG had, serves as the proverbial cherry on top of Qatar's diplomatic dessert. Those who still remember the cultural minutiae of the Great Recession of 2008 remember the phrase "Too big to fail" — in Qatar's case, they utilized football's already globally interconnected nature in conjunction with an already globalized economy to become "Too big to ignore". Though one can argue Qatar has already achieved significant diplomatic visibility and leverage through club football alone thanks to PSG, pulling off the 2022 World Cup — especially considering the difficult circumstances that should have made hosting a near impossibility in the first place — becomes a resolute statement that Qatar is here to stay in most major interstate situations, whether its neighbors or other various adversaries like it or not. Capital has played a major role in reshaping Qatar's relationship with the world around it, and their success in becoming a global power player on a variety of fronts speaks to how insidious forces of capital can be, especially considering how easily they have contravened decades of diplomatic precedent simply at the whim of a state and the agenda of its investments.

References

Accor S. A. (2021) *RevPar key indicators*. Accor S. A.

AFP (2021, June 21) *Norway decides against Qatar World Cup boycott*. The Local.

Al-Kaabi SS (2021) *Gas exporting countries forum – Qatar*. GECF.

Apuzzo M, Clifford S, Rashbaum WK (2017, May 27) *FIFA officials arrested on corruption charges; blatter isn't among them.* The New York Times.

Carp S (2019, February 22) *PSG confirm Accor shirt sponsorship deal*. Sports Media.

Coote D (2020, April 7) *Prosecutors: FIFA executives received bribes for World Cup votes*. UPI.

Debre I (2021, May 6) *Qatar Finance Minister arrested in corruption investigation*. AP News.

Deitsch R (2015, February 12) *FIFA grants Fox U.S. TV rights for World Cup through 2026*. Sports Illustrated.

Farhad N (2013) Report: behind the mask of the FIFA World Cup 2022. *International Union Rights* 20(1): 21–22.

FIFA (2020) *Annual report 2020*. Zürich, Switzerland: FIFA Publications.

Foxman S (2021, June 21) *Why Qatar is a controversial venue for 2022 World Cup*. Bloomberg.

Furtado A (2012) A look at Qatar's rise to power: using cultural intelligence as our guide. *National Military Intelligence Foundation - American Intelligence Journal* 30(1): 92–97.

Gásquez R, Royuela V (2014) Is football an indicator of development at the international level? *Social Indicators Research* 117(3): 827–848.

Hays T (2019, July 10) *Ex-Caribbean soccer official hit with $79 million judgment*. The Washington Post.

Homburg H (2008) Financing world football: a business history of the Fédération Internationale De Football Association (FIFA). *Zeitschrift für Unternehmensgeschichte* 53(1): 33–69.

Horkheimer M, Adorno TW, Jephcott E, Schmid Noeri G (2020) The culture industry: enlightenment as mass deception. In *Dialectic of Enlightenment*, 95. Stanford, CA: Stanford University Press.

Kabalan M (2019) Actors, structures and Qatari foreign policy. *AlMuntaqa* 2(2): 61–82.

Kidd R (2021, May 4) *Majority of American soccer fans think USMNT should boycott Qatar World Cup, says survey*. Forbes.

Lange D (2021, September 10) *Market size of the European professional soccer market from 2006/07 to 2019/20*. Statista.

Nieto PS (2021, April 15) *Ligue Des Champions: PSG-Manchester City, les meilleurs ennemis se retrouveront en demi-finales*. (Champions League: PSG-Manchester City, the best enemies will meet in the semi-finals). Le Parisien.

Paris Saint-Germain F. C. (2019, May 20) *Paris Saint-Germain break ticketing records at the Parc Des Princes*. Paris Saint-Germain F. C.

Peterson JE (2006) Qatar and the world: branding for a micro-state. *The Middle East Journal* 60(4): 732–748.

Rumsby B (2013, September 26) *FIFA holds secret talks with broadcasters over switching 2022 Qatar World Cup to winter*. The Telegraph.

Sartori A (2021, April 28) *PSG vs Manchester City: a head-to-head assessment of two Middle Eastern-owned giants*. KPMG Football Benchmark on behalf of KPMG International Limited.

Ulrich KC (2018) The gulf on the verge if global challenges and regional dynamics. *Insight Turkey* 20(2).

United States Department of Justice (2020, April 6) *Three media executives and sports marketing company indicted in FIFA case*. United States Department of Justice.

Van Grieken BJ, Kantorowicz J (2021) Debunking myths about China: the determinants of China's official financing to The Pacific. *Geopolitics* 26(3): 861–888.

Vertin Z (2019) *Red Sea rivalries: The Gulf, the horn, & the new geopolitics of the Red Sea*. Doha, Qatar: Brookings Institution Doha Center.