

Surveillance technologies as *Instruments of discipline* in the elite sports coaching context: A cautionary post-structural commentary

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Abstract

The use of surveillance technologies as tools to encourage performance enhancement has become an accepted component of elite coaching. Those from the communities of sports physiology, psychology and biomechanics who promote the application of surveillance technologies have reported multiple benefits for the athlete. Conversely, several socio-cultural studies have suggested that surveillance technologies can lead to an oppressive mechanism of control over the athlete, significantly altering the role and responsibilities of the contemporary coach. In this critical commentary we use a post-structural position and adopt Foucault's disciplinary analysis to contribute to the ongoing debate surrounding the use of surveillance technology in sport. Specifically, we achieve this by labelling surveillance technologies in sport as what Foucault (1977) might call, instruments of discipline, and by explaining the impact they have upon the working coach and the skilled athlete. We present some suggestions surrounding how to most appropriately utilise surveillance technologies in a sports coaching context and conclude by warning against a binary consideration of the use of technology as either good or bad.

Keywords: Technology; Surveillance; Discipline; Coaching

Introduction

The capacity to capture data that measures athletic output during the performance of sport has been enhanced in the last decade by substantial technological advances (Travassos, Davids, Araujo, & Esteves, 2013). Today, almost all professional sports teams use technology as a means of providing feedback for their athletes (Nelson & Groom, 2012). As a result, coaches and athletes now operate in what has been termed a data-rich environment (Miah, 2014). The use of surveillance technologies (specifically performance analytics and biofeedback mechanisms) as a tool for performance enhancement is now an accepted and ingrained component of the coaching process in elite sport contexts. Today's coaches are working with a generation of athletes who have grown up

surrounded by various kinds of recording devices. Given the prevalence of these technologies, some researchers (e.g., Manley, Palmer, & Roderick, 2012; Taylor, Potrac, Nelson &, Jones, & Groom, 2015) have called for a critical examination of the impact of surveillance within a sporting context. These authors have suggested that more research into the effects upon those who operate under the gaze of this increasingly pervasive surveillance is required.

In the current paper, we adopt a Foucauldian inspired post-structuralist position to contribute to this ongoing conversation by taking a closer look at how surveillance technologies are used in sport. Specifically, we highlight the potentially dangerous implications of the abuse and misuse of surveillance technologies with regard to the welfare of both the coach and the athlete. We do so in order to create space for alternative, more cautionary ways of thinking about the application of surveillance in elite sports settings. To achieve our aim we have reviewed existing literature surrounding the use of surveillance technology in elite sport and exposed this technology as what Foucault (1977) would call an instrument of discipline. We conclude our commentary with some suggestions to help coaches avoid imposing unnecessary discipline upon their charges while still being able to utilise these clearly beneficial performance aids.

The use of technology in the sports coaching context

To begin our commentary we contextualise current attitudes towards surveillance technology and review existing explorations into the use of technology in sport from within sport science. We achieve this aim by reviewing existing empirical research that considers the impact of the use of surveillance technologies in a coaching context. This process has allowed us to re-visit the perceived merits and weaknesses of this accepted and commonplace approach to athlete and player development (Carling, Wright, Nelson, & Bradley, 2014).

Surveillance technologies are now increasingly affordable and easy to use in most sports settings.

This means that they are now used to monitor the output of sportspeople in a number of ways for a variety of goals (Carling et al., 2014). Video is used for example, to record performances to be coded and critiqued by expert coaches (Nelson et al., 2014), as well as to assess the biomechanical gait analysis of how efficiently athletes run (Fleming et al., 2010). Global point satellite monitoring systems (GPS) have become increasingly popular and easy to use in the last 10 years (Aughey, 2011) and are now used for a multitude of purposes, including to understand an athlete's movement patterns and to measure his or her physiological output in varying environmental contexts (Cunniffe, Proctor, Baker, & Davies, 2009). Primarily, surveillance technologies have been used by coaches to collect data that will produce an individual "activity profile" (Aughey, 2011, p. 300). At its most basic level, this activity profile is an individualised portfolio of an athlete's movements, specifically the distances they have covered, and the speed at which they covered them. It is commonly understood that this profile can be used as the foundation from which to accelerate future learning, to enhance performance, and to predict athlete outcomes for selection purposes - in short, to better prepare athletes to increase their chances of winning.

