Chapter 13: Sport & Health Cyberpsychology

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Chapter Overview

This chapter introduces readers to the potential impact of technology on the sporting lives and health behaviours of individuals. The first part of the chapter presents information related to athletes' use of technology to prepare, mentally and physically, for their sport, as well as the use of technology to help athletes cope with rehabilitation from sports injuries. The use of technology to assistin the athlete-sport psychologist consulting process is discussed, along with topical issues, such as the influence of social media(i.e., Twitter and Facebook) on individuals' involvement in sport. The second part of the chapter addressesissues related to the impact of technology in promoting health related behaviours online. Topics such as the sharing of health related information online, the benefits and dangers of online support groups and the debate surrounding the existence of the condition, cyberchondriasis, are also addressed.

Key Terms

Mental preparationis a broad term used to describe the ways in which athletes 'ready' themselves, mentally, to participate in their sport. Such preparation could be influenced by **social media,** whichrefersto websites and online social networks that individuals use to communicate and share information online. **Twitter** is an example of such an online social network, and involves individuals posting short messages that their 'followers' can read, favour and retweet. While social media use has 'boomed' in recent years, the emergence of **exergaming**has also risen. It is the term used to describe the activity of playing interactive games consoles, such as the Wii and WiiFit.Such games have been devised in part to increase the activity levels of the individual players, given the increasing sedentary lifestyles that many individuals now lead. The use of technology to address such health-related issues has also led to other problems, such as **Cyberchondriasis.** This term refers to the condition where individuals misinterpret common symptoms of often minor illnesses as serious, life threatening signs of disease, having researched their symptoms on the internet.

Introduction

As already explained in earlier chapters in this text, cyberpsychology is the study of the human mind and behaviour with regard to human-technology interaction. It encompasses all psychological phenomena associated with, or impacted upon by, emerging technology (Power & Kirwan, 2013). Sport and health cyberpsychology can then be considered the study of human interaction with such emerging technologies, including the internet, mobile phones, games consoles, and virtual reality, indeed, any technology that has the ability to alter human behaviour within sport and health domains.

Sport Cyberpsychology

A number of key areas for research have emerged in recent times within sport cyberpsychology, such as the impact of the internet, games consoles and virtual reality on sport, from the competitors', spectators', coaches'and support teams' points of reference. Exciting developments are also being made in helping athletes to rehabilitate from, or indeed, prevent injury. For example, the world of virtual reality is becoming popular as an avenue worth exploring for such purposes (Independent Pictures, 2013). Athletes' use of technology to interact with their public has also increased dramatically in the past number of years, with many high profile teams and athletes embracing social media, especially Twitter and Facebook, to communicate directly with, and provide information to, their public about their daily sporting and non-sporting lives (Browning & Sanderson, 2012). In the following section, athletes' use of technology to assist in their physical, and mental, preparation for their sport will be examined.

Athletes' use oftechnology to prepare for their sport

The use of technology to prepare athletes in professional and semi-professional sport has greatly increased in recent years, with the introduction of sophisticated equipment to monitor the performances of athletes, and the impact of such performances on their bodies. In a recent documentary, Irish rugby player, Tommy Bowe was shown using various pieces of apparatus to prepare for his sport and also to recover from a number of serious injuries he sustained during the making of the programme (Independent Pictures, 2013). An Alter-G-Anti-Gravity Treadmill and pressure pads were used to analyse the running and jumping technique of the player respectively. An Alter-G-Anti-Gravity Treadmill allows injured athletes to train at a reduced body weight while recovering from injury (Hickie, 2014). The use of equipment to measure the force of collisions and tackles made within many sports, such as Rugby Union, has also become popular, with elite teams frequently using Global Positioning System(GPS) devices, for example, to allow coachesto measure the work rate of their players during training and in matches (Hartwig, Naughton & Searl, 2011). This has, however, a potentially significant psychological, as well as a physical, impact on players, as they can be informed of their own, as well as their teammates', performance statistics, which, in an environment where competition for places in a starting team is high, means they cannot afford to have lapses in concentration, because such errors are being recorded and shared with the whole team.However, empirical research to determine the impact of such GPS devices on the mental well-being of the athletes is lacking and is a potential avenue for future research in the sport cyberpsychology arena.

