

**ACTA UNIVERSITATIS CAROLINAE  
KINANTHROPOLOGICA, Vol. 51, 2 – 2015**

---

**Charles University in Prague  
Karolinum Press**

<http://www.karolinum.cz/journals/kinanthropologica>

© Charles University in Prague, 2015

MK ČR E 18584

ISSN 1212-1428 (Print)

ISSN 2336-6052 (Online)

**A C T A   U N I V E R S I T A T I S   C A R O L I N A E**  
**K I N A N T H R O P O L O G I C A   V O L .   5 1 ,   2 –   2 0 1 5**

**Contents**

	Page
<b>Original articles</b>	
JONES, C.: Football, Alcohol and Gambling: an unholy trinity? . . . . .	5
KORNBECK, J.: A linguistically level playing field: English-medium sport officiating between linguistic imperialism and cultural appropriation . . . . .	20
VORÁČEK, J., ČÁSLAVOVÁ, E., ŠÍMA, J.: Segmentation in sport services: a typology of fitness customers . . . . .	32
KODEJŠKA, J., MICHAĽOV, M. L., BALÁŠ, J.: Forearm muscle oxygenation during sustained isometric contractions in rock climbers . . . . .	48
CARBOCH, J., KOČÍB, T.: A comparison of service efficiency between players of male and female doubles at professional tennis tournaments . . . . .	56
 <b>Report</b>	
ŠAFAŘÍKOVÁ, J., TŮMA, M., ASHWORTH, S.: Spectrum of Teaching Styles in the Czech Republic . . . . .	63



CARDIFF METROPOLITAN UNIVERSITY,  
CARDIFF SCHOOL OF SPORT

## **FOOTBALL, ALCOHOL AND GAMBLING: AN UNHOLY TRINITY?**

CARWYN JONES

### ABSTRACT

In this paper I argue that football plays a questionable role in promoting two potentially problematic activities, namely drinking alcohol and gambling. Gambling and alcohol companies sponsor clubs and competitions and also pay to advertise their products at the stadia and during television coverage. Consequently millions of fans, including children, are exposed to the marketing of these restricted products. The latter are exposed despite regulations that prohibit such advertising and promotion in other contexts. The promotion of these activities to children and to adults increases levels of consumption which in turn increases the number of problem drinkers and gamblers in society. High-profile footballers play a further role in normalising drinking and gambling. They are role models whose actions influence others. Their excessive drinking and gambling activities provide poor examples for football fans, young and old.

**Keywords:** alcohol; gambling; football; role models; promotion

**DOI:** 10.14712/23366052.2015.28

### INTRODUCTION

When watching football, particularly elite level professional football in the UK, it is clear that two activities are closely aligned, namely drinking alcohol and gambling. The gambling and alcohol industries know that one sure way to access their customers or potential customers is through football, so they invest millions of pounds sponsoring clubs, tournaments, and leagues, and advertise their products during today's extensive televised football coverage. Drinking beer and betting on the result of matches (or on the likelihood of some event during the game) either at home, in the pub or at the match is an obligatory complement the spectacle of the game for many fans. Elite players themselves, the multi-millionaire icons or 'role models' are also prone to drink and to bet, sometimes with devastating consequences. Health, reputation, financial security, career, family, liberty

and life have all been put aside in the search for the change in mood, thrill, buzz, fix or financial gain promised by the bottle or the betting slip.

My aim in this article is to cast a critical eye over problematic aspects of the association between football and two popular but potentially destructive and addictive consumer activities (drinking alcohol and gambling). Although alcohol and gambling are legal in the UK (and in most western countries), the risks associated are acknowledged inasmuch as their consumption and supply are regulated. Both are deemed inappropriate for young people under the age of eighteen (although some forms of gambling such as the lottery [16+] and certain categories of gambling machines – fruit machines – are not restricted to adults). The marketing and promotion of alcohol and gambling are also tightly regulated in the UK by the advertising standards agency (ASA). There are explicit restrictions on the way companies can market alcohol and gambling in terms of the content, time and placement of adverts. Over the last decade there has been significant and arguably detrimental relaxation of regulations governing both the supply of gambling and alcohol, resulting in soaring profits for both industries and soaring costs for the taxpayers who carry the burden of the problems associated with excessive consumption<sup>1</sup>.

Football, unlike most other sports, is subject to further regulation where alcohol is concerned. In an effort to lower the risks of crowd disorder, spectators watching games at the stadia are not allowed to drink alcohol in sight of the pitch, not even those in the corporate boxes. So a curious irony arises, since the products of Carlsberg, Carling and Heineken – dominant names in football sponsorship over the years – are not permitted to be consumed by fans watching the team or tournament at the ground. In this paper I provide a thumbnail sketch of some of the problematic aspects of the relationship between football, alcohol and gambling and identify some key conceptual and theoretical issues at the heart of the debate.

## **No ordinary commodities**

There are many products and practices that are risky or pose some threat to those who consume or participate in them. In some cases, if the risk of harm is deemed significant a paternalistic intervention on behalf of the government or other authority to limit individual freedom to consume or engage may follow. Paternalism, the act of making a decision about what is best or good for an individual on their behalf, is controversial, and the great liberal philosopher John Stuart Mill argued in the 19th century that restricting people's liberty was only justified if their choices posed a danger to others. According to this 'Harm to Others Principle', individuals ought to be allowed to make choices for themselves even if those choices put them at great risk. The decision not to allow football fans to stand on terraces following the Hillsborough disaster is a paternalistic one based on the argument that standing poses a great risk to the well-being of other fans, and such a restriction, according to Mill, is only justifiable if it is true that all-seater stadia are safer. Mill allowed some exceptions to his principle; for example, we are entitled to

---

<sup>1</sup> <http://www.independent.co.uk/news/uk/home-news/addiction-soars-as-online-gambling-hits-2bn-mark-8468376.html> (accessed 10/11/2015) and <http://www.telegraph.co.uk/news/uknews/law-and-order/11308576/Alcohol-saturated-areas-soar-as-measures-fail-to-dilute-late-night-drinking-culture.html> (accessed 10/11/2015)

restrict children's choices lest they harm themselves because they are considered not yet rational or responsible enough to make informed choices for themselves. The age of consent for sexual intercourse and age restrictions on gambling and alcohol are predicated on the assumption that this group cannot be trusted to make sensible decisions about these issues. This is often referred to as soft paternalism.

The mere fact that alcohol and gambling are subject to paternalistic restrictions suggests that they are 'no ordinary commodities'. Consumers buy alcohol in pubs and at supermarkets, purchase lottery tickets, bet on horses and football at betting shops and take advantage of the myriad online gambling opportunities available. These products are regulated because there is potential risk of harm associated with them. Thomas Babor et al. (2010) argue that alcohol is a drug that is consumed because it changes the mood or produces an altered state rather than any nutritional value it might have. The harms associated with alcohol are well documented. They include a host of diseases, illnesses and injuries, harm arising from being drunk (or being victimized by someone who is drunk) and addiction. David Nutt et al. (2010) compared the harms associated with alcohol to the harms associated with other drugs in the UK. They assessed the relative harms linked with drugs including alcohol, heroin, cocaine, crack cocaine and cannabis. Each substance was allocated a score of 0–100 on 16 criteria, 9 relating to individual harm (for example harm caused by the drug directly such as alcohol-related cirrhosis) and 7 to harms to others (for example injury resulting in alcohol-related violence). Heroin, crack cocaine and methamphetamine scored highest in relation to harm to self, but alcohol scored higher than both heroin and crack cocaine in relation to harm to others. In the combined scores alcohol came out very badly. The panel of experts who analysed the various harms and devised the classificatory criteria came to the following conclusion: "Overall, alcohol was the most harmful drug (overall harm score 72), with heroin (55) and crack cocaine (54) in second and third places" (Nutt et al., 2010, p. 1558).

The harms from gambling are perhaps less well documented, less obvious and more contested than the harms associated with alcohol. According to Jim Orford (2011) many of the costs of gambling are intangible and it is difficult to measure the harms (as well as the benefits). It is clear that they cannot be easily expressed in terms of monetary value. There are no direct physical health risks, at least not in the way there is with alcohol. Nevertheless, it is possible to identify the type of problems that arise from gambling, even if they can't be clearly quantified. Inevitably there is some overlap with alcohol. They include: criminal justice costs associated with problem gambling; crime associated with gambling such as corruption in sport and money laundering; personal costs to problem gamblers and their families; costs associated with obtaining money to gamble; costs associated with treating problem gamblers; costs of government regulation and environmental costs – the change in the environment associated with gambling facilities (Orford, 2011, p. 161).

In the context of both gambling and alcohol, the argument is often made that the problems associated with both are caused by irresponsible individuals rather than the product or practice itself. The argument has a certain degree of credibility. With respect to alcohol, however, there is a significant proportion of the population who misuse alcohol and contribute to the costs in different ways, some more obvious and visible (young city centre binge drinkers) than others (well educated women or the retired). In other words,

a significant number are choosing to consume in ways that pose risks<sup>2</sup>. Elite footballers commonly consume alcohol in ways that lead to significant problems. Driving under the influence of alcohol is a particularly common vice among this constituency, but so are violent and aggressive behaviour and sexual crimes.

Where gambling is concerned, it does appear that most of the costs associated with the activity attach to the few who might be described as gambling addicts. Addicts' actions in obtaining money might have significant broader impacts, for example they may be more vulnerable to being corrupted. There are examples of footballers (e.g. John Hartson) who have gambled away hundreds of thousands of pounds, sums which the highest paid can easily afford. Nonetheless they are consuming in ways that bring risks of bankruptcy, family breakdown, debt the other problems these bring with them. According to Stephen Morse (2011), most people who use "potentially addicting substances do not become addicts, but between 15% and 17% do" (p. 176). This seems to imply that there are a few who cause problems and the rest of us should be allowed to choose for ourselves whether we indulge or not. The picture is not that simple, however, and most working in the substance abuse or mental health fields either as practitioners or researchers agree that problem drinking and gambling is a combination of the individual's make-up (genetic/psychological), the environment (prevalence and attitudes towards gambling or alcohol) and the product itself (its inherent addictiveness) (Orford, 2011). I will return to this discussion later.

## **Consumption and choice**

We generally believe that we consume as a result of our choices and, further, that these choices are ostensibly free choices. When we consume we are exercising our free will. The concept of free will is a complex and difficult one which has occupied the thoughts of philosophers since Aristotle and more recently is the focus of neuroscientists and psychologists. For the purpose of this paper, however the interesting thing about free will is that we are all supposed to have it, yet we all make decisions that contradict our better judgments. Aristotle argued that there are two conditions for free or voluntary action. These are knowledge and freedom. A rational decision is one that we fully endorse or choose because we are aware (know) of the implications. One might claim that one knows that drinking alcohol and gambling carry certain risks, but is fully aware of those risks and therefore chooses freely. The freedom condition speaks to the idea of unforced or un-coerced action or choices. Despite knowing the risks of playing Russian roulette, Robert De Niro's and Christopher Walken's characters in the film *The Deer Hunter* were not playing the game freely. They were forced to play by their captors. They wouldn't have played in the absence of this external force. In more banal circumstances it is very difficult to be certain which choices are absolutely free and informed. We may never fully understand or know the consequences of our decisions and may not be fully free from forces outside of ourselves which influence our decisions. Consequently, it might be better to talk of free will as a continuum. We may be able to judge (more or less accurately) in any given context how free and informed a given choice is, but we may never be certain. As a rule, children are expected to be

---

<sup>2</sup> <https://www.alcoholconcern.org.uk/help-and-advice/statistics-on-alcohol> (accessed 10/11/2015)



towards the ‘ignorant-and-dependent’ end of the scale, and mature and educated adults are expected to be towards the ‘informed-and-autonomous’ end, although neither age nor formal education are reliable correlates.

The law, however, generally treats the actions of adults as if they were autonomous unless there are compelling reasons to conclude otherwise. In other words, adults are held accountable for their actions unless there are good reasons to think differently. Children on the other hand are generally not held accountable (by law) in the same way as adults. Certain substances (including alcohol) which have psychoactive properties (i.e. produce changes in brain function resulting in alterations in perception, mood, consciousness or judgment) will (depending on dosage) compromise autonomy. The consumption of such substances is regulated in the case of alcohol or banned in the case of heroin (there is a move to outlaw all psychoactive substance – so called ‘legal highs’ – in the UK, except alcohol, caffeine and tobacco). There are a number of reasons why such regulation is in place. Firstly, their psychoactive properties create risks to the consumer and others-our rational capacities are affected by them. (The alterations mentioned above have a number of well-documented consequences, such as violence, driving under the influence, or poor decision making.) Secondly, their use or abuse often has chronic health implications, and thirdly they are potentially addictive, since some users become hooked and a number of additional problems arise as a consequence.

In law, being drunk or high are not valid excuses for poor decision making, in fact getting drunk may be considered an aggravating rather than a mitigating factor. Although it is clear that being drunk or high does compromise autonomy, we hold the individual responsible for getting themselves into that state in the first place. The story is a little different for victims of crimes, especially sex crimes. A judge may deem a drunken victim incapable of consent in a rape trial, for example, regardless of the victim’s role in becoming drunk. These are salutary issues, especially in relation to the number of ‘alcohol and sex’ scandals associated with British football stars.

Gambling seems to be a very different activity, but some of the concerns we have about it relate to the risks of becoming addicted. In other words, consumers can lose control over their gambling. Gambling does not involve the consumption of a psychoactive substance, but it is nevertheless seen as the ‘paradigmatic’ process addiction, and the mechanisms of addiction to gambling are similar to those of other substances. It affects the brain in a certain way and can cause similar addictive neuroadaptations as alcohol and other drugs (Ross, 2013). Gambling products are therefore also restricted.

### **Does the fault lie in the person or the product?**

This question posed by Orford (2011) is important and, as I have already indicated, is likely throw up complex answers. Nevertheless, it is in seeking to answer this question that the relevance of the role football plays in society’s alcohol and gambling problems comes into focus. Are alcohol and gambling intrinsically addictive? Are they products which uniquely and universally compromise autonomy in dangerous ways? The fact that they are legal and extensively promoted certainly gives the impression that they are relatively benign, especially when contrasted with paradigmatic addictive drugs like cocaine and heroin. These latter drugs are thought to be far more addictive and dangerous hence

their legal status, although as we have seen some researchers strongly dispute such a characterisation (Nutt et al., 2010). Despite the significantly higher chances of harm resulting from alcohol use, many parents continue to introduce their children to alcohol at a young age, ignorant of the evidence that shows this to be a bad idea (Sigman, 2011). Drinking alcohol is considered normal and acceptable.

There are a host of factors that contribute to the risks of developing a problem with alcohol or gambling, including facts about the product (type, strength, availability), society's attitudes towards consumption (liberal/conservative, what counts as a vice/acceptable behaviour), early experiences of gambling and drinking (exposure to parents' use and normalising influences such as portrayals on television), one's socio-demographic background, the rewards associated with the activity (financial, status, fitting in with the crowd), genetic vulnerability and personality factors (such as risk-taking). None of these factors are sufficient to cause addiction in isolation.

Nevertheless, the cost and availability of a product, for example, has a demonstrable effect on problematic consumption. When alcohol is readily available the amount consumed and the problems associated increase (Babor et al., 2010, p. 128). The story is similar where gambling is concerned. The "total population consumption model" (Orford, 2011, p. 110) predicts that if there is an increase in the whole population's consumption of a product there will be an increase in those who consume the product problematically. As such it makes no sense to treat problem gamblers or drinkers separately from the rest of the population – measures to reduce gambling and drinking (if required) should target the behaviour patterns of the entire population. Evidence shows that marketing has an effect on consumption patterns and research focusing on young people has found that exposure to the marketing of alcohol in particular accelerates the onset of drinking and increases the amount drunk by those already drinking (Babor et al., 2010, p. 196).

The products themselves or certain features of the products are also risk factors. The price, availability, strength and flavour of alcohol may be more or less risky. Free drinks, happy hours, high strength drinks and alcopops are thought to be more dangerous and pose more risks to consumers. Where gambling is concerned, the methods for paying and receiving winnings (cash or tokens), the speed of play, maximum stake, prize, the frequency of small wins and the ambience of the betting environment may all exacerbate risky gambling (Orford, 2011, p. 114). These risks are recognised by the UK government in both the gambling and alcohol context and there are two organisations which look to inform the public about the risks. Gambleaware, (funded by the Responsible Gambling Trust) and Drinkaware are charitable trusts which seek to promote responsible gambling and drinking respectively.

Both these organisations receive significant amounts of funding from the gambling and alcohol industries, which leaves the industries to regulate themselves. There is an obvious contradiction in this relationship. Alcohol and gambling products are promoted and glamorised in glossy ads and commercials with a footnote from these organisations inviting us to "enjoy the product responsibly". Unsurprisingly critics are scathing about this self-regulatory arrangement. It is not in the best interest of the industries for customers to enjoy responsibly. In fact Nutt (2012, p. 101) argues that if all drinking above recommended levels in the UK ceased there would be a drop of 40% in consumption, equating to a £13 billion loss of revenue for alcohol companies. Alcohol misuse is self-evidently

profitable for alcohol companies. There are estimated to be over 500,000 problem gamblers in the UK and over £1.3 billion pounds was lost on fixed-odds betting terminals alone<sup>3</sup>. The industry's "enjoy responsibly" tagline and campaign serves to place the responsibility for the problems associated with excessive use squarely on the shoulders of irresponsible consumers, whilst seeking to absolve the industry of any wrongdoing.

## Marketing in football

The alcohol and gambling industries in the UK are subject to regulation both in terms of supplying their products (although there has been significant relaxation in terms of availability over the last decade or so) and in terms of marketing. There are strict rules about targeting children or under-18-year-olds in their marketing campaigns, and the advertising is regulated by the Advertising Standards Authority (ASA). The ASA state that adverts for gambling (with the exception of bingo) should not be shown before 9 p.m. and neither alcohol nor gambling adverts should target children or appeal to children. As a general principle, adverts for gambling and alcohol do not appear in programmes aimed at children. Live football is an exception. Alcohol and gambling sponsorship and advertising is allowed during live football broadcasts irrespective of the time of day they are broadcast. It is of course argued that football is not *aimed* at children, but a significant proportion of the audience are children.

Andrew Graham and Jean Adams (2014) conducted a frequency analysis of alcohol marketing and references to alcohol in televised English professional football during the 2011–2012 season. During that season three competitions were sponsored by alcohol companies, namely the Budweiser FA Cup, the Carling League Cup and the Heineken sponsored UEFA Champions league. Visual references to alcohol were frequent in the six matches they studied – 111.3 visual references per hour of broadcast (nearly two a minute on average). Most were on hoardings advertising beer on and around the field of play and a total of 17 alcohol commercials were broadcast during the games.

Jean Adams et al. (2014) studied broadcasts of the European Football Championships (2012) and found an average of 1.24 alcohol references per minute, and a recent study of the FIFA 2014 World Cup by Alcohol Concern found that viewers of an entire programme would be exposed to one alcohol reference per minute of playing time and around 10 alcohol commercials for broadcasts other than the non-commercial BBC. Alcohol Concern estimate that half of the games they analysed would have been watched by over a million under-18s<sup>4</sup>. Graham and Adams (2014) conclude that current regulations "make no attempt to restrict this constant bombardment or to make the case that association of alcohol with professional sport and sporting success is likely to reflect one aspect of social success" (p. 5).

The power of alcohol companies seemingly extends much further. We have recently seen that FIFA has been embroiled in a corruption scandal, but their dealings with sponsors have come under scrutiny before. FIFA have a track record of promoting the interests of its commercial partners, which include Budweiser – 'The official beer' of the World

<sup>3</sup> <http://www.gamblingcommission.gov.uk/Home.aspx> (accessed 25/06/2015)

<sup>4</sup> [http://www.alcoholconcern.org.uk/wp-content/uploads/woocommerce\\_uploads/2014/10/Alcohol-Marketing-at-the-FIFA-World-Cup-2014\\_pdf.pdf](http://www.alcoholconcern.org.uk/wp-content/uploads/woocommerce_uploads/2014/10/Alcohol-Marketing-at-the-FIFA-World-Cup-2014_pdf.pdf) (accessed 12/09/2015)

Cup. AB InBev, the owners of Budweiser pays “anything between \$10m and \$25m a year to be part of the World Cup ‘family’” (Gornall, 2014, p. 16). Brazil, the hosts of the 2014 World Cup had to waive the taxes on any profits made by sponsors during the World Cup. Gornall (2014) argues that in 2014 this obscene condition “will leave sponsors such as Budweiser free to walk away with every *Real* they pocket, depriving Brazil of an estimated £312m in revenue” (p. 15). Planned tax increases on alcohol were postponed until after the tournament and proposed Brazilian laws to ban alcohol from sports stadiums were abandoned. Gornall (2014) quotes Ronaldo Laranjeira a professor of Psychiatry at the University of São Paulo who says that it’s shocking that FIFA “can come to a country and makes [*sic*] it change its laws. We have been very active in trying to embarrass the government on this issue, but in the end the alcohol industry has won. At the moment it is running the show” (p. 16). Budweiser will be the sponsors of the World Cup in both 2018 and 2022 in Russia and Qatar respectively. The winter Olympics at Sochi were alcohol-free (part of the Russian Government’s efforts to curb a national alcohol problem) and Qatar is a strict Muslim country with tight alcohol regulations. Gornall (2014) observes that Qatar has already agreed to sell alcohol in fan zones in 2022 and speculates whether Russia will change approach in the face of FIFA pressure<sup>5</sup>. Budweiser are one of FIFA’s partners who are, perhaps hypocritically applying pressure on the organisation to “clean up its act”.