Denison, Mills and Konoval (2015) have recently argued that there is a problematic dominant disciplinary logic that underpins sport. The influence of this logic extends into all areas of sport, including attitudes towards how surveillance technologies are used in elite sport (Harvey, Cope, & Jones, in press). This disciplinary logic has legitimated (in one rather extreme example) the monitoring of children (via GPS) as young as eight, in order to establish their potential as future elite footballers (Goto, Morris, & Nevill, 2015). Coaches can now instantaneously track and observe fluctuations in their athletes' technical performance and bodily outputs, and as a result, more information about elite athletes' performances is available than ever before. This scenario allows for the immediate design of coaching practices and programmes based upon the ever increasingly accurate data and feedback.

Surveillance technologies and the production of elite athletes

Existing research has identified that a coach who uses contemporary surveillance technologies can enable significant performance and health improvements for athletes. Surveillance technologies such as video and GPS have been developed to analyse performance by observing game behaviour "with a view to improving future outcomes" (McGarry, 2009, p. 128) and to "adequately prepare athletes for competition" (Cummins, Orr, O'Connor, & West, 2013, p.

1025). Advocates of the use of technology for the surveillance of elite athletes suggest that the benefits occur in a number of ways. The data accrued through the use of surveillance technologies in sport helps in the physiological preparation and recovery of athletes. This includes attempts to improve injury diagnosis, prevention, and rehabilitation (Hewett, Torg, & Boden, 2009), and to devise individualised position-specific training programmes (McLellan, Lovell, & Gass, 2011). This data can also be used to develop the performance levels of athletes by eradicating surplus movement or attenuated movement patterns and also to identify potential (Goto et al., 2015). Another recognised benefit is that technology can be used to develop skill acquisition and development. Bertram, Marteniuk and Guadagnoli (2007), in their discussion of video analysis in golf, identified how expert performers glean useful timing information from repeated viewings of their own golf swing alongside an expert coach. There are also significant pedagogical benefits as a result of the increased availability of surveillance technologies. Now that coaches can better capture the complex nature of sporting performance (Nelson et al., 2014), the coach and athlete can move towards a less authoritarian relationship that is based on two-way feedback (Harvey et al., in press). This is recognised as an attractive feature that can help facilitate the current movement towards athlete-centred coaching approaches that are in vogue (Kidman & Lombardo, 2010) and is also a trend that has allowed coaches to move beyond reliance upon the traditional authoritarian approaches that have historically characterised coaching. It is clear that many representatives from within the world of professional sport believe that what Collins, Carson, and Cruikshank (2015, p. 4) have called the "positive aspects" of surveillance technology in sport, contribute to performance enhancement and injury prevention and rehabilitation across a range of sports coaching contexts. Surveillance technologies would appear to play an important role in enhancing athlete movement and performance proficiency – but, at what cost? In the following section we explore the potentially limiting outcomes of applying surveillance technologies to the athlete in the elite coaching context.

Surveillance technologies in sport – some limitations

Although conventional wisdom and the evidence presented so far paints a very favourable picture of the role that surveillance technologies play in the coaching of elite sports, it is important to point out that under certain circumstances surveillance technology can also have a limiting influence upon the coaching process. Evidence that points towards the pitfalls of surveillance in sports coaching is quite rare, however, Roderick (2006) has argued that working athletes and coaches are

reluctant to criticise the normalised attitudes and practices of their institution – therefore limited dissent towards the application of surveillance technologies should come as no surprise. Despite this impasse, there is a growing body of emergent evidence which indicates that not every working coach or athlete universally accepts or celebrates the use of surveillance technology in his or her practice (Williams & Manley, 2014) as it can lead to the process of athlete coercion (Groom, Cushion, & Nelson, 2012). Socio-cultural studies have cautioned against the everyday use of surveillance technology without first considering the implications for the athlete (Manley et al., 2012; Taylor et al., 2015; Williams & Manley, 2014). Indeed, Potrac et al. (2000) argued that very little is known about how athletes experience, understand, or respond to their coaches' use of technology (we suggest that this is still the case). It is therefore important that we consider the findings of empirical research that has questioned the pervasive use of surveillance technology in the coaching context.