Gaming in sport

The popularity of computer games has risen significantly in recent yearsalso (Goh, Ang & Tan, 2008), and as such, a number of companies have developed products to help athletes prepare mentally and physically for their sport. Perry, Shaw and Zaichkowsky (2011) examined the potential of a biofeedback technology tool called FlexComp Infiniti on athletes' performances and reported that the athletes' ability to control their emotions using this technology did indeed assist and enhance their sporting performances. Developers have also specifically created virtual worlds to help prepare athletes for their sporting competitions. Some gaming companies have developed products that mimic the environments of major sporting events such as the recent FIFA World Cup, the Rugby World Cup and Formula One motor racing. Research on the benefits of individuals playing video games in order tobenefit mentally from them, for example, intheir sporting events, has produced some positive results, withsome improvements recorded forreaction times (Ramsey, Tangermann, Haufe & Blankertz, 2009), mental imagery skillsand spatial awarenessskills (Spence & Feng, 2010).

Computer-generated games have also been devised to teach various desirable on-field behaviours during sport. For example, 'Alert Hockey', was designed specifically to train ice hockey players to engage in less aggressive behaviours (Ciavarro, Dobson & Goodman, 2008). Such behaviours had led to players sustaining concussions in the past. The game, Alert Hockey, rewards safe plays aimed at winning, rather than attempting to teach such behaviours in training sessions, through explicit learning drills, for example. Ciavarro et al. (2008) indicated that their experimental group, who played Alert Hockey, showed a significant increase in desired 'safe' behaviours in their real playing behaviour on the ice, compared to those who did not play the game. This finding indicates a potential use for such video games in changing real-time game-play behaviours.

Virtual reality and gaming for injury rehabilitation

Virtual reality is also an exciting avenue for potentially preparing athletes, both physically and mentally, for their sport. One of the most appealing uses of virtual reality technology, to date, has been its use to help athletes maintain or improve their mental skills, such as their reaction times and spatial awareness skills, especially when returning from long periods of time spent away from their sport (i.e., when they are injured, or are preparing to return to playing following a period of illness or suspension). In one such example, the Nintendo Wii game, described as a video gaming system that employs virtual reality technology, was employed to determine its usefulness in helping an adolescent with cerebral palsy (Deutsch, Borbely, Filler, Huhn & Guarrera-Bowlby, 2008). The researchers concluded that the Wii is a potentially useful therapeutic tool to assist in the rehabilitation of such individuals, and also for those who have suffered other injuries or neurological episodes, such as strokes (Pessoa et al., 2014).Thus, the potential benefits of new technologies,to help athletes prepare to perform in their sport is apparent, with some exciting avenues for future empirical research in this area identified. However, what impact could such new technologies have for the athlete-sport psychologist consultancy relationship? Well, let's take a look, shall we?

Technology use by sport psychology consultants

Cotteril and Symes (2014) examined the benefits and dangers of using a wide range of new social media and technologies in the context of consulting as sport psychologists with athletes. They explored the potential of Twitter, Facebook and LinkedIn, along with the use of communicating with their athletes via Skype, text and postcasts.A major advantage of Skype and Face-time sessions with athletes appears to be that they help all individuals involved in the process to overcome the obstacle of being in different physical locations. This is often the case for athletes who must travel to locations to access specialised training facilities, or to complete in various competitions. Knowing their sport science support team, their family and their friends are accessible via their mobile devices, may be a source of comfort for the athlete. Such easy access to their social support network may help the athletes to remain calm and relaxed, thus assisting in their ability to perform at their best while they are away from home completing and training. However, such easy access by athletes, to their consultants at any time of the day or night, could result in an erosion of the work-life balance for the consultant. It could also result in ethical issues for the consultant regarding professional boundaries being over-stepped, and security issues regarding online dataprotection. However, Cotteril and Symes (2014) concluded that while technology and social media are potentially beneficial to the consulting process, they should be used, but with ethical and security principles in mind. Indeed, they remarked that use of Skype and Facetime to consult with athletes has become so popular that, in many cases, it has replaced traditional face-to-face meetings, historically considered the only way, apart from by telephone, to communicate with clients. However, this new approach to the delivery of consulting services is in need of empirical evaluation,

in order to determine the specific advantages and disadvantages of such uses of new technologies when consulting with athletes. However, the dangers of social media use by athletes, has been investigated somewhat in recent years and will now be outlined.

Athletes' use ofsocial media

According to a 2013 Global WebIndex study, over 1.15 billion individuals are Facebook users, while Twitter boasts over 500 million registered users. These figures indicate large increases in global use of social media. Public interest in professional athletes also appears to have grown in recent years, and the invention of the social media tools, Twitter and Facebook especially, has allowed spectators and fans of many sports to 'follow' and communicate with their sporting heroes. Indeed, in 2012, Campbell stated that "over 70 million people worldwide follow pro (professional) athletes and teams on Twitter, while another 400 million Facebook users have clicked the 'like' button on pages dedicated to sports stars and squads" (p. 1). It appears that Twitter has become the most popular form of social media communication for athletes and their supporters, perhaps because it provides users with a way to immediately and directly interact with each other (Sanderson & Kassing, 2011).Athletes, and the media who report on sporting events, appeared to 'on mass' embrace the use of such social media for the first time during the London 2012 Olympic Games. Indeed these Games were referred to as the 'Twitterlympics' (Adelbayo, 2013), and the 'Social Media Olympics' (Androich, 2012). Interesting questions, such as, why do athletes use social media, such as Twitter?, and how do they present themselves on this media?, should be posed. How athletes react to criticism posted in tweets sent to them, for example, is also an interesting psychological research question to address, most importantly because such posts may impact negatively on the athletes' sporting performances.