As yet, there have been no studies of the level and frequency of gambling sponsorship or advertising, but even the casual observer cannot fail to notice the ubiquitous presence of gambling companies in and around professional football. In the 2014–2015 Premier League season Hull City, Aston Villa, Stoke City and Burnley had shirts sponsored by gambling companies; the second tier of English football was sponsored by Sky Bet; and Ray Winstone’s Bet 365 commercials provide a familiar, frequent and appealing incentive to viewers to bet on a range of ‘in play markets’. Ladbrokes agreed a one-match shirt sponsorship deal with Notts County for the televised Capital One Cup tie with Liverpool, West Ham are affiliated with 4 gambling companies, and in 2013 Arsenal signed a three-year deal with Asian gambling company Bodog<sup>6</sup>. Other familiar brands in football include Paddy Power and William Hill. There is no doubt that, like alcohol companies, betting companies see football as a crucial vehicle for expanding their customer base both in the UK and abroad.

Gary Lineker, the former England football player and anchor of the BBCs football coverage programme, Match of the Day (which incidentally broadcasts interviews with managers and players who stand in front of hoardings advertising Bet365, among other companies) recently voiced his concerns about the presence of alcohol and gambling promotion in football:

---

<sup>5</sup> In 2012 the then Chairman of the English Premier League, Sir Dave Richards, reacted badly to FIFA awarding the 2022 World Cup to Qatar and the threat of an alcohol free tournament. Much to the embarrassment of his employers he ranted that drinking “is our culture as much as your culture is not drinking”. He subsequently stumbled into the hotel fountain, allegedly under the influence of alcohol. <http://www.theguardian.com/football/2012/mar/14/dave-richards-fifa-uefa-stole-football> (accessed 23/10/2014)

<sup>6</sup> <http://calvinayre.com/2013/08/29/sports/football-sponsorship-and-gambling-relationship> (accessed 11/06/2015)

The other thing that worries me is all the betting advertising and sponsorship in sport. All you ever see is commercials for gambling and apps, it is really dangerous and I think we need to do something about both of them, alcohol and gambling<sup>7</sup>.

Studies have shown that in relation to alcohol, structural aspects such as the exposure to marketing have a direct impact on consumption patterns among young children. Lesley Smith and David Foxcroft (2009) found that “exposure to alcohol advertising in young people influences their subsequent drinking behaviour” and concluded that “[i]t is certainly plausible that advertising would have an effect on youth consumer behaviour” (p. 9). Gerard Hastings et al. (2012) claim that advertising alcohol “encourages young people to drink alcohol sooner and in greater quantities” (p. 184) and Phyllis Ellickson et al. (2005) established that several forms of alcohol advertising “predict adolescent drinking” (p. 235). Peter Anderson et al. (2009) discovered “consistent evidence to link alcohol advertising with the uptake of drinking among non-drinking young people, and increased consumption among their drinking peers” (p. 242).

Research by Alcohol Concern UK into children’s recognition of alcohol marketing (2014) found that 90% of children (10–11 years old in England and Scotland) correctly identified Fosters as an alcohol product and 47% of children in England correctly associated Carlsberg beer with the England football team, illustrating that despite the ASA guidelines the marketing of alcohol is having an influence on children<sup>8</sup>. The ASA says that advertisements for gambling and alcohol must not: be likely to be of particular appeal to under 18s, especially by reflecting or being associated with youth culture<sup>9</sup>. One could reasonably make the case that watching football, going to the match and being a fan is a central plank of youth culture for some and that the gambling and alcohol companies are inextricably and problematically tied in to this. It is not surprising therefore that there is a strong lobby to ban the association between alcohol, gambling and football, and to stop football’s powerful role in the normalisation of drinking and gambling. There is a risk that both activities come to be seen as mainstays of what is referred to as the *habitus* of fandom (Dixon, 2012).

## **Role Models – alcohol**

In the previous section I argued that the marketing of both alcohol and gambling in and through football posed a problem. Such marketing encourages people to gamble and drink, but more importantly it encourages potentially vulnerable youngsters into the practice both through direct incentive and encouragement and by normalising both gambling and drinking. Another way football plays a role in encouraging and normalising gambling and the consumption of alcohol is through the actions of high profile players. Elite players’ actions are more accessible now than ever. If their actions are newsworthy, we are sure to be informed about them in the media (especially the tabloid press). Moreover,

<sup>7</sup> <http://www.marketingmagazine.co.uk/article/1306395/gary-lineker-condemns-dangerous-alcohol-betting-brand-sponsorship-deals> (accessed 11/06/2015)

<sup>8</sup> [http://www.alcoholconcern.org.uk/wp-content/uploads/woocommerce\\_uploads/2015/02/Childrens-Recognition-of-Alcohol-Marketing\\_Briefing.compressed.pdf](http://www.alcoholconcern.org.uk/wp-content/uploads/woocommerce_uploads/2015/02/Childrens-Recognition-of-Alcohol-Marketing_Briefing.compressed.pdf) (accessed 22/06/2013)

<sup>9</sup> <https://www.asa.org.uk/Rulings/Adjudications/Display-Code.aspx?CodeId=%7B7761A93B-64D0-425B-BB93-3DC15596F8A4%7D&ItemId=%7B0F62D2C5-0B87-4F17-9C1F-D9C8C49094DF%7D> (accessed 11/06/2015)

a number of players and former players have twitter profiles with large numbers of followers and among other things keep their fans updated about their betting activities. (There are strict rules which forbid current but not past players from betting on any football anywhere, but former players such as Didi Haman and Robbie Savage often Tweet about their betting activities.)

The issue of football role models is a contentious one, but it is a concept that is often employed when evaluating football stars. Although the issue is controversial, I believe that a sensible case can be made that high profile players should conduct themselves reasonably. A good role model is a person who exemplifies admirable qualities of character or conducts themselves in admirable ways. A bad role model is the opposite. In terms of gambling and drinking, professional football players are subject to fairly rigid contractual constraints. Nevertheless many do engage in excessive drinking at certain times in the season such as Christmas parties, celebrating an important victory or during the end of season tour. These young men choose to spend their ‘down’ time relaxing and enjoying themselves much like other young men. This involves night clubs, parties, attractive women and alcohol and, for some, problematic consequences will follow. With good sense and judgement intentionally and knowingly compromised by alcohol, players drive their cars, get into fights, verbally abuse people, and become embroiled in various forms of sexual impropriety (including rape and sexual assault).

I want to make two related arguments here. Firstly, despite counter-arguments (e.g. Mumford, 2012) it is reasonable to hold players accountable for the example they give to others, particularly young impressionable fans. Secondly, the important and problematic choice being modelled is the choice to drink excessively. Choosing to get drunk is a popular choice for many people (particularly teenagers), but creates risk of harm (some foreseeable, some not) to the drinker and others, and therefore should be considered very carefully.

Being a role model is not really a choice. It is a fact that most, if not all, professional football players are a role model for someone. In other words, there are fans, particularly young fans, who look to emulate certain aspects of their character and behaviour. They might seek to play in a similar style, wear similar clothes or behave in similar ways. Their actions are shaped by and contribute to the *habitus*. There are some individuals, of course, who have a far greater influence than others because they are the most popular players, usually, but not always, because of their footballing ability. The only choice footballers have therefore is whether they are good or bad role models.

Michael Sandel (1984) argues that there is no such thing as an “unencumbered self” who is “free to choose our purposes and ends unbound by [...] custom, or tradition or inherited status” (p. 87). The question about what constitutes a good or bad role model largely overlaps the question about what makes a good person. Moral philosophers as much as anyone else have argued over this question for centuries and proffered numerous answers. I favour a virtue-theoretical or Aristotelian-inspired response to the question: what identifies a good person (and thereby a role model) as a person of good character – a person who, as Edmund Pincoffs (1986) argues, is preferable on the grounds they possess certain virtues such as kindness, generosity and courage. Vices such as spite, cruelty and vindictiveness are also largely absent. Further important questions arise in the discussion of character, many raised by Owen Flanagan (1991). Questions include: how

many virtues does the good person have to have? All of them? Only the most important? Some absolutely essential ones? In the sporting domain, the question of context often arises. Are we to expect players to exemplify good character both on and off the pitch? I have attempted to address some of these questions elsewhere (Jones, 2011, 2008, 2005) so I will limit the focus here to a discussion of one possible objection to my contention that footballers ought to take seriously their position as role models.

When I argue that they should exemplify good character, I am not advocating unrealistic or unrealisable standards. I am arguing only that they should aspire to and exemplify what Lawrence Blum (1994) describes as ‘ordinary virtue’ and are further praiseworthy if they exemplify ‘noteworthy virtue’. Ordinary virtues are run-of-the-mill virtues such as honesty, decency and kindness or perhaps more accurately involve the exemplification of such virtues in ‘ordinary’ settings or contexts. Noteworthy virtues or a noteworthy exemplification of virtue occurs in situations or context where there is greater risk, threat or difficulty. Notwithstanding variations in individual circumstances, upbringing and so forth, we are entitled to expect all citizens, including footballers, to aspire to live lives of ordinary virtue, to be kind and considerate to each other and to be respectful. No doubt it is more difficult to do so if the milieu or ‘moral atmosphere’ is one which celebrates and rewards selfishness, self-centredness and egoism (Jones & McNamee, 2000). Perhaps in football the virtues mentioned are *noteworthy* because to exemplify them is to go against the grain, requiring courage and discipline to swim against the tide. Footballers are capable of exemplifying genuinely noteworthy virtue too. Courage in the face of serious injury or illness is to be admired; loyalty determination and perseverance are also laudable qualities. Role models are not saints, they are individuals who exhibit virtue and provide the concrete example which help others learn to cultivate similar habits themselves.

Bad role models have the opposite effect. They model bad habits and behaviours. Getting drunk sets a bad example, although it is largely accepted and acceptable, particularly at certain times and in certain places (part of the *habitus*). It is the stated goal of many people at the weekend, young and old, footballer or not. However, moderation and abstinence are worthwhile. Acute and chronic illnesses and disease, injury or death, violence and aggression and sexual assault are all possible consequences of drinking excessively. Role models should avoid exemplifying reckless and irresponsible drinking. The current crop of professional football players on the whole stay away from the routine consumption of alcohol common at clubs such as Manchester United and Arsenal in the 1980s, but many of them do continue to choose getting drunk as the favoured mode of celebration (recent examples include Leicester City’s ill-fated post season trip to Thailand and Jack Wilshire’s post FA Cup celebrations with Arsenal).

The second problematic choice I wanted to highlight is the importance of the decision to consume alcohol. Earlier in the chapter I discussed how alcohol, each glass or bottle, has an impact on the ability to make sensible decisions, but its role is not taken sufficiently seriously in the UK. The attitude towards the role of alcohol in the bad behaviour of athletes is very different in the United States. It is rightly seen as a key causal factor in offending. An athlete who commits an offence in which alcohol is causally significant is suspended from playing, but is also required to attend a substance misuse programme for treatment. The programme requires that they abstain from alcohol and abstinence is a prerequisite for being allowed to play again. If British football followed the US example, the countless

players caught drinking and driving, fighting, involved in sexual impropriety allegations, etc., would be compelled to address their relationship with alcohol. So setting out to get drunk is a bad decision. It might also be *the* key decision, because once alcohol takes effect, one's ability to further regulate or manage behaviour is seriously undermined.

Binging on alcohol, which is a popular practice among young people, including football players, can lead to a host of well-known problems. Rio Ferdinand, Jonathon Woodgate, Steven Gerrard, Craig Bellamy, Joey Barton, Luke McCormick, David Goodwillie, Marlon King, Titus Bramble, Lee Cattermole, Nicklas Bendtner, Jermaine Pennant, Andy Carroll and Jack Grealish have all had alcohol-related problems. A number of these are recidivists; they have offended more than once. They may not get into trouble every time they drink, but when they do get into trouble, drink is usually involved. The point I am making is that the important behaviour or decision – the bad example – is not just the decision to drive or to assault or to grope or to fight, but the decision to get drunk. Once that decision is made, one cannot confidently predict how one will behave when drunk. The actions of Luke McCormick (the footballer who killed two young children while driving under the influence of alcohol) are anchored in “his earlier decision to drink in circumstances where he might feel the temptation to drive while drunk” (Vargas, 2005, p. 270). In other words we believe that, previously to driving whilst under the influence of alcohol (or when committing any other offence), there was a point at which the player could and should have made a decision not to drink, or not to take the car keys. The decision is a prudential one. It requires an individual to accept that if they get drunk they may behave badly (shame and regret almost always accompany a hangover) and therefore they should avoid the risk by not getting drunk. The impediment is obviously greater in the cases where there is a track record of bad behaviour, such as those mentioned above.

There are some for whom alcohol poses an even greater risk. They become addicted to or dependent on alcohol and it has a systematic and debilitating impact on their lives and others around them. George Best, Paul Gascoigne, Tony Adams, Paul Merson, Kenny Samson, Paul McGrath, Clark Carlisle, Dean Windass and Jimmy Greaves are notable examples. Addiction or dependence is a complex phenomenon characterised, among other things, by compulsive consumption and unsuccessful attempts to stop. It is not easy to predict which of those who misuse alcohol (alcohol abusers) will develop dependence. Most do not, and are said to mature out of their problem drinking. Nevertheless, it is important to recognise that excessive drinking carries a number of risks other than addiction and sets a bad example.

The recent problems of Paul Gascoigne and Clark Carlisle have kept, and continue to keep, alcohol dependence and football in the spotlight. Both Gascoigne and Carlisle have had their relapses made very public. George Best died as a result of his addiction. Tony Adams is perhaps the most high profile former footballer in recovery from his addiction. Not only has he stayed sober for nearly two decades, but he was instrumental in establishing the Sporting Chance Clinic, which offers current and former professional football players a chance to tackle their problems with alcohol and other mental health issues (See Jones, 2014, for a case study of a former professional footballer who attended the Sporting Chance Clinic for treatment for alcoholism)<sup>10</sup>. Adams is an excellent role model and

---

<sup>10</sup> <http://www.sportingchanceclinic.com>



shows that sobriety is a possibility, but also exemplifies an unselfish desire to help other who struggle with the same condition he had.

### **Role Models – gambling**

Football and football players can play a role in normalising gambling by exemplifying a way of life or a culture where betting is cool or aspirational. On the face of it gamblers, like the most people, value money, yet they engage in an activity that will lose them money. Gamblers buy into the ‘gambler’s fallacy’ that some improbable set of events, or some skill or insight on their behalf will result in them ‘beating’ the odds. They are able to fool themselves in some way “that the value of gambling comes from the chance to win money” (Ross, 2013, p. 31). Many, including wealthy footballers, who earn huge sums of money (so don’t need to win money by gambling) bet extensively. The motives of gamblers are therefore more complex, because the activity provides a buzz or thrill. Michael Owen, former football player and race horse owner says he enjoys the “buzz of backing a winner”<sup>11</sup>. The thrill or buzz can become addictive and problem gamblers become addicted to the thrill – or the brain level mechanisms or processes responsible for the thrill (Ross, 2013).

According to a report by the Professional Player’s Federation, professional footballers and cricketers are three times more likely to have gambling problems than other young men<sup>12</sup>. Often they have money to spend, time on their hands and gambling is a ‘normal’ way of passing the time. The Sporting Chance clinic mentioned above says that 70% of their referrals are gambling-related. Players are betting vast sums of money on horse racing, greyhound racing and poker (they are prohibited from gambling on football). The online facilities make it easy for players to gamble and, according to the chief executive of Sporting Chance, players are using pay-day loan companies to finance their habits. Well-known problem gamblers include Keith Gillespie, John Hartson, Michael Chopra, Matthew Etherington, Dietmar Hamann, David Bentley and Andros Townsend. Townsend, Cameron Jermome and Dan Gosling were fined by the FA for breaching betting regulations in 2013<sup>13</sup>. John Hartson, who bravely and publicly fought cancer, sought help for his gambling problem when his wife threatened to leave him. He said: “Cancer takes good people away every day, but, for me, gambling also kills.”<sup>14</sup> Since 1980 pathological gambling has been regarded as a disorder included in The American Psychiatric Association’s Diagnostic and Statistical Manual (DSM). The DSM offers a standard classification and diagnostic criteria for a range of officially recognised disorders and is updated fairly frequently (Orford, 2011)<sup>15</sup>. In its current manifestation – DSM 5 – pathological gambling is now classified as an addiction. Players who gamble are playing an important role in normalising gambling, both for other players transitioning into the *habitus* of professional football, but also for young fans who look up to footballers.

---

<sup>11</sup> <http://www.radiotimes.com/news/2013-10-19/michael-owen-on-gambling-i-enjoy-the-buzz-of-backing-a-winner> (accessed 12/06/2015)

<sup>12</sup> <http://www.bbc.co.uk/sport/0/30308203> (accessed 12/06/2015)

<sup>13</sup> <http://www.bbc.co.uk/sport/0/football/28599142> (accessed 12/06/2015)

<sup>14</sup> <http://www.bbc.co.uk/sport/0/30716977> (accessed 12/06/2015)

<sup>15</sup> <http://www.psychiatry.org/practice/dsm> (accessed 12/06/2015)

## CONCLUSION

My aim in this paper was to cast a critical eye over the relationships between alcohol, gambling and football. Both alcohol and gambling are potentially addictive, but can cause significant harm to the individual and others irrespective of addiction. Despite these potential harms football is a significant and high profile vehicle for promoting alcohol and gambling. More troubling is that football provides a loophole which exposes children to the advertising of potentially harmful products. Football plays a key role in selling the idea that drinking and gambling is normal and exciting. The visual (and verbal) landscape of football is dominated by alcohol and gambling branding and references. Moreover, the behaviour and example set by some professional footballers further serves as a tacit endorsement of drinking and gambling.

## REFERENCES

- Anderson, P., de Bruijn, A., Angus, K., Gordon, R. & Hastings, G. (2009). Impact of alcohol advertising and media exposure on adolescent alcohol use: A systematic review of longitudinal studies. *Alcohol and Alcoholism*, 44(3), 229–243.
- Aristotle (1980). *Nicomachean Ethics*. (W. D. Ross, trans.) (updated J. O. Urmson and J. L. Ackrill) Oxford: Oxford University Press.
- Babor, T., Caetano, R., Casswell, S., Edwards, G., Giesbrecht, N., Graham, K., Grube, J., Hill, L., Holder, H., Homel, R., Livingston, M., Österberg, E., Rehm, J., Room, R. & Rossow, I. (2010). *Alcohol: No Ordinary Commodity, research and public policy*. 2nd ed.. Oxford: Oxford University Press.
- Blum, L. A. (1994). *Moral Perception and Particularity*. Cambridge: Cambridge University Press.
- Bourdieu, P. (1990). *The Logic of Practice*. Cambridge: Polity Press.
- Dixon, K. (2012). Learning the game: Football fandom culture and the origins of practice. *International Review for the Sociology of Sport*, 48(3), 334–348.
- Ellickson, P. L., Collins, R. L., Hambarsoomians, K. & McCaffrey, D. F. (2005). Does alcohol advertising promote adolescent drinking? Results from a longitudinal assessment. *Addiction*, 100(8), 235–246.
- Flanagan, O. (1991). *Varieties of Moral Personality: Ethics and Psychological Realism*. London: Harvard University Press.
- Gornall, J. (2014). World Cup 2014: festival of football or alcohol? *British Medical Journal*, 348, 15–17.
- Graham, A. & Adams, J. (2014). Alcohol marketing in televised English professional football: A frequency analysis. *Alcohol and Alcoholism*, 49(3), 343–348.
- Jones, C. (2014). Alcoholism and recovery: A case study of a former professional footballer. *International Review for the Sociology of Sport*, 49(3/4), 485–505.
- Jones, C. (2005). Character, Virtue and Physical Education. *European Physical Education Review*, 11(2), 139–151.
- Jones, C. (2008). Teaching Virtue through Physical Education. *Sport, Education and Society*, 13(3), 337–349.
- Jones, C. (2011). Drunken Role Models: rescuing our sporting exemplars. *Sport, Ethics and Philosophy*, 5(4), 414–432.
- Jones, C. & McNamee, M. J. (2000). Moral Reasoning, Moral Action, and the Moral Atmosphere of Sport. *Sport Education and Society*, 5(2), 131–144.
- Mill, J. S. (1985). *On Liberty*. London: Penguin.
- Morse, S. J. (2011). Addiction and Criminal Responsibility. In: J. Poland & G. Graham (Eds.) *Addiction and Responsibility*. Cambridge: MA. The MIT Press, pp. 159–199.
- Mumford, S. (2012). *Watching Sport: Aesthetics, ethics and emotion*. London: Routledge.
- Nutt, D. J., King, L. A. & Phillips, L. D. (2010). Drug harms in the UK: a multicriteria decision analysis. *Lancet*, 376, 1558–1565.
- Orford, J. (2010). *An Unsafe Bet? The dangerous rise of gambling and the debate we should be having*. Chichester: Wiley-Blackwell.