Williams and Manley (2014) have suggested that surveillance technologies can lead to an oppressive mechanism of control over the athlete and serve to significantly alter the role and responsibilities of the contemporary coach. These authors also utilised a post-structural framework to highlight how the coach is increasingly being influenced by surveillance technologies to produce unthinking, compliant players. They also revealed how the relationships of power found within the elite coaching context are subtly yet powerfully changing as a result of the presence of surveillance technologies, increasingly restricting the coach in their operational role. It is suggested that these changes are leading coaches to unwittingly develop overly technocratic coaching tendencies and to them become functionaries rather than pedagogues. Taylor et al. (2015) have also acknowledged that the use of surveillance technologies can create an unnecessarily controlling coaching environment. This has also been identified in a football context where the data produced by video and GPS is often used as a punishment mechanism to single out players who go against normalised expectations (Groom, Cushion, & Nelson, 2011).

We suggest that despite the widespread view that surveillance technologies are of assistance to the coach and athlete (Carling et al., 2014; Collins et al., 2015), some real concerns rightly exist surrounding the increased dependence upon these mechanisms in the elite sport setting (Manley et al., 2012). These concerns mostly centre on the dangers of utilising surveillance to problematically normalise/homogenise individual athletes (this is a process that Barker-Ruchti and Tinning (2010), Denison (2007), and Lang (2010) have recognised as being restrictive). Furthermore, concerns also exist surrounding how technology has sterilised the role of the coach in what remains a heavily relational practice (Williams & Manley, 2014). In

the following section we more clearly outline some of the dangers associated with the misappropriation of surveillance based technologies in the elite sports coaching context. We do so in an effort to suggest how these pitfalls might be avoided by the sports coach in their day to day practices.

Exposing surveillance technology as an 'instrument of discipline'

A dominant discourse exists in the sports coaching context that celebrates the use of surveillance technologies for the purpose of athletic performance enhancement. The perpetuation of this discourse is ably assisted by an overly simplistic reduction of sports coaching to psychology, decision-making and expertise (Collins et al., 2015). We believe that in order to fully appreciate the impact that surveillance technologies are having in the sports context, it is an important exercise to offer a balanced alternative to this dominant way of knowing about surveillance technology. To achieve this aim, in the current paper we introduce a Foucauldian post-structural perspective (Avner, Jones, & Denison, 2014) to offer a more rounded appreciation of the various impacts that these technologies have upon sports coaching. The application of post-structuralism and, specifically, Foucault's disciplinary analysis has recently been utilised to suggest alternative ways of thinking about various aspects of sport, including what constitutes effective coaching (Denison, Mills, & Jones, 2013; Jones, Denison, & Gearity, in press), retirement (Jones & Denison, 2016), and strength and conditioning (Gearity & Mills, 2012).

We believe that Foucault's (1977) disciplinary analysis, including his ideas surrounding Docile bodies (his technologies of discipline) and the Means of correct training (his 'instruments of discipline'), coupled with his well-established concept of Panopticism, provide an applicable theoretical framework from which to provide a rounded appreciation of the powerful impact of the use of surveillance in sports settings. In this particular article, given the clear links to the concept of surveillance, we concentrate upon how Foucault's (1977) thoughts surrounding the Means of correct training – his instruments of discipline, can help the coach to understand the varied implications of using surveillance technologies. Several articles have already considered how Foucault's technologies of discipline are used in sports coaching settings (Mills & Denison, 2013; Denison et al., 2013), however Foucault also described several essential instruments of discipline whose presence ensures the success of these technologies' attempts to impose disciplinary power. The instruments of discipline that Foucault (1977) described at length include hierarchical observation, normalising judgement and their

combination in the examination. How these instruments operate in the sports coaching context is neatly described by Shogan (2007),

A central responsibility of coaches is the assessment of athletic ability in order that the most skilled athletes compete when appropriate. Information about which athlete is most suitable for what position or situation is determined through examinations in which coaches observe athletes in relation to other athletes on the team and in relation to standards of performance for the sport. Through observation, the gaps between an athlete's performance and the standards for the activity are judged and noted. (p. 149)