In an attempt to answer some of the questions posed above, researchers have begun to examine the impact of social media interactions between athletes and their public, firstly, on the athletes' performances, and secondly, on their relationship with spectators, and their own fans (Browning & Sanderson, 2012).A number of reasons athletes use social media, such as Twitter,have been proposed. The instant contact and information it provides is perhaps the primary reason most individuals report using it (Browning & Sanderson, 2012). For fans and spectators of sport, it can also narrow the 'gap' between them and their sporting idols. It allows both groups to interact and converse with each other (Clavio & Kian, 2010), as was evident during the 2014 FIFA World Cup recently (Dredge, 2014). In a case study of athletes' use of Twitter, Pegoraro (2010) commented that athletes used Twitter to share aspects of their daily lives with their supporters, and to answer fans questions about their lives.

With sponsorship and investment opportunities also more prevalent in modern sport, many athletes are also 'business' men and women. Social media such as Facebook, Twitter and LinkedIncan provide such athletes with a means to connect withtheir customers and business partners. It also provides them with a vehicle to brand themselves, and to sell their business products (Atencio, 2010; Feil, 2012). Some sports teams have even placed their Twitter handles on their jerseys in place of their names as a marketing strategy (Knapp, 2011).

However, athletes, like any other individuals using social media, are not immune to the negative aspects of such social mediause. Athletes have frequently been the target of cyberbullying. For

example, Team GB diver, Tom Daley, was the subject of some unkind comments from an individual on Twitter, following Tom, and his teammate, Pete Waterfield's performance in the paired diving event at the London 2012 Olympic Games (British Broadcasting Corporation; BBC, 2012). Such behaviour resulted in the individual who posted the comments being arrested. This example illustrates the misconception many individuals have of social media, that is, that their computers provide them with a veil of anonymity, and that they are untraceable because they are operating from behind a machine, rather than physically saying the comments directly to the targeted person (Kirwan & Power, 2013).

Examples of athletes sending controversial tweets are also well documented. Indeed some posts have resulted in athletes facing serious consequences, such as fines and bans from their clubs and sporting organisations, as a result of their misuse of social media. In severe cases, criminal charges have been brought against athletes (Poeter, 2012). Such negative consequences for, and of, athletes using social media has prompted many teams, clubs and sports governing bodies to devise social media use codes of practice for their athletes and all those associated with the athletes (i.e., coaches, medical staff, agents and parents). Therefore, the 'twitter-bans',or 'black-outs', for certain periods of time around matches, that some clubs place upon their players, may be justified (Hauer, 2012).

Given its potential to be a source of aggravation for athletes, one might then wonder if it wouldperhaps be better for athletesnot to use social media networks at all. However, in a survey by the football fan website, Fourfourtwo.com, when asked whether they thought Twitter should be banned, 70% of the players who responded to the survey,'disagreed' that its use by players should be banned (Fourfourtwo.com, 2012). Thus,while athletes do appear to acknowledge the negative side of social media use, they seem unprepared to remove themselves from the cyber world, and it could indeed be argued they should continue to employ it, given its advantages, as cited above. Therefore, those involved in managing such athletes should support and advise them on how best to use this media to their advantage, while helping them to minimise the negative impact of such technology on their athletic careers.

Having discussed the potential of new technologies to (i) help athletes remain 'connected' with their social networks, (ii) assist them in their mental preparation for their sport, and (iii) help their recovery from injury, let us now examine the potential of such technologies to assist other individuals,with health related issues in their daily lives.

Health Cyberpsychology

A number of key areas for research have emerged in recent times within the discipline of health cyberpsychology, such as the impact of the internet, games consoles and virtual reality on the health behaviours of the general population. Technological developments have also been made in helping individuals to cope with illnesses,and to recover from various medical conditions. The following section will start by specifically addressing the potential benefits, and risks, of the internet, and social media, whensearching for, and sharing, health related information.