- Pincoffs, E. L. (1986). *Quandaries and Virtues, Against Reductivism in Ethics*. Kansas: Kansas University Press.
- Ross, D. (2013). The Picoeconomics of Gambling Addiction and Supporting Neural Mechanisms. In: N. Levy (Ed.) *Addiction and Self-control*. Oxford: Oxford University Press.
- Sandel, M. (1984). The procedural republic and the unencumbered self. *Political Theory*, 12(1), 81–96.
- Sigman, A. (2011). *Alcohol Nation: How to protect our children from today's drinking culture*. London: Piatkus.
- Smith, L. A. & Foxcroft, D. R. (2009). The effect of alcohol advertising, marketing and portrayal on drinking behaviour in young people: systematic review of prospective cohort studies. *BMC Public Health*, 9(51), 1–11.

Carwyn Jones  
crjones@cardiffmet.ac.uk

OFFICE OF THE EUROPEAN DATA PROTECTION SUPERVISOR,  
BRUSSELS, BELGIUM

## **A LINGUISTICALLY LEVEL PLAYING FIELD: ENGLISH-MEDIUM SPORT OFFICIATING BETWEEN LINGUISTIC IMPERIALISM AND CULTURAL APPROPRIATION**

JACOB KORNBECK

### ABSTRACT

This article revisits four problem areas of the use of English as a lingua franca by sports officials (including coaches, referees, etc.) at international sporting events which were recently identified in an editorial by McNamee in the journal *Sport, Ethics and Philosophy*. These propositions are revisited by drawing on, inter alia, the theoretical models of ‘linguistic imperialism’ and ‘cultural appropriation’. The argument is made, in particular, that the ability of so-called ‘non-native’ users of English must not be underrated.

**Keywords:** international sports competitions; language; English; inequality; linguistic imperialism; cultural appropriation

**DOI:** 10.14712/23366052.2015.29

### INTRODUCTION

A recent editorial published in the journal *Sport, Ethics and Philosophy* (McNamee, 2013), focussed on the use of English as a lingua franca by sports officials (including coaches, referees, etc.) at international sporting events (including training sessions, competitions, meetings and negotiations, etc.), identifying such linguistic practice as a potential source of ethical and philosophical problems in sport. The editorialist argued that the use of English carries a risk of bias, which can be broken down into different categories, and called for an assessment of the relative risk incurred in various sports on account of their specific nature of interaction, in particular with referees, umpires, etc. The aim of this paper is critically to revisit the contribution made by that editorial.

### PURPOSE

This paper will discuss McNamee’s four propositions and provide reflections on their likely implications in practice. Drawing on knowledge from linguistics and second

language pedagogy, as well as cultural theory studies, as summarised in an earlier paper (Kornbeck, 2015), a framework will then be provided permitting these reflections to be taken further. I hope to have opened an important discussion which, nevertheless, seems to remain largely open-ended, depending upon the theoretical assumptions from which various contributions might start, as well as on the empirical knowledge which it has not been possible to map at this stage. To further frame a discussion which might otherwise emerge as rather detached from the reality of interaction on football pitches, cricket grounds, stadia, etc., two vignettes will be provided, on the understanding that their heuristic value is illustrative (without covering the entire thematic field of this paper). Alert readers will further notice that, whereas Vignette 1 does include officials, Vignette 2 does not. However the lessons to be drawn regarding the use of English as a so-called first or second language remain valid.

### **Vignette 1 – “How do Croatians, Brazilians and Japanese communicate on the field?”**

The following is an excerpt from a report published by a TV network in connection with its footage of a major football (soccer) event:

*The World Cup kicked off this with a match between Brazil and Croatia officiated by a Japanese referee. How do Croatians, Brazilians and Japanese communicate on the field?*

*After the Croatian team lost the opening match, the Croatian player, Vedran Corluka complained that he couldn't understand the referee.*

*“He was speaking Japanese,” said Corluka, “so it was real difficult to communicate with him.”*

*This isn't the first incident of miscommunication on the soccer field. In fact, miscommunication is what gave birth to one of the most infamous symbols of soccer. For this week's edition of Sideways Glance, I take a look at the origins of the red card.*

*Ever wonder what players are saying to the referee on the field?*

*Peter Walton has heard it all. He is a former Premier League referee. But when Walton, or any FIFA referee for that matter, talks back to players it should be in English and not Japanese or any other language.*

*FIFA referees take English courses to learn the basics of what they need to know to communicate on the field.*

*“‘Off’ for example is universal and everyone knows what ‘off’ means when you red card a player,” said Walton.*

(Porzucki, 2014)

The report goes on to state that, apparently, today's red card were born out of such situations, specifically at the 1966 World Cup.

*The referee for the match was German.*

*Around 35 minutes into the game, the referee called a foul against Argentina.*

*Argentina's captain, Antonio Rattin, questioned the foul. The problem was, as he said in an interview later, he was speaking Spanish, which the referee didn't understand.*

*Things got increasingly heated. There were wild gesticulations and raised voices in various languages. And then the German referee sends Rattin “off”.*

*“Because of miscommunication, because of some language barrier and also because of body language issues, the ref didn’t communicate to Rattin or Rattin didn’t pick it up, and [he] stayed on the field.”*

*The Argentine captain refused to walk, stopping the game for eight minutes – an eternity in soccer. He finally did leave the field and the game resumed but most importantly, that moment of complete breakdown in communication forced FIFA to innovate.*

*“FIFA said look we’ve got to have a way of communicating to the players and the public at large when there’s been some disciplinary sanction,” said Walton.*

*The idea came from the head referee of those 1966 World Cup games, a man called Ken Aston. Aston was stopped at a traffic light one day and it suddenly occurred to him.*

*“Yellow, take it easy; red: stop, you’re off.*

*And so the red and yellow cards were born.”*

(Porzucki, 2014)

The veracity of this explanation is not central to the use made of Vignette 1. Rather, it has been chosen because it includes most of the elements addressed by McNamee (2013): incomprehension, confusion, embarrassment in the wake of submission to authority – all bound up with the role of English as a sporting lingua franca. Vignette 1 certainly seems to sustain the claims made by McNamee (2013).

## **Vignette 2 – Selections from the history of ‘sledging’ in cricket**

‘Sledging’ consists in hurling more or less good-humoured abuse at sporting opponents in order to unsettle, distract and/or demoralise them. While there is good reason to challenge this practice (for example, because sledging could be construed as contrary to the ‘spirit of sport’ in perfect analogy with doping: earning a dishonest advantage using non-sporting means) the focus in this context will not be on these further ethical implications) but rather on the linguistic interaction itself.

The following is an excerpt from a newspaper report providing a collation of the purported ‘best’ (i.e. most witty, provoking, creative or memorable) examples of sledging in cricket.

### ***Merv Hughes vs Javed Miandad:***

*During a test match between Australia and Pakistan in 1991 Javed Miandad tried to sledge Merv Hughes.*

*He said to him: “Merv you are a big, fat bus conductor.”*

*Just a few balls later Hughes dismissed Miandad. On doing so he ran past him and shouted: “Tickets please.”*

### ***Ian Healy vs Arjuna Ranatunga:***

*Australia were getting very frustrated at not being able to get Arjuna Ranatunga of Sri Lanka out. Ranatunga, the then captain of his country, was a ‘larger’ than your average man.*

*The Australians tried a number of different ways to get him out tactically before Ian Healy, the wicketkeeper, said: "Put a Mars Bar on a good length and that should do it."*

***Merv Hughes vs Robin Smith:***

*Hughes was bowling some beautiful, almost unplayable deliveries to England batter Robin Smith.*

*A frustrated Hughes got bored and ended up saying: "If you turn the bat over you'll get the instructions mate."*

***Daryll Cullinan vs Shane Warne:***

*South African Daryll Cullinan was well known as someone who Shane Warne got out on umpteen occasions.*

*The pair hadn't come against each other in some time. So when they did and Cullinan walked out to bat, Shane Warne couldn't resist.*

*He said to Cullinan: "I've been waiting two years for another chance at you." Cullinan's reply was: "Looks like you spent it eating [...]."*

(Ostick, 2015)

The four examples of verbal exchange provided in Vignette 2 all have one thing in common: they require a very good command of English, not only for the insults to be delivered, but also for the victim actually to feel them. The ability to react quickly by returning the insult creatively and wittily depends upon instant comprehension (Hughes vs. Miandad). Some individuals might even have missed the point in their so-called mother tongue, while many of those who had understood might still have lacked the creativity and/or aplomb to return the insult quickly and in style. Some sledging practices involve metaphorical language or imagery (Cullinan vs. Warne, Healy vs. Ranatunga), while others rely on a style of absurd narrative referring to entirely fictitious situations of no relevance to the concrete sporting action (Hughes vs. Smith, Cullinan vs. Warne). All four sledging cases could only work between people with a very high level of language proficiency, either native or near-to-native.

## METHODS

While the paper presents a straightforward approach to revisiting the statements made by McNamee (2013), the use of vignettes may warrant a few remarks from the perspective of research methodology. Vignettes may be used "to allow actions in context to be explored; to clarify people's judgements; and to provide a less personal and therefore less threatening way of exploring sensitive topics". They allow for "interpretation of actions and occurrences that allows situational context to be explored and influential variables to be elucidated", "clarification of individual judgements, often in relation to moral dilemmas" and finally for "discussion of sensitive experiences in comparison with the 'normality' of the vignette" (Barter & Renold, 1999).

"Stories must appear plausible and real to participants." They therefore "need to avoid depicting eccentric characters and disastrous events, and should instead reflect 'mundane' occurrences (Finch, 1987) [...], although [...] in some circumstances it can be advantageous to incorporate some 'unusual occurrences' into the story line. Indeed, Hazel (1995)

argues, writing specifically about engaging with children and young people, that the more inappropriate or controversial the behaviour featured in the vignette, the more confident participants will feel about offering a response” (Barter & Renold, 1999).

Indeed, this is why Vignette 1 and Vignette 2 have been chosen for this paper. To readers with a knowledge of sport, sport science and sport philosophy they represent something familiar and plausible, yet they also contain elements of the absurd or grotesque, allowing us to use them in an ideal-typical way to characterise two opposing scenarios: submission through *incomprehension* (Vignette 1) as opposed to submission through perfect *comprehension* (Vignette 2). On account of their illustrative value (and not on the basis of a claim that they are representative of all social reality covered by this paper), they have been used as ice-breakers or scene-setters for the subsequent, more theoretical, discussion.

For the purpose of revisiting McNamee’s four initial propositions, these have been numbered IP1 to IP4. They will be compared with four counter-propositions numbered CP1 to CP4.

## RESULTS

### **Risk of moral bias**

IP1 – McNamee’s first proposition consists in identifying a risk of moral bias and preferential treatment, contending that sports officials “might give preference in their judgements (wittingly or otherwise) to an individual or team that plays in a certain style, or to penalize more frequently or harshly players who are known to commit fouls injurious to other athletes” (McNamee, 2013, p. 365). IP1 seems corroborated by some everyday layman’s knowledge as well by certain strands in socio-linguistic research, including in particular Robert Phillipson’s (1992) ‘linguistic imperialism’ paradigm. In the key publication – a book from the early 1990s which has been recently re-edited (Phillipson, 1992, 2010) and translated into some other languages – this theoretical model is embedded essentially in an English-Language Teaching (ELT) (as a second language) discourse, in which Phillipson attacks the spread of global English as the purported process of a means of furthering British political, commercial and other interests and/or those of the Anglosphere more generally, assuming that “there is a very strong case for claiming that ELT and the intellectual tradition behind it are neo-colonialist” (Phillipson, 1992, p. 72).

While the causalities underpinning Phillipson’s anti-imperialism may be questioned as such (do the UK and US really promote ELT merely to dominate the world, or could it be that ELT is useful in itself?), Phillipson’s research into the work of the British Council overseas is still worthy of attention. Yet the model or theory carries with it a paternalistic bias: that of assuming that ELT recipients are essentially passive and vulnerable. An alternative view might be that they are actively engaged in building their own destinies and that, far from being an instrument of oppression, ELT and the resulting English language skills become a means of empowerment. Phillipson identifies a ‘monolingual fallacy’, according to which competence in other languages is underrated, and a ‘native-speaker fallacy’, understood as bias against using ELT teachers who are not native Anglophones.



Both of these fallacies are however symptomatic of a view according to which ‘native’ and ‘non-native’ are absolute rather than relative concepts.

Phillipson’s main fallacy could be called ‘nativism’: an unquestioned belief that all humans necessarily have one ‘native’ language which is so dominant that they cannot possibly reach comparable proficiency levels in other languages, while they also possibly cannot hope to match ‘native’ speakers in using those languages. While it is true that many people exhibit a pattern of language skills and language use where the same language is dominant in almost all linguistic domains (family, work, study, public spaces, etc.), it is equally true that many humans do not follow this pattern. That the familiar ‘native/non-native’ pattern may be statistically most significant cannot obscure the fact that the other pattern does exist, especially in some regions outside of the industrialised world (e.g. West Africa).

Depending on biographical patterns, different linguistic domains show stronger proficiency, reflecting which language was or is dominant in a person’s early years, school years, studies, work life, residential life, relationships, experiences of parenthood, etc. There is no reason why a person must resort by default to the same language, even within the same linguistic domain. In bilingual families it is not uncommon for parents to speak one language together, for each parent to speak another language to the children and for children to respond in another language than the one they are being addressed in. Persons who are exposed to such patterns of language use early on seem to develop a code-switching ability which others are normally deprived of (Kornbeck, 2015, p. 202).

If this statement seems biased by the fact that it matches the author’s personal experience, it is in fact supported by a report commissioned by UNESCO in the 1990s: “bi- or multilingualism is the ‘normal’ human condition” (Batley et al., 1993, p. 1).

Finally, Phillipson and many others seem to overlook the biographical aspect: a person’s ‘best’ language may well change over time, with proficiency being driven by the environments of school, work, leisure and, in adult life, the family one may found with another adult person. To accommodate Flemish irritation with their francophone royalty, the present Belgian royal couple decided to break with tradition by sending their daughter Princess Elisabeth (the future queen) to a Flemish school. Unsurprisingly, Belgian media have later reported that the heir was being tutored in French to make up for purported shortcomings (Het Nieuwsblad, 2013). One day Princess Elisabeth might well consider herself more Dutch- than French-speaking.

CP1 – The first counter-proposition is that, within the field of sport, Phillipson’s ‘monolingual fallacy’ and ‘native-speaker fallacy’ both need to be addressed in addition to the more obvious power/subordination patterns. Scholars need to identify the applicability of alternative ELT paradigms such as that of ‘cultural appropriation’. Discourses that frame allophones as potentially vulnerable therefore risk overlooking their resourcefulness and agency. If bi- or multi-lingualism is the ‘normal human condition’, then the ‘native-speaker’ concept is necessarily socially and culturally constructed (Kornbeck, 2015, p. 203). Whereas Phillipson’s model (1992) enjoys a certain standing, alternatives exist, such as the ‘cultural appropriation’ paradigm (e.g. Scafidi, 2005; Young & Brunk, 2012). But what are the implications in the context of sport?

## Risk of cognitive bias

IP2 – McNamee’s second proposition is concerned with a risk of judgmental bias akin to a bias observed by editorialists in English-medium international academic publications (McNamee, 2013, p. 365). IP2 too seems supported by Philippon, yet just like IP1 it can be challenged on the ground that it reduces ‘non-natives’ to a reductionist status of ‘vulnerable allophones’ (Kornbeck, 2015). But are allophones automatically disadvantaged? As Vignette 2 illustrates, some situations where language is used in sport as a means of structural violence might even put more proficient speakers at a disadvantage than less proficient ones. Yet even the assumption that non-native speakers are necessarily less effective (active or passive) users of English (or others languages) needs to be questioned critically. The example of Belgian Crown Princess Elisabeth may match those of many other individuals (including this author) in that the relative strength of various languages used by a person may change over time. Also, even when native speakers do demonstrate a stronger command of the language used, they may not be more efficient communicators, especially if speaking to non-native users. This can often be observed in international meetings when (especially English) native speakers speak too fast, using ambiguous vocabulary, jokes, jargon, etc., thereby hampering listeners as well as professional interpreters (Kornbeck, 2015): eloquence does not *per se* equate with effectiveness.

Anglophone views of monolingual and multilingual persons reflect the current limited knowledge of other languages in the Anglosphere. Yet the fact that today’s Anglophone elites largely make do without foreign languages is not the result of a consistent tradition but rather of a more recent decline (cf. Woodhead, 2009, pp. 24–25). While 19th-century British Prime Minister W. E. Gladstone spoke a number of modern languages, translated a multi-volume scholarly text from Italian into English (Jenkins, 2005, p. 121) and made a speech to a Greek audience using Italian (ibid., 196), most top-level colonial servants in British Hong Kong were trained sinologists (Kwarteng, 2011, p. 386). Only the very last Governor, Chris (now Lord) Patten, had no knowledge of Chinese (whether Cantonese or Mandarin), nor apparently of further modern languages (ibid., p. 387). That he launched a wide range of democratic reforms which have been subsequently undone by his Chinese successors could be seen as linked to his status as an English monoglot. The fact is, however, that the situation where monoglots are considered “normal” may affect assumptions about the human capacity, in general, to learn and use a second language. When T. B. (later Lord) Macaulay defended the introduction of English-medium teaching in 19th-century British India, he did so against the opposition of so-called ‘orientalists’ who favoured teaching in local languages:

It is taken for granted by the advocates of oriental learning that no native of this country can possibly attain more than a mere smattering of English. They do not attempt to prove this. But they perpetually insinuate it. They designate the education which their opponents recommend as a mere spelling-book education (Macaulay, 1835, sec. 32).

Macaulay was not merely the colonial administrator of a British Raj which it would be difficult to condone today: he deserved credit for having defended the ability of all people to learn decent English, against the paternalism of the orientalists (see Kornbeck, 2015,

pp. 205–206), and he should be seen as a liberal thinker and policy-maker, not merely an oppressor (Masani, 2013). The same applies to US debates over how best to further the careers of so-called ‘minority’ students, where a conservative, Anglophone, male classicist emphasised classics over “Hispanic Studies” (Hanson, 2003), while a Chinese-born Yale legal scholar similarly rejected current liberal thinking and argued in favour of studying ‘difficult’ subjects (Chua, 2011; Rubinfeld & Chua, 2014) (see Kornbeck, 2015, p. 207). Quoting Macaulay, Hanson and Chua should not be understood as sharing all of their views: rather, their belief that non-Anglophones can build proficiency (in EFL just like in other subjects) deserves recognition as an alternative and a corrective to a benevolent paternalism which too easily ascribes to them a role of victimhood.

CP2 – The first counter-proposition is that, within the field of sport, the risk that non-Anglophone people’s ability to acquire proficiency in English needs to be identified and addressed.

### **Risk to fairness in general**

IP3 – McNamee’s third proposition raises a fundamental question related to the level playing field: as “many international sports tournaments are officiated in the English language”, McNamee asks: “Can this be fair?” (McNamee, 2013, p. 365). Here again, the question must be whether or not the use of English provides for, allows or hampers a linguistically level playing field. If theoretical models such as Phillipson’s ‘linguistic imperialism’ are to be handled with care, as suggested above, both to avoid a ‘moral bias’ (CP1), as well as a ‘cognitive bias’ (CP2), there may be reason to lean more towards models such as that of ‘cultural appropriation’, which stress the agency of non-native people in taking command of languages which were not their ‘native’ ones at birth. Whether or not a linguistically level playing field can be ensured when English is used at competitions depends on their ability to take command and use English to their own advantage. Apart from this, the obvious question remains: what would the alternative be? As long as no one can imagine interpretation services being offered as part of competitions (though that might change depending on the available technologies, such as micro headsets), the only alternative (apart from sign language) would be the use of another, sufficiently widespread transnational language which would, however, be less widely used and understood than English in most contexts.

CP3 – The discussion of the potential for fairness, as identified by McNamee, might profit from drawing on the ‘reverse mission’ perspective developed in misiology (the academic discourse on missionary work), just as this perspective can be useful within social work (cf. Kornbeck, 2008).

Therefore, measures taken to counteract possible negative effects of English-medium sport officiating should avoid embracing the concepts of ‘mother tongue’ and ‘native speaker’ without appropriate caveats. In particular, the idea of dominant native speakers and the vulnerable allophones warrants further critical investigation (Kornbeck, 2015, p. 208).