In this commentary we suggest that surveillance technologies act as instruments of discipline. We believe this as from our perspective it is quite clear that they are currently utilised to intentionally choreograph coaching spaces to ensure the imposition of disciplinary power (Foucault, 1977) upon working athletes (Lang, 2010). Adopting a Foucauldian stance that recognises the normalising potentiality of disciplinary power, we caution against this current acceptance of what we see as an overly simplified discourse that promotes surveillance technologies as an overarching good for the realm of elite sport. We also caution against an acceptance of the disciplinary logic (Denison et al., 2015) that has dictated how surveillance technologies in sport should currently be applied. This logic has led to the dangerous assumption that "leaving athletes unsupervised...is not an option if athletes are to be managed effectively" (Denison et al., 2013, p. 395). Like Heikkala (1991), we recognise that because discipline is acknowledged as a key indicator of success for sportspeople, practices that impose disciplinary power (such as those that utilise surveillance), are difficult phenomena to critique without rebuke from those invested in their application (such as Collins et al., 2015). Regardless, we insist that it is hard to argue that surveillance technologies (when applied in a sports setting) do not act to apply disciplinary power onto the athletic body. Furthermore, we suggest that they also act to render an individual useful and productive, to create what Foucault called a docile body- that is, a body that can be "subjected, used, transformed and improved" (Foucault, 1977, p. 136). One might ask "Why is docility in sport such a problem?" Indeed the docility-utility relationship is poorly understood (Mills & Denison, 2013). However, we would point to the recorded, often powerful, short and long term consequences of the imposition of docility upon elite athletes across the spectrum of sport (Johns & Johns, 2000). For example, negative relationships with exercise and the body (McMahon, Penney, & Dinan-Thompson, 2012), as well as identity foreclosure (Murphy, Petitpas, &

Brewer, 1996), over-conformity (Sparkes, 1998) and disruption (Jones, MacKenzie, & Glintmeyer, 2005) have been connected with stringent disciplinary sporting settings (Barker-Ruchti & Tinning, 2010; Jones & Denison, 2016). It is clear that while there are believed to be significant benefits associated with disciplinary practices within sport the negative implications surrounding these phenomena are, so far, largely underreported.

Another broader, troubling ethical issue with regard to the increased application of surveillance technologies is that, in an increasingly observed world, where a heightened awareness of risk and insecurity exists (Manley & Silk, 2014) these technologies are left to operate unquestioningly. And as a result, they act to "expand the surveillance and disciplinary power of the medical gaze" (Rich & Miah, 2009, p. 168), further emphasising the body as a "legitimate surveillance target" (Ball, 2005, p. 90). This is relevant in our context with special regard to the injured, unfit, or under-performing athlete. Not only are surveillance technologies in sport acting to impose disciplinary power upon working athletes, but in doing so they are also contributing to the bio-political governance of the specific population of elite athletes – a process that is linked to broader external regulatory forces (Warren, Palmer, & Whelan, 2014). This increasingly emphasises sport as a site where surveillance and governance coincide, and must therefore have an influence upon how sport is managed and coached. The increased governance of athletes is occurring without forethought with regard to how this group will react to the information about their performing bodies, as it becomes regularly produced and disseminated (Rich & Miah, 2009). To summarise, we have exposed areas of significant concern surrounding the broader implications and specific consequences for working athletes of surveillance technology. We suggest surveillance technology be re-considered as a mechanism that, when misused, contributes to the un-policed production of docile bodies and the perpetuation of a problematic discourse of bio-medical health that exists surrounding the best means of producing of a desirable body in contemporary society.

At this juncture, and before we move on to present our suggestions, it is important to note that a common critique of Foucault's (1977) disciplinary analysis of sport is that it removes the focus or "deflects the attention from analysing the creative possibilities, freedoms, ambiguities, and contradictions also found in sport" (Gruneau, 1993, p. 104). For example, one might argue that athletes are not without agency and that they often demonstrate their discontent as they engage in their own practices of resistance to the discipline imposed through sport and in particular, through surveillance technologies. These resistive behaviours often include simply refusing to wear tracking devices, or engaging in "dis-

identification” (Roderick, 2014, p. 143), humour, cynicism, or direct challenges to organisational hierarchy (Lok & de Rond, 2013; Purdy, Potrac, & Jones, 2008) surrounding the contextual attitudes towards surveillance. These resistive actions can and do influence how coaches perceive the value of surveillance technologies and therefore should not be ignored in any critical discussion surrounding the politics and application of these devices in the sports coaching setting. However, despite this recognition that athletes can and do engage in resistive actions with regard to the imposition of surveillance, in many instances, if athletes are to maintain their elite status, they are often required to comply unquestioningly to the demands of a coach or manager (Giulianotti, 1999). This often means adhering to the practices prescribed by those who govern their day-to-day movements – oftentimes this is an individual very much invested in observing their movements/performance outcomes. It is to these individuals that we now offer some brief suggestions surrounding how to most appropriately utilise surveillance technologies in the sports coaching setting.

Coaching with surveillance technology – some suggestions

It is clear from the above discussion that the application of surveillance technologies in the coaching setting is far from straightforward. Accordingly, we believe that it is important that the application of these technologies should not be exclusively interpreted as being universally beneficial (as currently seems to be the case). Because we believe that surveillance has such a significant role in the manifestation of disciplinary power in the sports setting, here, we offer some brief suggestions that we hope will a) disrupt existing truths surrounding the consequences of using surveillance technologies, and b) provide the working coach with a starting point if he or she is concerned about how their use of surveillance technologies might be influencing their working lives and those of their athletes.

Education and the avoidance of unnecessary discipline imposed through surveillance

We suggest that it is vital that coach educators think more critically about how to make coaches and sports practitioners more aware of the potential damage that the conscious and subconscious misappropriation of surveillance technologies (as instruments of discipline) can have upon their athletes. Advice and instruction surrounding the appropriate place and use of surveillance technologies needs to be a part of coach education platforms across sports. This educational objective should help practitioners to become more reflexive about how they currently employ surveillance

technologies, and in doing so, to develop healthier strategies for the sustenance of the ongoing coach-athlete relationships they are consistently responsible for in their working roles. Not only is this educational agenda important with regard to the welfare of working athletes, it may also encourage a rethink of their coaching techniques and perhaps stimulate coaches to seek alternative or re-consider marginalised coaching practices derived from an alternative, less disciplinary logic. In doing so this may “prevent the production of uncritical coaches, or as Foucault would say, ‘docile coaches’ who do not ask themselves why they do what they do” (Denison et al., 2013, p. 397). Throughout this brief commentary we have observed that the use of technology is playing an increasingly important role in coaching interventions. We have explained that it is clear that some coaches use technology to identify, and subsequently refine athletes, rendering them docile through a process of continual normalisation (Foucault, 1977). Ultimately, the aim of this short piece has been to suggest that coaches might consider adapting their use of technology to avoid the application of unnecessary discipline that commonly occurs within a coaching space where surveillance is omnipresent (Lang, 2010). This might mean using less surveillance or thinking about how to use surveillance in different ways in the coaching process.

Using technology to develop bodily awareness.

As noted above, the use of technology is playing an increasingly important role in coaching interventions which seek to identify and subsequently refine athletes’ ‘attenuated’ bodily movements. Researchers from a number of disciplines (including biomechanics and motor control) have used data from human motion analysis systems to construct models of optimal movement patterns in athletes (see Worthington, King, & Ranson, 2013). Unfortunately, the use of any modeling process is problematic as models are unable to “identify individual-specific optimal sports technique” (Glazier & Wheat, 2014, p. 31). Indeed, Glazier and Wheat (2014) recently called for practitioners to move away from one-size-fits-all or common optimal movement pattern approaches that guide practice amongst many cricket coaches and instead encourage athletes to develop their own individual-specific movement solutions. We propose that the cultivation of athletes’ bodily awareness may aid coaches who are seeking to adopt this latter approach. Specifically, coaches may use technology in a manner that facilitates an athlete’s kinaesthetic awareness (“a dynamic sense of constantly shifting one’s body in space and time in order to achieve a desired end”; Potter, 2008, p. 449) of their movement. Here coaches may continue to use various forms of technology in helping them to

identify the cause of any performance problems, but this should be used in order help athletes to develop their bodily knowledge (see Parviainen & Aromaa, 2015). Although most elite performers will have developed a finely honed kinaesthetic awareness of their action, this acuity may diminish as they are exposed to increasingly prescriptive methods of instruction whose aim is to produce spontaneous (and therefore unthinking) performance. Instead, teaching performers how to remain aware of their action will act as an attentional check and allow them to gauge whether movement is in tune (Jackson, 1995) during competitive performance.