Finally, the recurrent claims for the recognition of the ‘specificity’ of sport, which are regularly being made by its governing bodies in order to avoid regulators’ interference

with their (mainly profit-making) activities, could also be reassessed in the light of the problems identified by McNamee, since:

It seems a reasonable working hypothesis that issues of linguistic dominance, subordination, etc. otherwise felt as being insupportable in other walks of life might possibly be less outspoken in sport. If communication is limited to a very restricted code pertaining only to a very exclusive subject matter, the hazards of second-language use otherwise encountered, in situations where a language may potentially be used in its entire diversity (with different levels of formality, potential confusion due to polysemy and variegating connotations), the margin for embarrassment should be more limited. Many second-language users may feel comfortable using a second language vis-à-vis an expert audience but not in dealing with the general public. One thing is to walk in and out of conferences and meetings, always using specialised English in a code where notations and connotations are generally agreed upon; another is to engage into a dialogue with a high street shop assistant who may be half or one-third of one's own age. While athletes and players interacting with other athletes and players may feel the confusion of being exposed to a second language in its full breadth, officiating involves a more narrow and focussed type of communication. In addition to this, the terminology and jargon of sport is harmonised to a much higher degree than everyday language is. For these reasons, it is not excluded that allophones may actually be less vulnerable English users when engaged in sport officiating activities as compared to the situations where the same persons may have to communicate on other, less technical subjects. One "ref" may feel comfortable using English talking to another 'ref' but might be quite lost while attempting to buy a pair of shoes in a high street shop. However, this is a hypothesis and not a statement (Kornbeck, 2015, p. 208).

However, while CP1 and CP2 are more fully developed counter-proposals, at this stage already drawing upon a certain body of scholarly work, it will be noted that CP3 and CP4 are currently at an earlier stage of their development. They constitute the recognition of issues clearly warranting further academic assessment, preferably by drawing upon empirical knowledge, which in some cases might need to be generated first of all.

### **Risk assessment needed sport-by-sport**

IP4 – McNamee's fourth proposition, finally, consists in emphasising a need to distinguish between

sports where the communication between official and player/coach either (a) is minimal; or (b) happens during times that do not immediately affect participation (such as conversations regarding rule interpretation before a game)

and those,

such as golf where players will frequently ask an official for a ruling regarding the lie of the ball, or in Rugby Union, where there are very complex constitutive rules

and one often hears the referee almost coaching the sides as to when it is and is not acceptable to challenge for the ball in a melee [...] The ruling is key in strategic terms since it will determine whether and how the attacking and defending teams respond to or nullify points scoring opportunities (McNamee, 2013, 366).

CP4 – IP4 does not warrant considerable counter-argument, except that it needs to be further refined in the light of the findings previously presented in this paper. Again, the lessons drawn from Vignette 1 (showing that non-native sportspeople may be disadvantaged) as well as by Vignette 2 (illustrating that a higher level of proficiency, whether or not reflecting ‘native speaker’ status in any narrow sense, may sometimes actually be a source of vulnerability rather than one of strength) could be infused into this discussion. We note that a risk assessment should be performed on a sport-by-sport basis, rather than according to a ‘one size fits all’ approach, such as that operated in anti-doping, where the results are far from convincing. Meanwhile the question remains, of course, of who should perform such a risk assessment: governing bodies, public authorities, civil society, athletes’ representatives (including through independent trade unions) or academics?

## DISCUSSION

### **Between linguistic imperialism and cultural appropriation**

McNamee concludes by inviting “a more robust analysis of the problem” (McNamee, 2013, p. 367) and this challenge is hereby taken up. The main contribution of this paper is to have made it plausible that ‘linguistic imperialism’ and ‘cultural appropriation’ are both paradigms worthy of use as conceptual tools in further discussing the ethical and other problems identified by McNamee in his editorial.

It will also be seen that these questions are eminently political, and that they have the potential to touch upon the autonomy of sports governing bodies, an autonomy which has already been badly damaged, in 2015, by scandals such as those affecting FIFA, IAAF and DFB (the national FA of Germany). The precise implications need to be identified: whose responsibility is it that a linguistically level playing field be provided?

## CONCLUSION

This paper has nevertheless highlighted some reasons which make it plausible that English-medium sport officiating cannot *per se* be assumed to put allophones in a vulnerable position (cf. Kornbeck, 2015). It has challenged Phillipson’s (1992) concept of linguistic imperialism and demonstrated that a variety of competing concepts may be drawn upon, allowing the framing of allophones as resourceful agents. The paper has contributed to the discussion launched by McNamee (2013) by drawing together pre-existing research knowledge and proposing certain *prolegomena* for what could become a more extended discussion. It would seem natural to follow up with empirical research, in particular by researching the experiences, assumptions and beliefs of people concerned by the

challenges identified here: how do allophone sports officials actively experience the use of English as a *lingua franca* themselves? Finally, research could be undertaken looking into the training and practices of referees and coaches:

[U]nless sports regulatory institutions can find officials who can speak the mother tongue of both teams, some bias is likely to occur when referees are, as part of their officiating duties, required to communicate with players (and coaches) during the game (McNamee, 2013, p. 366).

It is submitted that empirical research could generate outcomes that might come as a surprise either to proponents or to opponents of the vulnerability hypothesis. At any rate, these outcomes could be stimulating and helpful, both academically and in terms of developing better practice (cf. Kornbeck, 2015).

#### ACKNOWLEDGEMENTS

The paper draws heavily on a workshop paper delivered at the conference ‘Alternative Body Practices in European Philosophy of Sport since 2000: Aesthetics, Naturism, Ecology, Holism, Wellness, Health & Awareness’ (Nancy, France, 17–19 April 2014: 6th annual conference, European Association for the Philosophy of Sport; 1st annual conference, Société Francophone de Philosophie du Sport; 12th annual conference, British Philosophy Sport Association), as well as on a subsequently published book chapter (Kornbeck, 2015). After working in the European Commission (Sport Unit) (2001–14) the author recently joined the Secretariat of the European Data Protection Supervisor (Policy and Consultation Unit). Thanks are owed to an anonymous reviewer of this journal for valuable comments and suggestions provided, as well as to this journal’s editor.

#### DISCLAIMER

After working in the European Commission (Sport Unit) (2001–14) the author recently joined the Secretariat of the European Data Protection Supervisor (Policy and Consultation Unit). The views expressed in this article are those of the author and not of any official EU positions.

#### REFERENCES

- Barter, C. & Renold, E. (1999). The Use of Vignettes in Qualitative Research. *Social Research Update*, 25, <http://sru.soc.surrey.ac.uk/SRU25.html>.
- Batley, E., Candelier, M., Hermann-Brennecke, G. & Szepe, G. (1993). *Language Policies for the World of the Twenty-first Century: report for UNESCO*. London: FIPLV (World Federation of Modern Language Associations), <http://unesdoc.unesco.org/images/0013/001302/130228eo.pdf>.
- Chua, A. (2011). *Battle Hymn of the Tiger Mother*. London: Penguin.
- Finch, J. (1987). The Vignette Technique in Survey Research. *Sociology*, 21, 105–114.

- Hazel, N. (1995). Elicitation Techniques with Young People. *Social Research Update*, 12, <http://www.soc.surrey.ac.uk/sru/SRU12.html>.
- Hanson, V. D. (2003). *Mexifornia*. San Francisco: Encounter.
- Het Nieuwsblad (2013). Elisabeth krijgt bijles [...] Frans. *Het Nieuwsblad*, 08/07/2013, [http://www.nieuwsblad.be/cnt/dmf20130707\\_00650511](http://www.nieuwsblad.be/cnt/dmf20130707_00650511).
- Jenkins, R. (1995). *Gladstone*. London: Macmillan.
- Kornbeck, J. (2008). A 'Reverse Mission' Perspective on Second-Language Classes as Part of Social Work Education Programmes. *Portularia (Revista de Trabajo Social)*, 8(2), 65–77.
- Kornbeck, J. (2015). Allophones vulnérables? Sport anglais-moyen exerçant des fonctions entre impérialisme linguistique et appropriation culturelle. (Vulnerable Allophones? English-medium sport officiating between linguistic imperialism and cultural appropriation.) In: B. Andrieu (Ed.) *Vocabulaire international de philosophie du sport. Tome 2: Les nouvelles techniques*. Paris: L'Harmattan (Collection: Le mouvement des savoirs), pp. 195–211.
- Kwarteng, K. (2011). *Ghosts of Empire*. London: Bloomsbury.
- Macaulay, T. B. (1835). *Minute by the Hon'ble T. B. Macaulay, dated the 2nd February 1835*, [http://www.columbia.edu/itc/mealc/pritchett/00generallinks/macaulay/txt\\_minute\\_education\\_1835.html](http://www.columbia.edu/itc/mealc/pritchett/00generallinks/macaulay/txt_minute_education_1835.html).
- Masani, Z. (2013). *Macaulay: Britain's Liberal Imperialist*. NY: Bodley Head.
- McNamee, M. (2013). Sports officiating, linguistic bias and fair play. *Sport, Ethics and Philosophy*, 7(4), 365–367.
- Ostick, C. (2015). Top 10 cricket sledges of all time. *Manchester Evening News*, 10(18), 25 Jun 2015, <http://www.manchestereveningnews.co.uk/sport/cricket/top-10-cricket-sledges-time-9523425>.
- Phillipson, R. (1992). *Linguistic Imperialism*. Oxford: Oxford University Press.
- Phillipson, R. (2010). *Linguistic Imperialism Continued*. London: Routledge.
- Porzucki, N. (2014). How do 32 teams from 32 countries communicate at the World Cup? *The World in Words*, June 24, 2014, <http://www.pri.org/stories/2014-06-24/how-do-32-teams-32-countries-communicate-world-cup>.
- Rubinfeld, J. & Chua, A. (2014). *The Triple Package*. London: Penguin.
- Scafidi, S. (2005). *Who Owns Culture?* New Brunswick, NJ: Rutgers University Press.
- Woodhead, C. (2009). *A Desolation of Learning*. Hampshire: Pencil-Sharp Publishing.
- Young, J. O. & Brunk, C. G. (Eds.) (2012). *The Ethics of Cultural Appropriation*. Chichester: Wiley-Blackwell.

Jacob Kornbeck  
jacob.kornbeck@edps.europa.eu

CHARLES UNIVERSITY IN PRAGUE,  
FACULTY OF PHYSICAL EDUCATION AND SPORT,  
DEPARTMENT OF SPORT MANAGEMENT

## **SEGMENTATION IN SPORT SERVICES: A TYPOLOGY OF FITNESS CUSTOMERS**

JOSEF VORÁČEK, EVA ČÁSLAVOVÁ, JAN ŠÍMA

### ABSTRACT

This article considers customer typology in fitness centres. The main aim of our survey is to state the basic segments of fitness customers and create their typology. A survey was conducted on a sample of 1004 respondents from 48 fitness centres. We used questionnaires and latent class analysis for the assessment and interpretation of data. The results of our research are as follows: we identified 6 segments of typical customers, of which three are male (we called them student, shark, mature) and three are female (manager, hunter, and student). Each segment is influenced primarily by the age of customers, from which we can develop further characteristics, such as education, income, marital status, etc. Male segments use the main workout area above all, whilst female segments use a much wider range of services offered, for example group exercises, personal training, and cardio theatres.

**Keywords:** fitness; segmentation; typology; customer; Latent Class Analysis; questionnaire survey

**DOI:** 10.14712/23366052.2015.30

### INTRODUCTION

Nowadays people usually try to lead a healthy lifestyle. Since the level of childhood obesity (together with adult obesity) keeps increasing, there are many suggestions about how to stop it or slow the trend down. Physical or sport activities are often recommended as a prevention from health problems, and an improvement in physical condition, personal appearance and the quality of our lives as a whole. From this point of view a fitness and wellness facility provides opportunities for nearly every person. According to Hoeger and Hoeger (2011), physically fit and healthy people leading positive lifestyle have a healthier and better life. Bakas (2009) describes wellness as a way of coping with stress and considers it one of the main pillars of 21st century life. He also considers more sport



and physical exercise as important in wellness trends. Using today's fitness and wellness centres is common not only for people who are devoted to sport regularly, but also for people who call themselves sportspeople but are mostly irregular or inactive participants. This offers business opportunities for companies providing sport services.

However, in the market there are too many companies. On the one hand, customers have a wide range of services of varied quality, whilst, on the other, a customer does not know or even is lost in the plethora of sport services. Recently, many new exercises, lessons, and training methods have appeared, as reported by Thompson (2009). For companies dealing in this highly competitive market it is a tough contest to obtain as many target customers as possible. What is very important for any service company is the loyalty of present customers. The company must first be able to identify the target customers, before it can know and understand them, and be able to provide a "made to measure" service. Of course, whilst every customer is an individual with different characteristics and needs, it is nevertheless possible to divide customers into particular segments, which group similar characteristics and needs. A customer typology is one of the main tools of marketing activity, and not only in the service market. There are many general typologies of customers – e.g. see Vysekalová et al. (2011) or Shiffman et al. (2008) – but nevertheless, it is more suitable for each company to have a specific classification of their customers' types, especially in the sport services environment.

This article aims to create a specific customer typology in today's fitness centres in the region of Prague. This region was chosen for its diversity from the other regions in the Czech Republic. In the Prague area there is a huge number of fitness centres (with workout area/gym, cardio theatre and group lessons), which is, according to the number of inhabitants (51 fitness centres at circa 1,260,000 inhabitants), a highly competitive environment, where the winners are those who know their customers and who offer them a proper service. In comparison with Prague, there are 28 fitness centres for circa 1,741,000 inhabitants of Vienna, and 7 fitness centres for circa 380,000 inhabitants of Zurich (see website Statista.com). Our suggested typology of Prague fitness centres customers is based on answers to the questions: What are the customers like, what are their preferences, and what kinds of services do they use more often in Prague fitness centres? These are the main aspects of the presented typology.

In the Czech Republic so far, no similar research has been published i.e. mapping the recent market for customers in the area of sport services. In this field, this is an innovative study in the investigation of customers, or more precisely Prague customers. Companies often create their own customer typology, but their research methods and especially analytic methods are not sufficient from the scientific point of view. In our study we have sought to provide a typology across all fitness centres in Prague, mapping the Prague market regardless of the particular business subject. Obviously, it is not an exhaustive examination, but a representative selection of fitness centres and their customers as well.

## LITERATURE REVIEW

Current marketing tends to focus on the building of long-lasting relationships with customers. Especially in the area of services, precisely sport services, the relationship with

customers is an inseparable part of the everyday activities of sport service management. Customer relations in sport services are discussed thoroughly by Berry (2002). From this point of view it is necessary to know the customers and keep them loyal. Berry and Linoff (2004) deal with the importance of “customer relationship management” from the aspect of customer data collection. They demonstrate that recent customers are the richest source of data. Consequently, we can use the data for customer segmentation and to state their basic types. Čáslavová (2009) shows that these homogenous groups evidence similar needs and similar reaction to sales operations in the market. As mentioned above, many authors involved in marketing pay attention to customer typology in its basic form. This usually means a customer typology according to general segmentation criteria, including geographical, demographical, psychological, psychographical and social aspects, and then further aspects connected with the benefits of product use (as well as combinations of all the above) as noted by Schiffman et al. (2008). Vysekalová et al. (2011) extend the general typology of customers, for example including human physique, character, lifestyle, consumer behaviour, and neuropsychological factors, focusing on a specific product, generational type, etc. Vyncke (2002) deals with typology according to lifestyle, moving away from the AIO method (activities, interest, opinion) to aspects such as aesthetics, values, life visions, and media preferences. Kotler (2007) and his family life cycle (which includes a series of developmental stages through which a family moves over time – unattached adult, newly married adults, childbearing adults, pre-school-age children, school-age children, teenage children, launching centre, middle-aged adults, retired adults) must not be omitted, either.

Apart from the generally useful typologies, there are many features added for particular purposes e.g. Internet users (Schiffman & Kanuk, 2004), online shoppers (Rohm & Swaminathan, 2004), social website users (Lorenzo-Romero & Alarcon-del-Amo, 2012); and, in the sport context for example, cyclist typology (Vysekalová et al., 2011), ice hockey spectators (BPA study in Čáslavová, 2009), and football fans (UFA sports study in Čáslavová, 2009). Globally, Stewart, Smith and Nicholson (2003) offer a critical evaluation of the typology of sports consumers, as did Bednarik et al. (2007) in the context of Slovenia.

The fitness sphere, which is also connected with this article, is a contemporary focus, taking into account healthy lifestyle and wellness mentioned above. Prague, *qua* an examined region, is a very interesting market for fitness centres, and there is a highly competitive environment here, with several dominant chains such as BBC Solarium and Fitness, World Class, Holmes Place and Pure. Balance Club Brumlovka might be the only rival for these strong competitors. The rest of the fitness centres are mostly medium-sized or small local ones with a small market share. However, all of them have the same interest – to obtain as many loyal customers as possible.

The question of how to attract customers and retain a long-lasting relationship with them is addressed by Hurley (2004). He describes the classification of activities and inventiveness on 3 levels in relation to the decisive criterion of customers – financial (level 1); financial and social (level 2); financial, social and structural (level 3). Different marketing activities and tools are needed for each of these levels. Despite the many and various strategies and marketing tools used, proper and adequate quality of fitness service for particular groups of the customers remains important. According to SERVQUAL

methods customer loyalty is based on quality of sport services (see Javadein et al., 2008). Customers' expectation and appreciation of quality service in fitness centres, and response to customers' requirements, are suggested as important factors by many authors, e.g. Afthinos et al. (2005) and Ferrand et al. (2010).

Cluster analysis is the most frequently used method for research on customer typology. Funk, King and Pritchard (2015) used factor analysis with varimax rotation and with the help of this kind of cluster analysis, five segments of winter sport tourists were defined which differ with regard to age and chosen destination. In our case we used a different kind of factor analysis (latent class analysis) and 'chosen destination' was replaced by motives with which customers enter their fitness centre. Punj and Stewart (1983) briefly consider the kinds of cluster analysis often used in the marketing context. Nowadays an LCA (latent class analysis) method is widely used, for example by Bhatnagar and Goose (2004) for segmentation of online shoppers. An increase in popularity of this method against classic cluster analysis is seen by Magidson and Vermunt (2002), especially given the effectiveness of modern computers and statistical software. And *de facto* LCA method is based on the creation of a model to discover the latent classes (customer segments, in our case). In particular, this method is used by Lorenzo-Romero and Alarcon-del-Amo (2012). These studies, together with that of Gilani et al. (2014) regarding popular sport activities in Iran with use of factor analysis, are good foundations for our choice to use the LCA method for the creation of a customer typology.

## PURPOSE

The main aim of the survey is to create a specific typology of recent customers of Prague fitness centres. If we want to achieve this aim, it is necessary to find out whether the similar groups of customers really exist. The survey is based on a questionnaire which was answered by the customers of Prague fitness centres. Therefore we had to construct a questionnaire which measures the basic characteristics of customers. Consequently, the most important part is to select a proper and adequate statistical method for the analysis of collected data in order to be able to divide customers into the particular segments relevantly.

## METHODS

The procedures used by researchers cited above were the inspiration for the creation of the methodological design of our research, but due to the specific environment of the Czech fitness centres we finally resorted to a new operationalization in collaboration with experts from psychology, statistics, methodology and the fitness environment. The psychologists considered possible standards of behaviour of Czech respondents; the consultations with methodologists and statisticians were motivated by the aim of understanding the methodologies; and consultations with fitness experts included the specifics of this environment. Psychologists, statisticians and methodologists were recruited from among experts at Charles University. Fitness experts consisted of managers of major fitness chains in Prague.

## Participants

The survey population of participants is made up of a total of 1004 customers selected according to convenience from 48 randomly selected Prague fitness centres with a workout area/gym, a cardio theatre and group lessons. This includes both member and non-member fitness centers, and everywhere it is possible to buy a single entry. Regarding the fact that the survey examined the structure and types of customers who attend Prague fitness centres, we did not use intentional (quota) selection. The resulting structure of the survey collection is described by two indicators – gender and age. These two criteria are taken into account in the description of each type of customer.

Gender was especially the main filter criterion. In the population there were 522 males and 482 females. With regard to the age structure of the survey, a detailed view is stated in the following Table 1. This table also demonstrates that Prague fitness centres are attended by customers within the age 15–40 (82.2%), although older customers are also a significant part – 17.8%.

**Table 1.** Age Structure of Participants

Age	Absolute frequency	Relative frequency index
15–20	103	0.1027
21–25	252	0.2512
26–30	196	0.1953
31–35	166	0.1653
36–40	108	0.1079
41–45	48	0.0477
46–50	58	0.0574
51–55	42	0.0417
56–60	21	0.0207
61 and more	10	0.0100
Total	1004	1

## Instruments

We used a questionnaire for the research of customer typology in Prague fitness centres. The questionnaire includes a list of criteria according to which the respondents are matched to customer types. The criteria were established during group discussions at the Faculty of Physical Education and Sport, Charles University in Prague. We did three group discussions with three independent groups formed from experts at the research and sport service, Faculty students and fitness centre employees. With the help of these discussions we set 13 criteria describing the customers. We had to omit two of them because of impossibility of including the results into the statistical data processing – time and distance availability of the fitness centre, and importance and ranking of the selected aspects for the customers. After final modification our questionnaire includes 11 criteria.