We believe that these basic suggestions may help to promote the healthier application of surveillance technologies across elite sports' coaching contexts and to reduce the problematic outcomes associated with unnecessarily regulated disciplinary environments. It is important to note that our suggestions do not seek to render the coach or surveillance technologies as absent – instead, they merely aim to address some of the shortcomings associated with the reliance on modelling approaches that have been used as docile-making techniques in many coaching contexts (see Mills & Denison, 2013). If coaches continue to act in accordance with the dominant disciplinary logic of performance sport (Denison et al., 2015), a coach's goal will always be to improve an athlete's movement proficiency. We recognise that this disciplinary logic is unlikely to change overnight, therefore, we caution that this attitude and the practices it allows may censor an athlete's natural flair or creative ability and will always invite the dangers associated with docility in the sporting context. To this end, we recommend that researchers continue to work alongside coaches to explore how various feedback mechanisms (including surveillance technologies) can facilitate the development of habitual creativity and excellence in elite performers. This might help to avoid the identified ethical pitfalls (Shogan, 2007) and performance based regressions (Denison, 2007) associated with over-compliance and docility in elite sports performers that are currently accelerated by the intemperate use of surveillance technologies.

Conclusion and closing remarks

It is clear that a lively debate surrounds the use of surveillance technology in the sports coaching context. Recently this debate has been re-ignited by Williams and Manley (2014) who identified that there are significant implications for the future direction of the coaching process as a result of the increased use of surveillance technologies in elite sport coaching contexts. In this commentary we have contributed to the on-going discussion surrounding how the now ubiquitous application of technology in elite sport may be jeopardising the working coach and the skilled athlete. We have observed that from an objective position of

performance and athletic output enhancement, surveillance technologies are no doubt contributing to the physiological and technical improvement of athletes. However, we believe we have helped to highlight how surveillance technologies also seem to be increasingly applied as instruments of discipline, ensuring, and at times, escalating, the application of disciplinary power upon the athletic body in the sports coaching context.

It is clear to us that this scenario must be viewed as increasingly problematic and deserves more attention in order to prevent further danger to (potentially vulnerable) working athletes. It was our intention in this commentary to consider if the current discourse that promotes the widespread acceptance of this use of surveillance technology in sport has been having any problematic (and perhaps avoidable) practical and ethical consequences for both the coach and athlete. In doing so, we have identified that the use of surveillance technologies in elite sports coaching is “dangerous, which is not exactly the same as bad” (Foucault, 1983, p. 231). That said, we feel that it is important to recognise that the use of surveillance technologies in sport does not automatically lead to negative outcomes, but – if left unregulated – their use may lead to maladaptive outcomes within the population of elite athletes. However, we also tentatively suggest that attempting to characterise the adoption of surveillance technologies in sport through a binary of either good or bad, or to take sides, is perhaps an unproductive project. Instead, like Harvey et al. (in press), we believe that; a) it is essential that coaches are helped to consider how surveillance technologies can be used in an appropriate manner in order to facilitate ethical athlete learning, and b) that it is essential that coaches be aware of the problematic consequences of the docility that they impose via the unthinking and constant adoption of powerful surveillance technologies in the elite sports coaching setting. How then, might this happen?

We would like to end by suggesting that in order to provide coaches with a better understanding of the implications of surveillance technologies in sport, wide ranging research is required from a variety of perspectives. For example, in the future we suggest that more longitudinal research (including ethnographic work), across a wide range of elite sports contexts (youth/male/female) might help to generate a more thorough understanding of the implications of the use of surveillance technologies, and provide some suggestions for best practice, across all of elite sport. Furthermore, we encourage researchers to build upon Taylor et al. (2015) and to continue to push theoretical boundaries by adopting what Lyon (2006) has identified as post-panoptic approaches to surveillance research. The more questions we ask about the effects of surveillance technologies in sport, the more our understanding of how to best

use these powerful instruments to support and protect elite sportspeople will improve.

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Research Profile

Dr Luke Jones is a lecturer and researcher into the socio-cultural analysis of sport. His main area of expertise involves problematising entrenched coaching knowledge and practices, including the overtly disciplinary practices and relationships common across elite sport. He completed his BA degree and MA degree at the University of Bath, where he was a member of the Team Bath FC football programme. He then moved to Edmonton, Canada where he completed his Ph.D. at the University of Alberta in September 2013. For his Ph.D. he utilised the disciplinary analysis of Michel Foucault to explore enforced retirement from professional and semi-professional football.