The criteria are stated as below:

- Gender
- Age
- Average monthly income
- Completed education
- Marital status
- Point of departure to the fitness centre
- Time spent in the fitness centre
- Relationship to sport outside fitness centre
- Frequency of attendance at the fitness centre
- Most frequent reasons for attending the fitness centre
- Most frequently used services in the fitness centre

## Procedures

As has been mentioned above, this was a questionnaire method used for the customers of Prague fitness centres, which ran during May 2012. The questionnaire survey itself was administered by 53 well-trained interviewers in 48 fitness centres in various city districts of Prague. Our paper questionnaire was distributed among the customers during their attendance in the fitness centre. They decided on whether to fill in it at the beginning or at the end of their attendance. Afterwards, the customer handed over the completed questionnaire to the interviewer. After data collection, the answers were encoded for statistical processing.

## Statistical analysis

Data were analysed using the LCA method. At first, a cluster analysis had been planned, but this was not appropriate for the number of respondents, nor for the large number of criteria established. The LCA method is able to divide respondents into single segments on the basis of likelihood of membership of the latent class (segment). The analysis consists of two models, one for males, and one for females. 3 basic types were created for each gender, making a total of 6 customer groups. An optimum number of customer types were established on the basis of test results and expert estimation in relation to the total number of respondents.

## RESULTS

By means of the LCA method, 3 types of male and female customers were identified. However, it is important to monitor other indicators describing the quality of the chosen models. The first important index is identification of each single latent class (customer types), which is marked as entropy statistics –  $E_s$ . In the table 2 below there are indices for each gender.

**Table 2.** Quality of classification

Typology acc. Gender	$E_s$
Males	0.887
Females	0.886

As we can see from T2, both indices are near to 1, so we can say that the latent classes are not the result of coincidence. In the following T3 there are matrices with coefficients which describe the likelihood of members of one latent class coexisting as members of other latent classes, for each gender.

**Table 3.** Likelihood of membership in latent classes

		Latent class – males		
		1	2	3
Members of latent classes – males	1	0.996	0.033	0.000
	2	0.029	0.931	0.040
	3	0.000	0.051	0.949
		Latent class – females		
		1	2	3
Members of latent classes – females	1	0.955	0.045	0.000
	2	0.035	0.928	0.037
	3	0.000	0.047	0.953

If we look at the indices of matrices diagonally, we see a really high value of likelihood, so we can deduce a high definiteness of partition and membership of the respondents in the single classes. On the other hand, in some cases the likelihood of coexistence of a member of one class as a member in another class is really low, nearly negligible, even zero. The basis for the predictive value of results is whether each section contains enough respondents. The function of this criterion is to confirm that a group of similar customers was used, not just several individuals. The analysis is demonstrated in T4.

**Table 4.** Distribution of respondents in the latent classes

Latent class – males	Absolute frequency	Relative frequency index
1	166	0.31801
2	222	0.42529
3	134	0.25670
Latent class – females	Absolute frequency	Relative frequency index
1	153	0.31743
2	164	0.34025
3	165	0.3432

In the case of this research the respondents are distributed quite equally, though a smaller deviation is seen in males. The second latent class is represented by nearly 42.5% of males, and the next two groups are numerous enough to be considered as types (groups) of customers. The following text names the resulting latent classes, and provides descriptions of the six identified types of customers in Prague fitness centres.

## Male Typology

### *1st latent class – Students*

This class consists of 166 students, young men up to the age of 25 (dominant possibility 21–25), whose income, according to age, is not very high. They might either be dependent on parents' income or temporary jobs, otherwise they are not able to attend the gym. Education is mostly secondary schooling, with a leaving exam. They are single men, without a partner or in a partnership. They are mostly students and young people living with their parents. They go to the fitness centre from their home or from their school. They have a lot of free time, they do not work full-time, consequently they spend a longer period of time during one visit to the fitness centre. They do not have to rush to their jobs or home. They are mostly recreational sportsmen, but they often feel like professionals. As mentioned above, they have plenty of leisure time, so they go to the fitness centre during the week often; most frequently 2–3 times per week.

Concerning the reason “why”, there are three typical possibilities: body-building, physical condition improvement and to a certain extent, part of training process. By far the most dominant service used by students is the main workout area. In this case it is logically related to the reasons of visit.

**Table 5.** Male student characteristics

Criterion	Variation of criterion	Relative frequency index – occurrence of value in class
Age	16–20	0.329
	21–25	0.593
Average income, monthly	0–9,999 CZK	0.556
	10,000–19,999 CZK	0.313
Education	Secondary with leaving exam	0.523
Marital status	Single (without partner)	0.441
	Single (partnership)	0.511
Point of departure	Place of living	0.578
	School	0.270
Most frequent time spent in fitness	31–60 min.	0.240
	61–90 min.	0.491
	91–120 min.	0.213
Relationship to sport	Recreational	0.532
	Professional	0.344
Frequency of attendance to fitness	2–3 per week	0.438
Most frequent reason of going to fitness	Bodybuilding	0.303
	Keeping fit	0.304
	Part of training process	0.203
Most widely used service	Main workout area	0.844

### *2nd latent class – Sharks*

The second class consists of men, who are older than those from the first group – between 26–35 years. They are strong and determined to succeed in life, and have a higher income,

on average 20,000–40,000 CZK. Most graduated from university, and many from secondary school with a leaving exam. As we can judge, they are quite rich people, who started their careers immediately after leaving school, or started their own business and nowadays are financially safe. We can also find in this group men with degrees (MA, Dipl.-Ing.), who have a high income because of their education. They are mostly single, which is similar to the first group, but we can also find married men with or without children. They have a regular job, and often go to the fitness centre from their place of work. In comparison with the first latent class they spend less time during one visit, because of their occupation. Most of them are active recreational sportsmen. Most probably they are motivated and successful people, who try to go regularly to keep fit and to build their bodies. Again, the most dominant service is the main workout area.

**Table 6.** Shark characteristics

Criterion	Variation of criterion	Relative frequency index – occurrence of value in class
Age	26–30	0.420
	31–35	0.346
Average income, monthly	20,000–29,999 CZK	0.389
	30,000–39,999 CZK	0.306
Education	Secondary with leaving exam	0.279
	University (Master's degree)	0.358
Marital status	Single (without a partner)	0.221
	Single (partnership)	0.426
	Married (without children)	0.204
Point of departure	Place of living	0.345
	Place of work	0.644
Most frequent time spent in fitness	31–60 min.	0.284
	61–90 min.	0.467
Relationship to sport	Recreational	0.736
Frequency of attendance to fitness	2–3 per week	0.476
Most frequent reason of going to fitness	Bodybuilding	0.238
	Keeping fit	0.389
Most widely used service	Main workout area	0.701

### *3rd latent class – Matures*

This class is very diverse concerning the age. But we are able to say they are older men than in the first group. They have high income. Education is the same as in the first class – university, secondary with a leaving exam. They probably have a child, and they go to the fitness centre from their homes or work. They spent less time there compared with the other two groups. They are mostly active recreational sportsmen. They train irregularly, very likely because of their work, but they are ready to spend more money, often to pay for a personal coach. They prefer weight reduction and health reasons, which is also different from the first two groups. The main workout area service still dominates but to a lesser extent in comparison with the other classes. Consequently, cardio theatre and relax and wellness services begin to be used.



**Table 7.** Mature characteristics

Criterion	Variation of criterion	Relative frequency index – occurrence of value in class
Age	31–35	0.126
	36–40	0.242
	41–45	0.169
	46–50	0.235
	51–55	0.147
Average income, monthly	20,000–29,999 CZK	0.212
	30,000–39,999 CZK	0.241
	40,000–49,999 CZK	0.241
	50,000 CZK and more	0.251
Education	Secondary with leaving exam	0.239
	University (Master's degree)	0.467
Marital status	Married (with children)	0.569
Point of departure	Place of living	0.346
	Place of work	0.632
Most frequent time spent in fitness	31–60 min.	0.284
	61–90 min.	0.467
Relationship to sport	Recreational	0.736
Frequency of attendance to fitness	2–3 per week	0.344
	1 per week	0.347
Most frequent reason of going to fitness	Health reasons	0.181
	Keeping fit	0.367
	Weight reduction	0.122
	Relaxation	0.115
Most widely used service	Main workout area	0.408
	Personal training	0.202
	Cardio theatre	0.179
	Relax and wellness	0.131

## Female Typology

### *1st latent class – Managers*

This latent class consists of women between the ages of 31–55. It is necessary to emphasize that the first class is very diverse. Some women are of above average income in comparison with the average nominal wage in the region. Secondary education or Master's degree is the most frequent type of education connected with this class. They are successful and financially safe. Those women are married, but getting older, and the number of divorced women is increasing. They go to the fitness centre from their home or place of work. They do not spend much time in the fitness centre. The time is maximally 90 minutes, but more often 60 minutes. They work or look after their children. They are active recreational sportswomen. They want to look good for their age and to keep good a figure. They like going to the fitness centre regularly to reduce their weight and to build their bodies. They are determined. They go mainly to the group lessons, which is very different from male classes. Males prefer the main workout area, females prefer group lessons, but also cardio theatres and personal training.

**Table 8.** Manager characteristics

Criterion	Variation of criterion	Relative frequency index – occurrence of value in class
Age	31–35	0.155
	36–40	0.208
	41–45	0.156
	46–50	0.171
	51–55	0.145
Average income, monthly	20,000–29,999 CZK	0.333
	30,000–39,999 CZK	0.327
Education	Secondary with leaving exam	0.288
	University (Master's degree)	0.481
Marital status	Married with children	0.536
	Married with independent children	0.217
	Divorced	0.191
Point of departure	Place of living	0.622
	Place of work	0.372
Most frequent time spent in fitness	31–60 min.	0.429
	61–90 min.	0.395
Relationship to sport	Recreational	0.729
Frequency of attendance to fitness	1 per week	0.349
	2–3 per week	0.342
The most frequent reason of going to fitness	Health reasons	0.118
	Weight reduction	0.194
	Bodybuilding	0.268
	Keeping fit	0.138
	Enjoyment	0.130
Most widely used service	Relaxation	0.123
	Main workout area	0.239
	Group lessons	0.474
	Cardio theatre	0.100
	Personal trainings	0.103

### *2nd latent class – Hunters*

The second class consists of younger females than those in the first group (between 21–35 years old) and their average monthly income is smaller than in the first group (10,000–29,999 CZK). Educational background is the most diverse of all groups, including secondary schooling with a leaving exam, Bachelor's degree and Master's degree. They are about a generation younger than the first group, and are mostly single, but a fairly large fraction are married. They mainly go to the fitness centre from their home or place of work. They spend more time there, since they have more free time than the older women in the first category. An active recreational sportswoman profile dominates again. They are motivated and young they want to be considered attractive. They are old enough to seek for the best partner for their lives, therefore we cannot avoid volatility in their behaviour. They do exercises 2–3 times per week. They are focused on weight reduction, body-building, and to a certain extent on keeping fit. They predominantly attend group

lessons, and cardio theatre, whilst the main workout area is used by a minority. They are not willing to pay money for a personal coach, so they primarily do not attend individual classes.

**Table 9.** Hunter characteristics

Criterion	Variation of criterion	Relative frequency index – occurrence of value in class
Age	21–25	0.147
	26–30	0.445
	31–35	0.296
Average income, monthly	10,000–19,999 CZK	0.335
	20,000–29,999 CZK	0.451
Education	Secondary with leaving exam	0.234
	College	0.155
	University (Bachelor's degree)	0.232
	University (Master's degree)	0.263
Marital status	Single (partnership)	0.481
	Married without children	0.269
Point of departure	Place of living	0.396
	Place of work	0.578
Most frequent time spent in fitness	31–60 min.	0.369
	61–90 min.	0.459
Relationship to sport	Recreational	0.683
Frequency of attendance to fitness	1 per week	0.295
	2–3 per week	0.402
Most frequent reason of going to fitness	Weight reduction	0.308
	Bodybuilding	0.297
	Keeping fit	0.214
Most widely used service	Main workout area	0.228
	Group lessons	0.343
	Cardio theatre	0.279

### *3rd latent class – Students*

The third class is represented by women aged 25 and under. They are usually students with a very low income. According to their age, they are university student with a Bachelor's degree, or future university students. They have a lot of leisure time and they can spend it in the fitness centre, so average visit is 61–91 minutes. They go to the fitness centre from home or school, and they are recreational sportswomen. They want value for money, and their attendance is 2–3 times per week. In comparison with the types mentioned above, their main reason for going to the fitness centre is not weight reduction, since they are young and do not have the same issues that we can see with females in middle age. These women want to build and shape their bodies, and so we can see an increase of interest in the main workout area compared with other segments. They also use cardio theatre and group lessons to meet their goals. Considering their age, they are not willing to pay or they do not have enough money for a personal trainer.

**Table 10.** Female student characteristics

<b>Criterion</b>	<b>Variation of criterion</b>	<b>Relative frequency index – occurrence of value in class</b>
Age	16–20	0.282
	21–25	0.640
Average income, monthly	0–9,999 CZK	0.588
	1,000–1,999 CZK	0.302
Education	Secondary with leaving exam	0.662
	University (Bachelor's degree)	0.147
Marital status	Single (without partner)	0.370
	Single (partnership)	0.593
Point of departure	Place of living	0.560
	School	0.291
Most frequent time spent in fitness	31–60 min.	0.290
	61–90 min.	0.499
Relationship to sport	Recreational	0.602
Frequency of attendance to fitness	2–3 per week	0.368
Most frequent reason of going to fitness	Bodybuilding	0.360
	Keeping fit	0.229
Most widely used service	Main workout area	0.340
	Group lessons	0.298
	Cardio theatre	0.266

## DISCUSSION

This survey covers a representative sample of 1004 respondents, which is an adequate sample for normal quantitative research. Although the population was found sufficient, we would need samples with a larger number of respondents for the LCA method. It depends on the criteria and indicators, and in this case it is true that the more variable quantities of segmentation criteria, the larger the number of respondents is needed. LCA methods for the limits of customer typology were found to be the most suitable tool, because cluster analysis is very limited in the forms and numbers of variables and indicators. Models of 3 latent classes for each gender are optimal, as it is demonstrated by entropy indices (vide T2) and matrices of likelihood of the membership to the classes (vide T3). If we notice the division evenness of respondents to the single segments, the results reveal a slight unevenness in advantage for the second class (sharks).

A probable weak point of the survey is the selection of fitness centres. Although it was done by random selection method, as described in the literature reference, the market in Prague is really specific. Four big chains operate there and then medium-sized or more typically small local fitness centres. Of course, the profile of customers may differ from the view of their attending at one of big chains or at a small local fitness centre. This fact was not taken into account in the survey, however, because the number of respondents would have been decreased for the LCA analysis, and consequently we would not have been able to create models precisely.

Finally, we should present the choice of segmentation criteria, which is, of course, a contentious issue. However, we can judge the selection as valuable, owing to two group discussions which were took place during two seminars at the Faculty of Physical Education and Sport, Charles University in Prague, and consultation with an expert on sport services. Criteria were stated with respect to the selected method – an LCA method. Because of the specifics and limitations of the LCA method we had to remove some other results of other criteria from data analysis and interpretation in the paper. These criteria, which are not analysed in this paper are drive/ride/walk time to the fitness centre, facets and preferences which are important for customers. Possible future research may include these other criteria. Also, future research may be made in other regions of the Czech Republic for mutual comparison.

## CONCLUSION AND IMPLICATIONS

The main aim of the survey was to create a customer typology in Prague fitness centres. By means of the latent class analysis method, we established 3 types of customers for each gender. Males (customers of Prague fitness centres), were divided into students, sharks and matures. The main differences arise from their age. Students are the youngest customers, single and with the lowest income, as well as the lowest education. They are focused on bodybuilding and keeping fit, for which they use the main workout area, where they spend quite a lot of time.

Sharks are in the most productive age and at the same time quite young. They manage a larger financial budget than students and they have a better education. They do not have enough time for the main workout area because of their working hours and developing their family life. Matures are the oldest group, and they manage the largest financial budget. They do not go to the fitness centre so often, but they also use other services, especially those focused on health improvement and physical conditioning. All three types are very similar in the frequency of attendance at fitness centres (2–3 per week), the main workout area dominates, and all are recreational sportsmen.

Females were divided into managers, hunters and students. As with males, the biggest differences are connected to their age. Female students are very similar to male students, but they also use cardio theatre and group lessons with different types of exercises. Hunters are the middle-aged group. Predominantly, they are well-educated women with average income, looking for partners for their lives. They are mainly oriented towards weight reduction and bodybuilding. They mainly use group lessons, but the time spent in the fitness centre is restricted by their working hours. Managers in the mid-age are the most varied group, who manage the biggest financial budget. They do not have enough time for fitness activities, but they are really efficient in spending it. They use individual personal training in all basic services offered by fitness facilities – the main workout area, cardio theatre, and group lessons. They have various reasons for going to the fitness centres according to their current physical condition, so it might be body-building, weight reduction or pure enjoyment. Similarly to males, females attend the fitness centre 2–3 times per week and they are recreational sportswomen.

This survey is, to a certain extent, an innovative study, and it should be followed by other research in this area of sport study. The methodology used in the survey appears to be suitable for customer segmentation in the sport service of fitness and wellness types. The outcomes of the survey seem to be useful in providing an analysis of target customers for Prague fitness centres, of course considering the limits described in the discussion section.

The customer typology presented in the paper is useful for marketing managers of the fitness centres, especially in the creation of a product offer for specific groups and types of customers. Today's policy of season tickets and memberships is mostly based on time aspects and amount of all services. But it could be based on this typology, for example for each type of customers, a 'special products/services' package could be made with a suitable pricing structure. This means different types of season ticket or membership for male students, female students, sharks, hunters, matures, and managers for different prices. The marketing communication strategy could include these special offers, and also reasons for going to the fitness centres, according to target groups of the communication campaign.

## ACKNOWLEDGEMENTS

This research was supported by the scientific branch development program UK FTVS n. 39 – Social-Sciences Aspects of Human Movement Studies for the years 2011–2015 at the Charles University in Prague.

## REFERENCES

- Afthinos, Y., Theodorakis, N. D. & Nassis, P. (2005). Customers' expectations of service in Greek fitness centers: Gender, age, type of sport center, and motivation differences. *Managing Service Quality*, 15(3), 245–258.
- Bakas, A. (2009). *World megatrends – towards the renewal of humanity*. Oxford: Infinite Ideas Limited.
- Bednarik, J. et al. (2007). Segmentation of Sports Consumers in Slovenia. *Kinesiology*, 39(1), 74–84.
- Berry, L. L. (2002). Relationship Marketing of Services – Perspectives from 1983 and 2000. *Journal of Relationship Marketing*, 1(1), 59–77.
- Berry, M. J. & Linoff, G. S. (2004). *Data Mining Techniques: For Marketing, Sales, and Customer Relationship Management*. Indianapolis: John Wiley & Sons.
- Bhatnagar, A. & Ghose, S. (2004). A latent class segmentation analysis of e-shoppers. *Journal of Business Research*, 57(7), 758–767.
- Čáslavová, E. (2009). *Management a marketing sportu*. [Management and Marketing of Sport. In Czech.] Prague: Olympia.
- Ferrand, A., Robinson, L. & Valette-Florence, P. (2010). The Intention-to-Repurchase Paradox: A Case of the Health and Fitness Industry. *Journal of Sport Management*, 24(1), 83–105.
- Funk, D., King, C. & Pritchard, M. (2015). Market Segmentation: Validating a Qualitative Algorithm to Examine Stages of Consumer Involvement in Sport. In: *Proceedings of the 2010 Academy of Marketing Science (AMS) Annual Conference* (pp. 146–146). Springer International Publishing.
- Gilani, S. R. M., Kazemi, M., Asadi, H., Samadzadeh, G. R. & Atashpanjeh, A. R. (2014). Market Segmentation of Sport Tourism in Iran for Foreign Tourists Regarding Culture and Modeling of Target Market. *Asian Journal of Research in Marketing*, 3(6), 192–200.
- Hoeger, W. W. K. & Hoeger, S. A. (2011). *Fitness and wellness*. Wadsworth: Cengage Learning.
- Hurley, T. (2004). Managing Customer Retention in the Health and Fitness Industry: A Case of Neglect. *Irish Marketing Review*, 17(1–2), 23–29.

- Javadein, S. R. S., Khanlari, A. & Estiri, M. (2008). Customer loyalty in the sport services industry: the role of service quality, customer satisfaction, commitment and trust. *International Journal of Human Sciences*, 5(2), 1–19.
- Kotler, P. & Keller, K. L. (2007). *Marketing management*. 12th ed. [Marketing Management. In Czech.] Prague: Grada.
- Lorenzo-Romero, C. & Alarcon-Del-Amo, M. C. (2012). Segmentation of Users of Social Networking Websites. *Social Behavior and Personality*, 40(3), 401–414.
- Magidson, J. & Vermunt, J. K. (2002). Latent class models for clustering: A comparison with K-means. *Canadian Journal of Marketing Research*, 20(1), 36–43.
- Punj, G. & Stewart, D. W. (1983). Cluster Analysis in Marketing Research: Review and Suggestions for Application. *Journal of Marketing Research*, 20, 134–148.
- Rohm, A. J. & Swaminathan, V. (2004). A typology of online shoppers based on shopping motivations. *Journal of Business Research*, 57(7), 748–757.
- Schiffman, L. G., Hansen, H. & Kanuk, L. L. (2008). *Consumer behaviour: A European outlook*. 9th ed. Pearson Education.
- Schiffman, L. G. & Kanuk, L. L. (2004). *Nákupní chování*. [Consumer Behavior. In Czech.] Brno: Computer Press.
- Statista Online (2015). Total number of health and fitness clubs worldwide 2009 to 2014\* (in 1,000s), available at: <http://www.statista.com/statistics/275056/total-number-of-health-clubs-worldwide> (accessed 8 October 2015).
- Stewart, B., Smith, A. C. T. & Nicholson, M. (2003). Sport Consumer Typologies: A Critical Review. *Sport Marketing Quarterly*, 12(4), 206–216.
- Thompson, W. R. (2009). Worldwide survey reveals fitness trends for 2010. *ACSM's Health & Fitness Journal*, 13(6), 9–16.
- Vyncke, P. (2002). Lifestyle Segmentation: From Attitudes, Interests and Opinions, to Values, Aesthetic Styles, Life Visions and Media Preferences. *European Journal of Communication*, 17(4), 445–463.
- Vysekalová, J. et al. (2011). *Chování zákazníka – jak odkrýt tajemství "černé skříňky"*. [Consumer Behavior – how to unlock the secrets of the “black box”. In Czech.] Prague: Grada.

Josef Voráček  
voracek@ftvs.cuni.cz

CHARLES UNIVERSITY IN PRAGUE,  
FACULTY OF PHYSICAL EDUCATION AND SPORT<sup>1</sup>  
NATIONAL SPORTS ACADEMY, SOFIA, BULGARIA,  
DEPARTMENT THEORY OF SPORTS TRAINING<sup>2</sup>  
MEDICAL COMMISSION OF THE UNION INTERNATIONALE  
DES ASSOCIATIONS D'ALPINISME, BERN, SWITZERLAND<sup>3</sup>

## FOREARM MUSCLE OXYGENATION DURING SUSTAINED ISOMETRIC CONTRACTIONS IN ROCK CLIMBERS

JAN KODEJŠKA<sup>1</sup>, MICHAEL L. MICHAILOV<sup>2,3</sup>, JIŘÍ BALÁŠ<sup>1</sup>

### ABSTRACT

**Background.** Bouldering and lead climbing are divergent disciplines of the sport of rock climbing. Bouldering moves are short and powerful, whilst sport climbing is longer and require a greater degree of endurance.

**Aim.** The aim of this study was to compare forearm muscle oxygenation during sustained isometric contraction between lead climbers (LC) and boulderers (BO).

**Methods.** Eight BO and twelve LC completed maximal finger flexor strength test and sustained contractions to exhaustion at 60% of maximum voluntary contraction (MVC).

Differences between BO and LC in maximal strength, time to exhaustion, force time integral (FTI), and tissue oxygenation (SmO<sub>2</sub>) were assessed by t-test for independent samples.

**Results.** LC showed significantly lower level of average tissue oxygenation (BO 38.9% SmO<sub>2</sub>, *s* = 7.4; LC 28.7% SmO<sub>2</sub>, *s* = 7.1) and maximal tissue deoxygenation (BO 25.6% SmO<sub>2</sub>, *s* = 8.2; LC 13.5% SmO<sub>2</sub>, *s* = 8.5). LC demonstrated significantly lower finger flexor strength (519 N, *s* = 72) than BO (621 N, *s* = 142). LC sustained a longer time of contraction (not significantly) (BO 52.2 s, *s* = 11.5; LC 60.6 s, *s* = 13) and achieved a similar value of FTI (BO 17421 Ns, *s* = 4291; LO 17476 Ns, *s* = 5036) in the endurance test.

**Conclusions.** The results showed lower deoxygenation during sustained contraction in BO than LC despite similar FTI, indicating different local metabolic pathways in both groups.

**Keywords:** muscle oxygenation; isometric contraction; continuous test; sport climbing; bouldering; lead climbing

**DOI:** 10.14712/23366052.2015.31

### INTRODUCTION

Bouldering and lead climbing are divergent disciplines of the sport of rock climbing. Whilst both require participants to ascend routes, and are practiced indoors and outdoors, and both have increased in popularity as competitive and non-competitive activities during the last 20 years, there are several notable differences (discussed later in the text)



(Fanchini, Violette, Impellizzeri & Maffiuletti, 2013; Mermier, Robergs, McMinn & Heyward, 1997; Sheel, 2004). Bouldering is performed low to the ground, and movements are very gymnastic and powerful; problems are generally up to 4 meters high, and take around 30 seconds (Macdonald & Callender, 2011; White & Olsen, 2010). Conversely, lead climbing requires greater endurance, participants ascend longer routes that are generally around 15 meters, and take 2 to 7 minutes to complete (Watts, 2004). Climbing-related research in physiology has focused mainly on lead climbers (e.g. Grant, Hynes, Whittaker & Aitchison, 1996; Sheel, 2004; Watts, 2004). Very few studies have analysed the specificity of bouldering and lead climbing (e.g. Fanchini et al., 2013; Macdonald & Callender, 2011; Michailov, Mladenov & Schöffl, 2009; White & Olsen, 2010).

Climbing requires repeated isometric contractions of the finger flexors. Finger flexor endurance has been found to be closely related to lead climbing performance (Baláš, Pecha, Martin & Cochrane, 2012); whilst boulderers have been found to have greater relative finger flexor strength and rates of force development than lead climbers (Fanchini et al., 2013; Michailov et al., 2009). It is assumed that different forearm muscle adaptations are related to bouldering and lead climbing training.

Recently, the local oxidative capacity of the finger flexors has been assessed using near infrared spectroscopy (NIRS) (Fryer, Stoner, Lucero et al., 2015; Fryer, Stoner, Scarrott et al., 2015; MacLeod et al., 2007; Philippe, Wegst, Muller, Raschner & Burtscher, 2012). Greater climbing ability has been related to a greater degree of reoxygenation during intermittent handgrip contraction (Fryer, Stoner, Scarrott et al., 2015). The degree of reoxygenation was in close relationship with the test performance ( $R^2 = 0.41$ ) (MacLeod et al., 2007). During sustained handgrip contractions, lower grade climbers showed very low ability for tissue deoxygenation, while elite climbers achieved a very low level of tissue oxygen saturation ( $SMO_2$ ) at the end of contraction (Fryer, Stoner, Scarrott et al., 2015). As only lead climbers were assessed, these localised adaptations are only speculative in boulderers. As such, the aim of this study was to compare changes in the oxygenation of the finger flexor muscle, during an isometric contraction, between lead climbers and boulderers.

## METHODS

*Participants.* Twenty climbers participated (28.3 yrs,  $s = 6.7$ ; 71.2 kg,  $s = 8.6$ ; 177.5 cm,  $s = 6.5$ ). Climbers were recruited from local climbing clubs and were classified as advanced, based upon their self-reported red-point (RP) grade (Draper et al., 2015). Participants were divided into two groups according to their climbing discipline preferences (LC = 12; BO = 8) (Table 1). Informed consent was obtained from the participants, after a detailed description of the measurements was provided. Approval was granted by University Ethical Committee.

*Study design.* A single factor approach was selected in order to assess the differences between BO and LC. Participants first completed questionnaires concerning their ability level and climbing experience. Anthropometric measurements (body mass, height) and a standardised warm-up were then completed. The warm-up consisted of 5 mins of stair-walking, 5 mins traversing on the climbing wall and 5 mins individual intermittent hanging on a 23–30 mm deep wooden rung. After the warm-up, each participant performed

the maximal finger strength test. Following 10 mins of passive rest, participants then performed the sustained finger flexors contraction until exhaustion.

*Strength measurement.* A finger strength measurement device was used to assess the climbers' maximum finger strength and endurance (3D-SAC; National Sport Academy in Sofia in Bulgaria; Fig. 1). The 3D-SAC was configured with a 23 mm deep wooden hold with a radius of 12 mm (Amca, Vigouroux, Aritan & Berton, 2012; Baláš, Mrskoč, Panáčková & Draper, 2015), attached to a 3D force sensor (measuring range  $\pm 2$  kN, comprehensive accuracy 0.5%, sample rate 125 Hz). The intensity and duration of the effort and the rest intervals during each repetition were programmed into the device. Participants were provided with visual and acoustic signals whilst performing the test.

In order to maximise potential finger flexor activation the participant's arm was placed with 180° shoulder flexion and full elbow extension (Baláš, Panáčková, Kodejška, Cochrane & Martin, 2014). All measurements were undertaken in a seated position, with the shoulder of the tested arm placed vertically under the wooden hold (Fig. 1). If a climber was able to hold himself on one arm, a weight-vest of 10 kg was provided. Participants dried their hands using climbers' chalk (magnesium carbonate) before testing. The wooden hold was regularly brushed to provide the same friction conditions for all participants.

Maximal strength testing (MVC) was completed twice, separated by 2 mins rest. On presentation of an acoustic signal, climbers were asked to pull progressively on the hold, to load their maximal weight on to the tested arm for a period of 5 secs. They were verbally encouraged to achieve maximal effort. The highest value from the two trials was taken as their MVC for the following endurance tests. The endurance strength test was undertaken in the same position at 60% of MVC. As before, the test started on an acoustic signal, and the climbers had visual feedback to maintain the correct level of applied force. If the level of applied force dropped under 10% of target performance for more than one second, the test was automatically halted. For the purposes of statistical analysis, time within the target limits was taken as time of the test. Force time intergral (FTI) was calculated as average force applied on the hold in the target zone multiplied by total actual contraction time.



**Figure 1.** Special dynamometry – 3D-SAC for measurement finger flexor strength, body and finger position during the tests

*Muscle tissue oxygenation.* The flexor digitorum profundus (FDP) was monitored for the level of muscle tissue oxygenation during the contraction and recovery periods. FDP is the dominant flexor muscle used during open grip positions (Schweizer & Hudek, 2011) and is easily palpable at one third of the line between the medial epicondyle and the styloid process of the ulna (Fryer, Stoner, Scarrott et al., 2015). Near infrared spectroscopy (Moxy, Minnesota, USA) was used to assess muscle tissue oxygenation. Moxy measures the ratio of the oxyhemoglobin concentration to the total hemoglobin concentration in the muscle in real time and reports it as a percentage, which is indicated as muscle oxygen saturation or muscle oxygenation (SmO<sub>2</sub>) (Ferrari, Mottola & Quaresima, 2004; Quaresima, Lepanto & Ferrari, 2003). Data was stored and extracted from the internal memory of the device as a .csv file. An extraction programme written in R used the data points to plot the time constant upon which the oxygenation was determined.

*Data analysis.* All the variables met the assumption for normal distribution using Kolmogorov-Smirnov’s test. Descriptive statistics (mean, *s*) were used to characterise the level of strength, endurance and muscle oxygenation for all participants and ability subgroups. To assess statistical differences between LC and BO, t-test for independent samples was calculated. Statistical significance was set to  $P < 0.05$ . Cohen *d* was computed to estimate the effect size. The effect was interpreted as follows: 0.41 minimum practical effect, 1.15 moderate effect and 2.70 strong effect (Ferguson, 2009). The relationship between climbing specific strength to RP performance ability was assessed by Pearson correlation coefficient. All calculations were completed in Microsoft Excel and IBM SPSS for Windows (Version, 22, Chicago, IL, USA).

## RESULTS

Performance and anthropometric characteristics are shown in Table 1. LC have similar climbing ability RP in leading as BO. However BO performed higher in bouldering.

**Table 1.** Anthropometric and performance characteristic RP (red point) in boulderers and lead climbers. Data are represented as mean ± standard deviation.

Participants	Age (years)	Body mass (kg)	Height (cm)	RP leading IRCRA	RP boulder IRCRA
Boulderers (N = 8)	25.7 ± 7.9	71.5 ± 10.3	180.6 ± 6.4	18.1 ± 4.6	20.6 ± 5.6
Lead climbers (N = 12)	30.0 ± 5.6	71.1 ± 7.8	175.4 ± 5.9	17.8 ± 5.1	19.9 ± 4.7
Total (N = 20)	28.3 ± 6.7	71.2 ± 8.6	177.5 ± 6.5	17.9 ± 4.8	20.2 ± 4.9

BO performed significantly better in maximal finger strength than LC (Table 2). BO had on average by 102 N higher absolute strength and by 1.45 N.kg<sup>-1</sup> higher strength normalized to body mass than LC. LC sustained for longer (although not significantly) by 8.4 s than BO in the endurance test. FTI in LC was also similar to BO despite higher maximal strength of BO (Table 2). Significant differences were found between BO and LC in maximal deoxygenation and in average oxygenation. BO demonstrated a lower

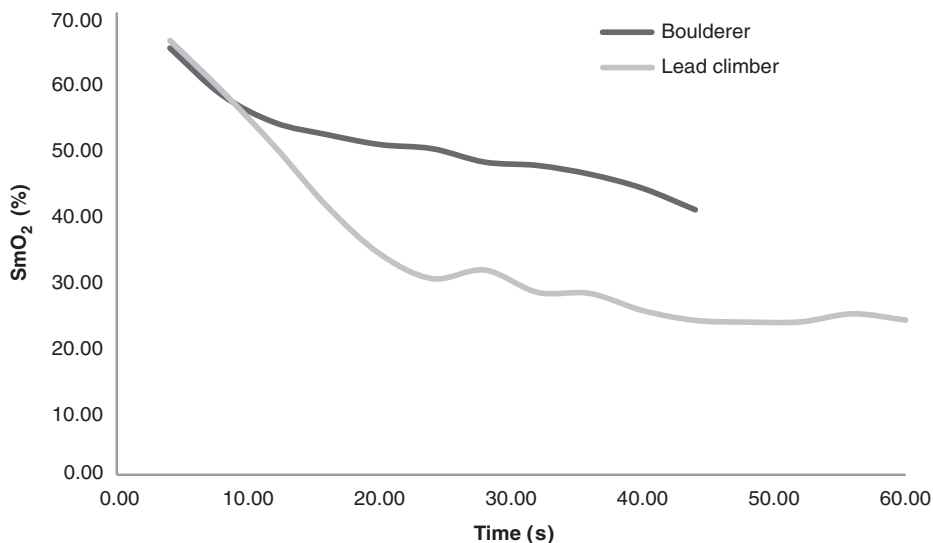
level of maximal deoxygenation (12.1% SmO<sub>2</sub>) than LC. Average SmO<sub>2</sub> in BO was by 10.2% higher than in LC, indicating a lower use of oxygen in BO during sustained contraction (Table 2).

**Table 2.**

Maximal strength test	Boulderers (N = 8)	Lead climbers (N = 12)	P	Cohen d
Finger strength (N)	621 ± 142	519 ± 72	0.046	0.97
Finger strength (N.kg <sup>-1</sup> )	8.82 ± 2.25	7.35 ± 1.18	0.072	0.87
Endurance test				
Deoxygenation max (% SmO <sub>2</sub> )	25.6 ± 8.2	13.5 ± 8.5	0.005	1.46
Oxygenation avg (% SmO <sub>2</sub> )	38.9 ± 7.4	28.7 ± 7.1	0.006	1.41
Test time (s)	52.2 ± 11.5	60.6 ± 13.0	0.152	0.68
FTI (N.s)	17421 ± 4291	17476 ± 5036	0.980	0.01
FTI (N.s.kg <sup>-1</sup> )	250 ± 80	249 ± 74	0.977	0.01

Deoxygenation max – the highest deoxygenation; Oxygenation avg – average oxygenation during the test; Test time – time of contact between the fingers and hold at 60% ± 10% MVC; FTI – Force time integral.

Figure 2 shows the typical decline of muscle tissue oxygenation during sustained contraction in BO and LC. Typically, differences between LC and BO are evident after ~10 s of isometric contraction. A significant correlation was found between the RP performance of lead climbing and maximal ( $R^2 = 0.37$ ) relative strength ( $R^2 = 0.49$ ), FTI ( $R^2 = 0.36$ ) and FTI related to body mass ( $R^2 = 0.44$ ).



**Figure 2.** Muscle tissue oxygenation of flexor digitorum profundus during sustained contraction; BO – typical boulderer, LC – typical lead climber

## DISCUSSION

The main aim of the study was to compare changes in the oxygenation of the finger flexor muscle, during an isometric contraction, between LC and BO. LC were able to deoxygenate the FDP to a greater extent than BO during sustained contraction, and this difference occurred despite similar ability and performance characteristics (time to exhaustion, FTI). According to these results, it is suggested that these differences are due to climbing discipline-specific finger flexor adaptations. Previous research (Fryer, Stoner, Scarrott et al., 2015) has suggested that there are no differences in the macrovascular structure of the finger flexors between ability groups, although microvascular adaptations have been reported (Thompson, Farrow, Hunt, Lewis & Ferguson, 2014). Moreover, experienced climbers have been shown to be able to deoxygenate the FDP to a greater extent than their lower grade counterparts (Fryer et al., 2014; Fryer, Stoner, Scarrott et al., 2015; Fryer et al., 2015). In addition to ability-differentiated differences in the microvascular structure of the forearms of climbers seen previously, the present study shows that there are discipline-specific adaptations. Further, this also suggests that these metabolic and structural adaptations are trainable characteristics.

Adaptations to the finger flexors of LC and BO occur in order to meet the differing metabolic demands of the two disciplines. Leading a route generally lasts for 2–7 minutes, where contact time with the hold is around 10 s and time to relief ratio varies from 3 : 1 to 7 : 1 (Michailov, 2014; Watts, 2004). Whilst time of boulder ascent lasts for ~30 s, contact time between the fingers and holds is ~8 s and time to achieve the next hold is ~0.6 s (White & Olsen, 2010). From the time motion description, it is speculated that LC places greater demands on aerobic metabolic pathways. Conversely, bouldering encompasses very short relief phases during the hand transfer, and so limited vascular vasodilatation and low blood flow may occur. Therefore, greater demands on local anaerobic pathways are to be expected. The results of the current study are in agreement with this suggestion, as BO demonstrated a lower local capacity to use oxygen during sustained contraction than lead climbers.

Several authors have observed a greater degree of deoxygenation and reoxygenation of forearm muscles during intermittent handgrip contraction with increasing climbing ability (Fryer, Stoner, Lucero et al., 2015; MacLeod et al., 2007; Philippe et al., 2012). The reoxygenation occurred during a 2 s phase of the relief phase of the intermittent contraction and was attributed to higher adaptive vascular capacity of lead climbers, such as capillary density and O<sub>2</sub> permeability (Fryer, Stoner, Lucero et al., 2015). During sustained contraction, Fryer et al. (2015) found significant differences between climbing ability groups in oxygenation drop in lead climbers (non-climbers 32%, intermediate 34.3%, advanced 42.8%, elite 63.1%), although all groups did very similar work (FTI). The authors attribute the results to vascular adaptation on training and point out the higher use of oxygen in the forearm muscle even under high vascular occlusion.

There were no differences in time to exhaustion between BO and LC. This finding is in agreement with other authors, who confirmed that the time of sustained contraction at the same intensity of MVC is not a suitable indicator to assess local endurance in climbers (Ferguson & Brown, 1997; Fryer, Stoner, Scarrott et al., 2015; MacLeod et al., 2007). The time

to exhaustion in the current study was substantially lower than in other studies (92.6-1412 s) because of the higher intensity (60% MVC) than previously used (40% MVC) (Fryer, Stoner, Scarrott et al., 2015; MacLeod et al., 2007; Philippe et al., 2012). In the current study, BO demonstrated similar FTI as LC during the sustained contraction. FTI is a very useful indicator of endurance performance in the intermittent contraction as it differentiates very well between climbing ability groups (MacLeod et al., 2007; Philippe et al., 2012). However, its use in sustained contraction testing to differentiate climbing ability is speculative (Fryer, Stoner, Scarrott et al., 2015) and it is unsuitable in differentiating BO from LC.

The present study provides a new understanding regarding discipline-specific adaptations within the finger flexors of BO and LC. However, there are at least two limitations of the study: 1) climbers self-selected into the BO or LC groups according to their preferences; 2) climbers were of varying climbing abilities, and it is acknowledged that climbing difficulty level and other factors such as gender, general fitness, motivation and training status may also influence muscle oxygenation. Future studies should evaluate local adaptations after specific training programmes to understand specific local adaptations on intermittent and sustained contractions. The authors acknowledge that the results cannot be generalised, as the sample size in both groups was limited and covered a wide range of ability level.

## CONCLUSION

To conclude, the main finding of this study was that LC were able to deoxygenate the FDP to a greater extent than BO during a sustained contraction at 60% of MVC, and this difference occurred despite similar time to exhaustion and FTI. This represents a discipline-specific adaptation to the FDP, associated with lower local aerobic capacity in BO, and conversely greater capacity in LC. Moreover, BO demonstrated higher climbing specific maximal strength than LC. Coaches and climbers might therefore use bouldering and lead climbing for specific metabolic adaptations of forearm muscles.

## ACKNOWLEDGEMENTS

This study was written within the Programme for the Development of Fields of Study at Charles University, No. P38 Biological aspects of the investigation of human movement. The authors have no conflict of interest in connection with this paper. The authors thank David Giles and Simon Fryer for their special comments and English correction, and National Sports Academy for a support.

## REFERENCES

- Amca, A. M., Vigouroux, L., Aritan, S. & Berton, E. (2012). Effect of hold depth and grip technique on maximal finger forces in rock climbing. *Journal of Sports Sciences*, 30(7), 669–677.
- Baláš, J., Mrskoč, J., Panáčková, M. & Draper, N. (2015). Sport-specific finger flexor strength assessment using electronic scales in sport climbers. *Sports Technology*, 7(3–4), 151–158.

- Baláš, J., Panáčková, M., Kodejška, J., Cochrane, D. & Martin, A. J. (2014). The role of arm position during finger flexor strength measurement in sport climbers. *International Journal of Performance Analysis in Sport*, 14(2), 345–354.
- Baláš, J., Pecha, O., Martin, A. J. & Cochrane, D. (2012). Hand-arm strength and endurance as predictors of climbing performance. *European Journal of Sport Science*, 12(1), 16–25.
- Draper, N., Giles, D., Schöffl, V. et al. (2015). Comparative grading scales, statistical analyses, climber descriptors and ability grouping: International Rock Climbing Research Association Position Statement. *Sports Technology*. doi: 10.1080/19346182.2015.1107081
- Fanchini, M., Violette, F., Impellizzeri, F. M. & Maffiuletti, N. A. (2013). Differences in climbing-specific strength between boulder and lead rock climbers. *Journal of Strength and Conditioning Research*, 27(2), 310–314.
- Ferguson, C. J. (2009). An Effect Size Primer: A Guide for Clinicians and Researchers. *Professional Psychology: Research and Practice*, 40(5), 532–538.
- Ferguson, R. A. & Brown, M. D. (1997). Arterial blood pressure and forearm vascular conductance responses to sustained and rhythmic isometric exercise and arterial occlusion in trained rock climbers and untrained sedentary subjects. *European Journal of Applied Physiology & Occupational Physiology*, 76(2), 174–180.
- Ferrari, M., Mottola, L. & Quaresima, V. (2004). Principles, techniques, and limitations of near infrared spectroscopy. *Canadian Journal of Applied Physiology-Revue Canadienne De Physiologie Appliquee*, 29(4), 463–487.
- Fryer, S., Stoner, L., Lucero, A. et al. (2015). Haemodynamic kinetics and intermittent finger flexor performance in rock climbers. *International Journal of Sports Medicine*, 36(2), 137–142.
- Fryer, S., Stoner, L., Scarrott, C. et al. (2015). Forearm oxygenation and blood flow kinetics during a sustained contraction in multiple ability groups of rock climbers. *Journal of Sports Sciences*, 33(5), 518–526.
- Fryer, S. M., Stoner, L., Dickson, T. G. et al. (2015). Oxygen Recovery Kinetics in the Forearm Flexors of Multiple Ability Groups of Rock Climbers. *The Journal of Strength & Conditioning Research*, 29(6), 1633–1639.
- Grant, S., Hynes, V., Whittaker, A. & Aitchison, T. (1996). Anthropometric, strength, endurance and flexibility characteristics of elite and recreational climbers. *Journal of Sports Sciences*, 14(4), 301–309.
- Macdonald, J. H. & Callender, N. (2011). Athletic Profile of Highly Accomplished Boulderers. *Wilderness & Environmental Medicine*, 22(2), 140–143.
- MacLeod, D., Sutherland, D. L., Buntin, L. et al. (2007). Physiological determinants of climbing-specific finger endurance and sport rock climbing performance. *Journal of sports sciences*, 25(12), 1433–1443.
- Mermier, C. M., Robergs, R. A., McMinn, S. M. & Heyward, V. H. (1997). Energy expenditure and physiological responses during indoor rock climbing. *British Journal of Sports Medicine*, 31, 224–228.
- Michailov, M. (2014). Workload characteristics, performance limiting factors and methods for strength and endurance training in rock climbing. *Medicina Sportiva*, 18(3), 97–106.
- Michailov, M., Mladenov, L. & Schöffl, V. (2009). Anthropometric and strength characteristics of world-class boulderers. *Medicina Sportiva*, 13(4), 231–238.
- Philippe, M., Wegst, D., Muller, T., Raschner, C. & Burtcher, M. (2012). Climbing-specific finger flexor performance and forearm muscle oxygenation in elite male and female sport climbers. *European Journal of Applied Physiology*, 112(8), 2839–2847.
- Quaresima, V., Lepanto, R. & Ferrari, M. (2003). The use of near infrared spectroscopy in sports medicine. *Journal of Sports Medicine and Physical Fitness*, 43(1), 1–13.
- Schweizer, A. & Hudek, R. (2011). Kinetics of Crimp and Slope Grip in Rock Climbing. *Journal of Applied Biomechanics*, 27(2), 116–121.
- Sheel, A. W. (2004). Physiology of sport rock climbing. *British Journal of Sports Medicine*, 38, 355–359.
- Thompson, E., Farrow, L., Hunt, J., Lewis, M. & Ferguson, R. A. (2014). Brachial artery characteristics and microvascular filtration capacity in rock climbers. *European Journal of Sport Science*, 15(4), 296–304.
- Watts, P. B. (2004). Physiology of difficult rock climbing. *European Journal of Applied Physiology*, 91, 361–372.
- White, D. J. & Olsen, P. D. (2010). A time motion analysis of bouldering style competitive rock climbing. *Journal of Strength & Conditioning Research*, 24(5), 1356–1360.

CHARLES UNIVERSITY IN PRAGUE,  
FACULTY OF PHYSICAL EDUCATION AND SPORT,  
DEPARTMENT OF SPORT GAMES

## **A COMPARISON OF SERVICE EFFICIENCY BETWEEN PLAYERS OF MALE AND FEMALE DOUBLES AT PROFESSIONAL TENNIS TOURNAMENTS**

JAN CARBOCH, TOMÁŠ KOČÍB

### ABSTRACT

Male and female players have a different quality of service. For example, men can reach a higher service speed, or use more ball spin. Tennis service has also a different efficiency on different surfaces. Every surface has specific characteristics and has different effects on ball impact and ball bounce. The aim of our study was to compare the amount of service points won between male and female players in men's and women's doubles at ATP (Association of Tennis Professionals) and WTA (Women Tennis Association) tournaments on three different surfaces. We observed a total of 303 matches. Matches were played on clay, hard and grass courts. With the help of match records, we found that men won around 10% service points more than women. Results indicate that women's doubles matches show greater differences in performance between opponents. Men also need to win more service points than women, to win a match. Fast surfaces provide a greater advantage for serving teams, both for men and women. The lowest serve efficiency was reached on clay (slow surface) both in the men's and women's doubles.

**Keywords:** tennis; serve; surface; men; women; ATP; WTA

**DOI:** 10.14712/23366052.2015.32

### INTRODUCTION

The service is the most frequent stroke in tennis singles, representing 45% (French Open) to 60% (Wimbledon) of the total number of strokes in a match (Johnson et al., 2006; O'Donoghue & Ingram, 2001). In doubles matches the service is one of the most decisive factors; so the serving players should aim to win their service games. However, the receiving team is also trying to be as successful as possible. Return of service is therefore also one of the most important game activities of an individual. Even on the slowest surface (clay courts), serving and returning remain strokes that largely influence the result of a match (Gillet et al., 2009).



The main difference between singles and doubles is that ball placement is more important in doubles. Two players on each end of the court mean less space, in which to hit the ball (Cayer, 2004). Carboch (2007) argues that, over the last 20 years, the doubles game has changed. Ball speed in rallies is higher, which makes net play activities (i.e. approach volleys and volleys) more difficult (Black & Van de Braam, 2012). Therefore, less net play activity occurs in doubles compared to previous years, and we see more strokes from the baseline. This is especially true in women's doubles (Black & Van de Braam, 2012; Carboch, 2007). According to Cayer (2004) doubles partners must know each other. The basic tactic is to maximize the partner's strength and to minimize his or her potential weaknesses. Scoring in doubles is similar to that in singles. However, on the international level, the doubles is played with "No-Ad" scoring (i.e. if the score comes to "deuce" in the game, the following point determines the game winner). Also, the final set is played as a "Match Tie-break" till 10 points (ITF, 2012).

The quality of the team and its success is determined not only by the sum of the qualities of both partners, but also by their mutual communication, supplementation and complementation during the match (Kočíb & Matějka, 2008). When a player hits the ball, he must consider what the position of his opponents and his partner is. Tactics in doubles is more complicated than in singles. In doubles the player reacts to the actions of three other players. The fundamental difference from singles is that, in doubles, in addition to individual game activities, there are also various forms of cooperation between partners (Kočíb & Matějka, 2008).

Women's service doesn't reach such velocities as the men's service. The reasons for the lower motor performance of women are determined by the size, composition and structure of a woman's body. The relatively narrower shoulders, wider hips, shorter limbs and lower centre of gravity means less favorable biomechanical prerequisites for many physical activities. Women also have less muscle mass, on which depends the maximum force that can be developed (Crespo & Miley, 2002).

Carboch (2007) says that service and return constitute 56% of all strokes in men's doubles; and 42% in women's doubles. Ball flight duration from the server to receiver is between 0,5–1,2 s depending on the quality of service, its initial velocity and the court surface (Dunlop, 2000; Kleinöder, 1997). Kleinöder (2001) reported the average time of ball flight after the service on a clay court, which was 913 ms during the first service and 1158 ms during the second service. However on a hard court (faster surface), the average time of the first service was 720 ms and 868 ms of the second service. A faster surface provides much less time to respond, and serving on faster surfaces becomes an even greater advantage. Filipic et al. (2011) argue that match records, such as umpires' scorecards, may provide valuable information for scientist, coaches and players.

The aim of our study was to compare the amount of service points won between male and female professional players in men's and women's doubles at ATP and WTA tournaments on three different surfaces.

## METHODS

We compared service points in men's and women's doubles matches on the three basic surfaces, on which professional tennis tournaments are played, i.e. clay, hard court

and grass surfaces. We analyzed altogether 303 doubles matches from professional tournaments. There were 153 matches from the ATP circuit tournaments (51 matches played on clay, 51 on hard court and 51 on grass). Another 150 matches were played on WTA circuit tournaments (51 on clay, 51 on hard court and 48 on grass). We randomly chose four tournaments on each surface. We observed all normally finished matches, and excluded unfinished matches. We used median (Mdn) to determine the mean value of players' doubles ranking in observed matches, and to determine degree of variance we used quartile deviation (Q). In all 153 ATP matches, the median player ranking was Mdn = 42 (Q = 28). In 48 matches played on a grass surface, the players median ranking Mdn = 51.5 (Q = 33); in 51 matches on a hard surface Mdn = 38 (Q = 20); and in 51 matches on a clay surface Mdn = 50 (Q = 31). On grass courts a total of 5,914 points were played. On hard courts 6,290 points were played and on a clay surface 6,075 points were played.

In 150 WTA matches the median of players' ranking was Mdn = 68 (Q = 38). In 48 matches played on a grass surface the players' ranking was Mdn = 68.5 (Q = 39); in 51 matches on a hard surface Mdn = 58 (Q = 28.5); in 51 matches played on a clay surface Mdn = 79.5 (Q = 48.5). On grass courts a total of 5,448 points were played. On hard courts 5,891 points and on a clay surface 5,672 points.

Data was obtained through official statistical records of each match available online (Protennislive, 2014), where the chair umpire always marked points on an electronic match record through a PDA device. Data evaluation was carried out using descriptive statistics and using analysis of variance (ANOVA) and post-hoc analysis (Tukey's HSD) and independent samples t-tests. The significance level was  $\alpha = 0.05$ .

## RESULTS

Altogether, men played 18,538 points (average per match 121.2), which is more points per match compared to women. Women played 17,011 points (average per match 114.2). Detailed average scores on different surfaces are shown in table 1.

**Table 1.** Average number of total points per match

	<b>Grass court</b>	<b>Hard court</b>	<b>Clay court</b>
Men	121.0	123.3	119.1
Women	113.5	115.5	111.2

Both in men's and women's doubles, the number of points won during own service reached the highest success on a grass surface (table 2). The lowest number of points gained during own service was reached on a clay surface. An independent-samples t-test was conducted to compare men's service efficiency and women's service efficiency. There was a significant difference in the scores for men's service efficiency M = 66.2% (SD = 8.82) and women's service efficiency M = 57.2% (SD = 9.35);  $t(604) = 12.2$ ;  $p < 0.001$ . These results suggest that men's service is more efficient during the match, which means that, it is more difficult to win a game as a receiving team in men's doubles.

**Table 2.** Average percentage of service points won on different surfaces

	<b>Grass court</b>	<b>Hard court</b>	<b>Clay court</b>
Men	68.9%	66.1%	63.5%
Women	58.8%	57.0%	55.8%

Differences among surfaces and gender were analyzed by analysis of variance. There was a statistically significant difference between groups as determined by one-way analysis of variance  $F(5.600) = 35.7, p < 0.001$ . A Tukey HSD post-hoc test revealed that on grass surface, men's service efficiency was significantly higher ( $M = 68.9\%$ ,  $SD = 8.17$ ) than women's service efficiency ( $M = 58.8\%$ ,  $SD = 9.37$ );  $p < 0.001$ . Similar findings occurred on hard courts. Men's service efficiency was significantly higher ( $M = 66.1\%$ ,  $SD = 8.24$ ) than women's service efficiency ( $M = 57.0\%$ ,  $SD = 9.00$ );  $p < 0.001$ . On a clay surface, men's service efficiency was also significantly higher ( $M = 63.5\%$ ,  $SD = 9.23$ ) compared to women ( $M = 55.8\%$ ,  $SD = 9.53$ );  $p < 0.001$ .

Analysis of match winners and losers showed that most service points won was achieved on grass courts (see table 3). An independent-samples t-test compared men's service efficiency and women's service efficiency of winners only. There was a significant difference in the scores for men's service efficiency  $M = 71.3\%$  ( $SD = 5.98$ ) and women's service efficiency  $M = 63.1\%$  ( $SD = 7.38$ );  $t(286.274) = 10.63$ ;  $p < 0.001$ . Analysis of variance of winning teams' service points won of the revealed a significant main effect between groups  $F(5.297) 28.63, p < 0.001$ . Post-hoc tests showed a significant effect between genders on grass (men  $M = 73.7\%$ ,  $SD = 5.47$ ; women  $M = 65.3\%$ ,  $SD = 6.49$ )  $p < 0.001$ ; on hard courts (men  $M = 71.3\%$ ,  $SD = 5.47$ ; women  $M = 62.1\%$ ,  $SD = 7.46$ )  $p < 0.001$ ; and on clay (men  $M = 68.8\%$ ,  $SD = 6.04$ ; women  $M = 58.6\%$ ,  $SD = 7.74$ )  $p < 0.001$ . This shows that men have to win more service points to win the match.

**Table 3.** Winners' and losers' percentage of service points won

	<b>Winners</b>	<b>Losers</b>	<b>Winners</b>	<b>Losers</b>	<b>Winners</b>	<b>Losers</b>
	Grass court		Hard court		Clay court	
Service points won – men	<b>73.7%</b>	<b>64.2%</b>	<b>71.4%</b>	<b>60.8%</b>	<b>68.8%</b>	<b>58.2%</b>
Min. – men	61%	43%	60%	39%	54%	31%
Max. – men	83%	78%	87%	78%	82%	72%
Service points won – women	<b>65.3%</b>	<b>52.3%</b>	<b>62.1%</b>	<b>51.8%</b>	<b>61.9%</b>	<b>49.8%</b>
Min. – women	54%	31%	46%	32%	44%	30%
Max. – women	80%	66%	80%	70%	82%	63%

We also analyzed losing teams. Overall, losers won less service points than winners. Independent-samples t-test compared service efficiency of both men and women losers. There was a significant difference in the scores for men's service efficiency  $M = 61.1\%$  ( $SD = 8.24$ ) and women's service efficiency  $M = 51.3\%$  ( $SD = 7.11$ );  $t(296.288) = 11.11$ ;  $p < 0.001$ . Analysis of variance of service points won of the losing teams revealed a significant main effect between groups  $F(5.297) 29.87, p < 0.001$ . Post-hoc tests showed a significant effect between genders

on grass (men M = 64.2%, SD = 7.69; women M = 52.3%, SD = 6.97)  $p < 0.001$ ; on hard surface (men M = 60.8%, SD = 7.10; women M = 51.8%, SD = 7.29)  $p < 0.001$ ; and on clay (men M = 58.2%, SD = 8.80; women M = 49.8%, SD = 6.96)  $p < 0.001$ . That means that men won significantly more service points than women on all the surfaces.

Table 4 shows that the most service points to win a match is required on grass courts and the least points on clay. Men recorded a smaller difference between winners and losers of average service points won than women. This indicates that men's doubles show greater differences in performance between opponents than women's doubles, on all the surfaces. It also means that women's matches are shorter according to points played during the match. The lowest value recorded is of losers in women's doubles (28.1 – which equals a team winning a maximum of 7 games per match on their own service). However, the actual number of service games won is even smaller in most of the matches, because some of the service points won were reached in games won by the opponents.

**Table 4.** Average number of service points won per match on different surfaces

	Winners	Losers	Winners	Losers	Winners	Losers
	Grass court		Hard court		Clay court	
Service points won per match – men	44.1	40.0	42.5	39.6	40.4	35.0
Service points won per match – women	36.3	30.2	35.3	30.5	34.2	28.1

## DISCUSSION

We observed altogether 303 doubles matches on three different surfaces of ATP and WTA tournaments. The results showed significant differences between men's and women's service efficiency. In general, men win 8–10% service points more than women. The reasons for this are that men can serve faster and have better accuracy of service placement. Men are also able to use their supremacy after their service (net approach, poaching, etc.). Even though men have a better return reaction compared to women, it doesn't compensate the receivers for the advantage of the service. The results shows that grass and hard surface increase the service advantage of both men and women. The clay court differences of service points won are from 1.2% (women, clay vs. hard) to 5.4% (men, clay vs. grass). Katić et al. (2011) compare efficiency at Grand Slams (i.e. French Open (clay) and Wimbledon (grass)) in singles matches. Similar to our findings, they show that the percentage of service points won is around 65%.

The greatest differences of service points won between winners and losers are in women's matches on grass courts (13.0%) and clay courts (12.1%). In men's matches it is around 10%. The differences of service points won between the winners and losers confirm that the service gives a greater advantage to men than to women. An interesting fact is that even 78% (in men's matches) of service points won was not enough to win the match (70% in case of women's matches). However, in some of the women's doubles it was enough to win only less than 50% of service points and still win the match. This has occurred only in women's doubles.

Katić et al. (2011) showed the differences in service efficiency between the winners and the losers at Wimbledon and the French Open. They indicate that, in singles matches

at Wimbledon, the winners won 72% service points and the losers 59%. In the French Open it was 70% of service points won for the winners and 58% for the losers. These are similar results, but on the grass courts we obtained slightly higher numbers, especially the grass court losers, who won 64.2% of service points. We assume that the service gives greater advantage to serving teams in doubles on fast surfaces, and on clay surface the singles service efficiency is similar to doubles.

In another study Filipčič et al. (2008) found that in singles matches played on clay courts, men winners won 70% of service points and losers 57%. However, in women's singles matches the winners reached 68% of service points won, and the losers only 53%. The findings of the men's service points won are almost the same as we showed. However, in women's matches, service points' efficiency on clay courts is much higher in singles than in doubles. This means that the service provides a greater advantage on clay courts in women's singles than in women's doubles.

Cross & Pollard (2009) report that most aces and most games per set is achieved in Wimbledon (grass surface). In our case, we can only compare average points per match, as in doubles the final set is played as a Match Tie-break, which is different from singles matches. There were also differences between men's and women's doubles. On average, 7 points more per match are played in men's doubles matches, and also men need to win more service points. This means that women's doubles matches show greater differences in performance between opponents. In men's doubles, it is faster serving that is the advantage, but also their better return – these factors influence the statistical numbers in both directions. The serve on different surfaces has influence on the outcome of the match. We suggest that players should practice serving and returning during preparation even more when they expect to play on hard and grass surfaces.

## CONCLUSION

The aim of our study was to compare the amount of service points won between male and female players in men's and women's tennis doubles at ATP and WTA tournaments on three different surfaces. The efficiency of men's service is about 10% higher compared to women. Men's doubles show smaller differences in performance between opponents. Compared to women's doubles as men's matches are in the average 7 points longer. Men also need to win more service points than women. The difference of service points won between the losers and winners was greater in women's matches. Fast surfaces provide a greater advantage for serving teams, both for men and women. Therefore it is important to practice serve and return strokes prior to playing matches on these surfaces. The lowest serve efficiency was reached on a clay (slow surface) both in the men's and women's doubles.

## ACKNOWLEDGMENTS

This project was supported by PRVOUK P38.

## REFERENCES

- Black, W. & Van de Braam, M. (2012). The modern game of doubles: a tactical perspective. *ITF coaching and Sport Science Review*, 56(20), 13–14.
- Carboch, J. (2007). Taktika a trénink čtyřhry mužů a žen v tenise. In: Landa, P. & Šmidová, J. (Eds.) *Sport a věda 2007. Sborník mezinárodní studentské vědecké konference Věda v pohybu pohyb ve vědě*. Prague, 11. April 2007. Prague: UK FTVS, 9–11. (In Czech)
- Cayer, L. (2004). *Doubles tennis tactics*. Champaign, IL: Human Kinetics.
- Crespo, M. & Miley, D. (2002). *Tenisový trenérský manuál 2. stupně: pro vrcholové trenéry*. Olomouc: Univerzita Palackého v Olomouci. (In Czech)
- Cross, R. & Pollard, G. (2009). Grand Slam men's singles tennis 1991–2009 serve speeds and other related data. *ITF Coaching and Sport Science Review*, 16(49), 8–10.
- Dunlop, J. I. (2000). Characterizing the service bouncing using a speed gun. In: Haake, S. J. & Coe, A. (Eds.) *Tennis Science & Technology*. Oxford: Blackwell Science, 183–190.
- Filipčič, A., Caks, K. K. & Filipčič, T. (2011). A comparison of selected match characteristics of female tennis players. *Kinesiologia Slovenica*, 17(2), 14–24.
- Filipčič, T., Filipčič, A. & Berendijas, T. (2008). Comparison of game characteristics of male and female tennis players at Roland Garros 2005. *Acta Universitatis Palackianae Gymnica*, 38(3), 21–28.
- Gillet, E., Leroy, D., Thouwarecq, R. & Stein, J. F. (2009). A notational analysis of elite tennis serve and serve-return strategies on slow surface. *Journal of Strength & Conditioning Research*, 23(2), 532–539.
- ITF (2012). *ITF Rules of tennis 2012*. London: ITF Ltd.
- Johnson, C. D., McHugh, M. P., Wood, T. & Kibler, W. B. (2006). Performance demands of professional male tennis players. *British Journal of Sports Medicine*, 40(8), 696–699.
- Katić, R., Milat, S., Zagorac, N. & Durović, N. (2011). Impact of game elements on tennis match outcome in Wimbledon and Roland Garros 2009. *Collegium Antropologicum*, 35(2), 341–345.
- Kleinöder, H. (1997). The return of serve. In: *ITF Special Newsletter – Edition on Biomechanics*.
- Kleinöder, H. (2001). The return of serve. *ITF Coaching & Sport Science Review*, 2, 5–6.
- Kočíb, T. & Matějka, J. (2008). Taktika a herní pojetí tenisové čtyřhry u dorostu a dospělých. In: Dovalil, J. & Chalupěcká, M. (Eds.) *Současný sportovní trénink: sborník příspěvků z konference*. Prague, 23. January 2008. Prague: Olympia, 151–155. (In Czech)
- O'Donoghue, P. & Ingram, B. (2001). A notation analysis of elite tennis strategy. *Journal of Sports Sciences*, 19(2), 107–115.
- Protennislive (2014). ATP WTA official live scores web application [online]. Retrieved 29. October, 2014 (last access) from <http://www.protennislive.com/LSHD/main.html?year=2015&wkno=99&eventid=&tour=1&lang=en&ref=http://www.atpworldtour.com>.

Jan Carboch  
carby@post.cz

CHARLES UNIVERSITY IN PRAGUE,  
FACULTY OF PHYSICAL EDUCATION AND SPORT,  
DEPARTMENT OF SPORT GAMES<sup>1</sup>  
SPECTRUM INSTITUTE FOR TEACHING AND LEARNING, USA<sup>2</sup>

## **SPECTRUM OF TEACHING STYLES IN THE CZECH REPUBLIC**

JANA ŠAFAŘÍKOVÁ<sup>1</sup>, MARTIN TŮMA<sup>1</sup>, SARA ASHWORTH<sup>2</sup>

### **ABSTRACT**

The AIESEP International Conference, June 9–12, 2016, sponsored by the University of Wyoming in Laramie, will celebrate the 50th anniversary of the “Spectrum of Teaching Styles”. Although this pedagogical theory was first published in 1966 by Muska Mosston, it has continuously influenced and internationally contributed to the field of Physical Education. The 50th anniversary celebration is an appropriate occasion to briefly acknowledge the history of the Spectrum’s international journey. The following historical account acknowledges the introduction and influence of the Spectrum in the former Czechoslovakia, beginning in 1971 and continuing into the Czech Republic era.

The first section of this article acknowledges the contributions of the Spectrum and its international acceptance. The second section focuses on Prague and the active role of the many scholars who studied, implemented, and researched the Spectrum. The third section presents some teaching style research results conducted by Faculty of Physical Education and Sport, Charles University (UK FTVS).

**Keywords:** rise and development of Spectrum of Teaching Styles; Spectrum Institute for Teaching and Learning; research; unifying model

**DOI:** 10.14712/23366052.2015.33

### **INTRODUCTION**

In 1971 Lubomír Dobrý, professor of kinanthropology, found a book in Paris that intuitively interested him. His interest quickly led him and his colleagues Svatoň, Šafaříková and Marvanová from the Faculty of Physical Education, Charles University in Prague (UK FTVS), to become the leading scholars in the study, implementation, and research effects of the Spectrum in the Czech Republic. Dobrý and his colleagues realized that the Spectrum theory had particular characteristics that differentiated it from other pedagogical theories.

## **The Spectrum of Teaching Styles**

**The Spectrum** was authored by Muska Mosston in the early 1960's and in 1969 he partnered with Sara Ashworth. The idea of the Spectrum grew from Mosston's frustration with the 'fragmentation' he found in education, and with the notion that different teaching approaches were being touted as the 'best' by various authors. The Spectrum theory did not approach teaching from this VERSUS approach (meaning – pitting one teaching style against another to determine the 'best' approach) but rather Mosston's Spectrum presented a comprehensive framework for understanding the teaching/learning process, and offered a systematic range of teaching approaches with discrete contributions to and opportunities for learning.

This NON-VERSUS approach to pedagogical alternatives is one of the most significant contributions of the Spectrum of Teaching Styles. Its universal and unifying framework provides a model for studying and implementing the elusive art and science of teaching.

Mosston observed that all teaching styles stem from the initial basic premise that teaching is 'a chain of decision making'. Each teaching style comprises a specific set of decisions and all styles can be arranged on a continuum from minimal to maximum decision making by either the teacher or the learner. This approach to the study of teaching was novel in that the options along the continuum not only presented the range of significantly different teaching options, but also they highlighted the inherent learning opportunities of each landmark teaching style. This approach reduces idiosyncratic preferences and fads as the bases for understanding teaching and moves the conversation about pedagogy to the structure and process in teaching.

The theory of the Spectrum delineates a gradual shift of specific decisions from the teacher to the learner. A different landmark style is identified when a specific cluster of decisions is shifted to produce a significantly different learning opportunity. The pedagogical intent of the Spectrum is that teachers will develop a repertoire of teaching-learning behaviours that they can implement in the classroom to maximize learning opportunities. Additionally, the decision structure allows for the designing of new alternatives to meet content and behaviour needs. The opportunities for pedagogical research are unlimited with the Spectrum.

### **International support of the Spectrum**

The Colleagues page on the Spectrum Institute's website was created to acknowledge the contributions of the hundreds of professors, teachers, students, and scholars from around the world who have continued to use and expand the theory of the Spectrum. Without the involvement of these colleagues the Spectrum would be a static theory on the library shelf. These colleagues have given life to the Spectrum framework.

See the Around the World map on the website for an overview of the countries where the Spectrum of teaching styles is known, studied, researched and used in schools and universities (<http://www.spectrumofteachingstyles.org>). For example: Australia, Brazil, Bulgaria, Canada, Cyprus, China, Finland, France, Greece, Jordan, Netherland, Scotland, South Africa, South Korea, Taiwan, Turkey, United Kingdom. A generous amount of publications, bibliografic references etc. is available.



For additional information about the history and the international use of the Spectrum go to the Spectrum of Teaching Styles.org website: <http://www.spectrumofteachingstyles.org>.

### **The international support of the Spectrum in Prague**

The Spectrum of teaching styles has been known in Czechoslovakia for a long time (from 1993 in the Czech Republic). The professor of kinanthropology Dobrý, Svatoň, Šafaříková and Marvanová from UK FTVS, were the first to be acquainted not only with the Spectrum book, but also personally with the authors of the Spectrum – Muska Mosston and Sara Ashworth.

The connection began in 1971 after Dobrý visited Merand during the FARS conference in San Rafael. Dobrý brought home Muska Mosston's book – Teaching Physical Education (1966). Later in 1978 at the AIESEP conference in Magglingen, Switzerland, Dobrý met Mosston and Ashworth and Merand and Marsenach (at that time Marsenach was well known and a reputable pedagogue in Europe). (For Dobrý's personal account of his meeting with Muska see: <http://spectrumofteachingstyles.org/colleagues-profile.php?ind=11>)

Mosston was surprised that his Spectrum was known in Czechoslovakia. At that conference Dobrý presented information about the results and influence that some of the teaching styles had on the behaviour of pupils in schools and on Faculty students' learning results. Additionally he shared that the teaching styles are a part of the teaching program at UK FTVS in the subject branch and special didactics in PE. Mosston showed a good sense of humour, when reacting to this information by saying "What? Teaching styles in Prague? Where is Prague?" A witty reply by Dobrý made their relationship closer.

Mosston and Ashworth visited Prague on two different occasions in 1985. Each time there was a meeting between UK FTVS staff and Muska and Sara. During these visits it was possible to personally exchange new information, knowledge and experience. During their second stay in Prague, they visited the gymnastic presentation 'Spartakiada' on Strahov one day. We should mention Mosston's exclamation about the teaching style called Style A. When thousands of participants in large exercising groups were uniformly performing to music, he cried: "Wonderful! Command style!"

For the first time in the Czech Republic the first six teaching styles along the Spectrum were translated in detail in the textbook *Didaktika sportovních her* (Didactic of Sports Games) by Dobrý for UK FTVS students in the chapter *Vyučování jako řídicí činnost* [Teaching as a Directive Activity] (1977, pp. 91–115). During that time several studies based on teaching styles were published by Hercig (1977), Teplý (1981), Pitrová (1984), and Hejduková (1988).

Other examples of studies that focused on Mosston/Ashworth's teaching styles in PE are included in the following reports: DÚ RÚMŠ (Partial target within the framework of projects of Ministry of Education) IX-05-03, Svatoň et al., 1990; a project of MŠMT ČR (Project of Ministry of Education, Youth and Physical Education), Svatoň et al., UK FTVS, 1993. The next presentation was by Svatoň in Olomouc 1981 at a conference focusing on the personalities of PE teachers. The theme *Teaching Styles in the Praxis of PE Teachers* was also demonstrated and discussed at several meetings called Tělo Praha (Body Prague). These seminars were organized for secondary and high school PE teachers for the whole republic.

Svatoň and Šafaříková, in cooperation with the videocenter of UK FTVS, are the authors of the video named *Didaktické styly ve školní tělesné výchově* (Teaching Styles in School PE), 1993. The English version was sent to Ashworth in the USA (1994) and as a reply Ashworth forwarded to Prague the new publication *Spectrum of Teaching styles. From Command to Discovery* (1990) and still later the 5th edition of book *Teaching Physical Education* (2002). These books were more advanced and enriched, including nine styles, and also dealt with cognitive base lines.

In 1998, the second edition of Dobrý's textbook *Didaktika sportovních her* for UK FTVS was published, with an updated chapter dedicated to the Spectrum (pp. 93–113). New results and style developments by Mosston and Ashworth were incorporated.

Dobrý and Šafaříková are retired, and Svatoň died in 2002. Consequently, there has been a decline in interest about teaching research. Nevertheless, at the UK FTVS the topic of Teaching Styles is a mandatory part of the subject *Didaktika školní tělesné výchovy* (Didactics of Physical Education in School) and an obligatory part of subject-specialist didactics in various different sport departments (sport games, swimming, gymnastics, and others). Currently, teachers continue their Spectrum involvement by trying to apply the teaching styles into Czech academic teaching conditions, and they are also able to present these styles to the students of UK FTVS as well as to other academic institutions and environment through seminars or publications for PE teachers – for example Šafaříková (2014, 2015) in the magazine *Tělesná výchova a sport mládeže* [Physical Education and Youth Sport].

Thanks to Ashworth, Dobrý, Šafaříková, Marvanová and some teachers at the Faculty still are up to date with Spectrum activities. Showing support is the mail sent to Dobrý and Šafaříková in April 2014, from which it is possible to quote: “The Spectrum Institut is pleased to announce that our redeveloped website is live: [www.spectrumofteachingstyles.org](http://www.spectrumofteachingstyles.org). The new website has updated theory and implementation information.”

## **Studying and research of the teaching styles at UK FTVS**

The retirement of Dobrý and Šafaříková resulted in a significant decrease of activity in the research and teaching of the Spectrum at the Faculty of Physical Education. However, teachers in the department of swimming sports and especially in the department of sport games continue to teach and be aware that knowledge of teaching styles is important, especially for special didactics and individual sports. Therefore they try to at least partially maintain the continuity with the previous activities in both teaching and research (the topic ‘teaching styles’ is the part of content of the subject *Theory and basic of didactics of sport games*). However, it must be admitted that research activities have been reduced to solving only partial problems within Bachelor and Master theses in recent years. We will now try to present briefly their results over the past five years.

A total of 10 qualification works – 2 Bachelor and 8 Master theses – were created in the monitored period in which the authors somehow focused on teaching styles. However, only in one study (Vachuta, 2010) are teaching styles the main topic. This study examined teaching styles in football training by comparing the Spectrum teaching styles used by two trainers in five training units. A predominance of the Practice Style and Convergent

Style were found. On the contrary the self-check style and the learner-designed individual program style were not used at all. The author notes that the use of a larger part of the spectrum is related to the educational level (licence) of individual coaches. A positive aspect of the work is the fact that it includes an instructional DVD, in which the author tried, in collaboration with one of the monitored trainers, to present examples of each teaching style in different parts of the training units.

Other works deal with the behaviour of the coach at practice or in the game, eventually with didactic interactions in a practice or game. The texts focused on the behaviour of the coach in the game, and the issue of teaching styles appeared only in the theoretical bases. The only exception was found in the work of Peerová (2014), in which the behaviour of the coach appeared in connection to training (the dominance of command style). We find more information about teaching styles in texts that deal with the effects of trainers within the training process. More information about teaching styles was found in literature that deals with the effects of the activities of trainers within the training process.

Hovorka (2012) found that observed training sessions were mainly conducted by using the command style. Only twice was the inclusion style used and only once was the self-check style used. Data ascertained was not further used in the presented text. Similarly Maurer (2014) observed pupils in training units on a football team. He found the exclusive use of the command style. In the conclusions suggestions were made for coaches to formulate learning (training) goals in a different way, and it was suggested that the guided discovery style should be used. It is sad to say that the implementation of the Spectrum in physical education classrooms was not researched more deeply during the observed period.

On reflection, it appears that, from the viewpoint of the Department of Sport Games, the implementation of teaching styles would benefit from a renewal of interest and research in the field of teaching. This suggestion could be approached from two levels: 1) Continue to solve particular issues within the student thesis and extend the interest to the training process not only in football but also in all sports games; 2) Raise the level of potential candidates with interest in research activities and link it with tuition incentives. Students can practice their practical performances in the subject *Didactics of sports games* and they can also use various methods from curriculum of sports games. A part of the task assignment should be not only using selected didactic styles, but also an analysis of practical realization and appropriate evaluation to achieve the desired effects. One of the side benefits could be even larger numbers of potential candidates becoming interested in this topic.

## CONCLUSION

Teacher praxis by way of the presentation of teachers' essays and diploma works of students of UK FTVS confirm that teaching styles can make the work of the PE teachers more interesting, colourful and easier, and can improve the atmosphere and interaction between the teacher and the student/pupil. However, this means that teachers need to learn these styles, practice them in their classrooms and determine what styles are more

appropriate in particular learning situations and for concrete age groups and for different types of classrooms, etc. Teaching alternative styles must be learned and practiced with feedback like any other skill.

#### REFERENCES

- Dobry, L. (1977). *Didaktika sportovních her*. Prague: SPN, 91–115.
- Dobry, L. (1988). *Didaktika sportovních her*. 2nd ed. Prague: SPN, 93–113.
- Hejduková, M. (1988). *Sledování dynamiky v činnosti učitele a žáků při vybraných metodicko-organizačních formách předkládaných různým didaktickým stylem*. Diploma work. Prague: UK FTVS.
- Hercig, S. (1977). *Charakteristika proměnlivosti působení učitele v hodinách s různým pohybovým obsahem*. Diploma work. Prague: UK FTVS.
- Hovorka, J. (2010). *Činnost trenéra v tréninkové jednotce dětí*. Bachelor work. Prague: UK FTVS.
- Maurer, T. (2014). *Chování fotbalového trenéra mládeže*. Diploma work. Prague: UK FTVS.
- Mosston, M. (1965). *Developmental Movement*. Columbus, OH: Charles E. Merrill.
- Mosston, M. (1966). *Teaching Physical Education*. Columbus, OH: Charles E. Merrill.
- Mosston, M. & Ashworth, S. (1990). *The Spectrum of Teaching Styles. From Command to Discovery*. New York: Longman.
- Mosston, M. & Ashworth, S. (2002). *Teaching Physical Education*. 5th ed. Boston: Benjamin Cummings.
- Peerová, Š. (2014). *Analýza didaktické interakce u vybraných družstev v házené*. Diploma work. Prague: UK FTVS.
- Pitrová, M. (1984). *Charakteristika převažujícího didaktického stylu učitelů základní školy*. Diploma work. Prague: UK FTVS.
- Svatoň, V. (1981). Výzkum vyučovacích činností v gymnastických hodinách (Didaktické řídicí styly). In: *Osobnost učitele tělesné výchovy*. Olomouc: UP, 202–207.
- Svatoň, V. et al. (1990). DÚ RÚMŠ (Partial target within the framework of projects of Ministry of Education) IX-05-03.
- Svatoň, V. et al. (1993). Grant MŠMT ČR (Project of Ministry of Education, Youth and Physical Education). UK FTVS.
- Svatoň, V. & Šafaříková, J. (1994). *Teaching Styles in Physical Education*. Video. Grant MŠMT ČR. Prague: UK FTVS.
- Svatoň, V. & Šafaříková, J. (1993). *Didaktické styly ve školní tělesné výchově*. Video. Grant MŠMT ČR. Prague: UK FTVS.
- Šafaříková, J. (2014). Seznámení se Spektrem didaktických stylů. *Těl. Vých. Sport Mlád.*, 80(4–6).
- Šafaříková, J. (2015). Seznámení se Spektrem didaktických stylů. *Těl. Vých. Sport Mlád.*, 81(1), 2–5.
- Teplý, I. (1992) *Výzkum učební aktivity žáků v gymnastice ve vztahu ke změnám ve vyučovacích činnostech učitele*. Diploma work. Prague: UK FTVS.
- Vachuta, L. (2013). *Využití didaktických stylů v tréninkovém procesu fotbalové mládeže*. Diploma work. Prague: UK FTVS.

Jana Šafaříková  
safarikjv@gmail.com



# **ACTA UNIVERSITATIS CAROLINAE – KINANTHROPOLOGICA**

Volume 51, No. 2 – 2015

---

Cover by Jaroslav Příbramský  
Published by Charles University in Prague,  
Karolinum Press, Ovocný trh 3–5, 116 36 Praha 1  
[www.karolinum.cz](http://www.karolinum.cz)  
Prague 2015

Typeset by Karolinum Press  
Printed by Karolinum Press

Address correspondence to the Faculty of Physical Education and Sports,  
Charles University in Prague, José Martího 31, 162 52 Praha 6 – Veveslavín, Czech Republic  
e-mail: [auc-k@ftvs.cuni.cz](mailto:auc-k@ftvs.cuni.cz)

Full text is available at:  
<http://www.karolinum.cz/journals/kinanthropologica>