Technology and the promotion of healthy behaviours

Perhaps a good starting point for this section is to outline why individuals do, or should, engage in exercise, or indeed, any kind of physical activity. Statistics on diseases associated with obesity and inactivity, especially among young children and teenagers, have alarming indicated that conditions, such as various cancers, diabetes and heart disease, currently on the rise in such groups, will continue to do so into the future unless some drastic measures are taken (Park, 2014). The strain on healthcare systems around Europe have reached critical levels, with the cost of diseases linked to obesity and inactivity estimated to be between 2% and 8%of the total healthcare costs (World Health Organisation; WHO, 2010). Recommended levels of physical activity, including walking, housework and gardening, are currently set at one hour each day. Many individuals, however, are not reaching such levels of activity, on a consistent basis, leading to weight gain and increased risk of disease in such individuals.

The specific health benefits of exercise, both physically and mentally, are well documented (Moran, 2012). They include, but are not limited to, positive effects on blood pressure, body weight and cognitive functioning. Many social benefits are also derived from engaging in exercise, for fitness, or indeed, within a competitive context. Research findings have repeatedly shown that social reasons, such as 'I get to hang out with my friends' as some of the most frequently cited reasons why children and young adults engage in sport (LeUnes, 2008; Weinberg & Gould, 2011).

Given the many well supported reasons why people should exercise, or take part in structured sport, the question then arises, why do so many people stop exercising, or playing sport, and how can technology be used to encourage more people to return to exercise or participating in sport? The most common reason cited for not engaging in exercise is a lack of time, as well as a lack of resources and/or facilities (Moran, 2012). Many inactive individuals have also been found to lack confidence and motivation to participate in exercise, while some cite fear of injury and embarrassment as the reasons for not completing any form of formal or informal exercise (Grieser et al., 2006).

With this information in mind, how have psychologists and technologists worked, often together, to address these issues, and specifically, to encourage more people to engage in some form of exercise?Research on the benefits of new gaming devices, known as Exergames (i.e., the WiiFit and Kinect games), to promote higher levels of activity among populations of various ages, has provided evidence of the potential benefits of such new technologies (Wollersheim et al., 2010). These technologies can offer individuals a way to combine their interests in gaming, which has traditionally been a sedentary activity, with more physical activity and exercise, and this development should be welcomed.

In conjunction with reductions in activity levels among many populations, diets have also changed in recent times, with more processed and convenience fast foods now available to meet the demands of increasingly busy lifestyles. Unhealthy eating habits have become the norm, and have added to the risks of various diseases such as diabetes, heart disease, and various cancers. A number of applications for mobile devices (i.e., apps) have been devised in an attempt to combat these unhealthy practices (Ho, 2013). Their goal is often to help individuals eat more healthy foods, maintain a balanced diet, and lose excess body weight, by exercising. A large number of these apps

are designed to record the food eaten by individuals on a daily basis, along with the calorific and nutritional values of these foods [For example, Calorie Counter and Diet Tracker by MyFitnessPal, and GO-Meal and Fitness Tracker]. Many apps, which are often free to download, also have tools included to enable users to monitor their activity levels, such as trackers for calculating distances walked or run [for example, Nike+ Running, CycleNav, Zombies, Run! 5K Tracker and Couch to 5K by RunDouble]. They may also provide demonstrations to allow users watch and then repeat exercises completed by a trainer on their digital screen in the comfort of their own homes [Endomondo Sports Tracker Pro and Daily Workouts], thus removing the need for the person to journey to a gym, or club, to engage in exercise, something which many individuals do not have the time, finances, motivation or confidence to do (Grieser et al., 2006).

Technologies as therapeutic tools for mental health issues

Due to the popularity of computer game-playing, especially among the computer-native generation, researchers have also begun to examine the effectiveness of using computer games and mobile devices, such as mobile phones, as therapeutic tools for treating mental health disorders in children and young adults (Seko,Kidd, Wiljer & McKenzie, 2014). However, the internet can also be a negative source of support for such vulnerable individuals, such as individuals suffering from general health anxiety conditions. Thus, the dangers for such individuals, of online health related searches will now be discussed.

The benefits and risks of online searches for health information

However, while computing and gaming can assist in changing behaviours toward exercise, the internet while also beneficial for information gathering on health related issues, can also pose risks and dangers for some individuals sourcing information online. Research has shown that large numbers of individuals searching for information online often accept such information as accurate,and from reliable sources, when the reality is that much of the information available online is inaccurate and from unreliable sources(Human Factors and Ergonomics Society, 2014). There is evidence of patients refusing, or failing to adhere to the treatment advice of medical health professionals as a result of reading alternative information on the internet, despite discontinuing treatment prescribed by expert professionals being detrimental to their health (Weaver, Thompson, Sargent Weaver & Hopkins, 2009).Some individuals may also resort to self-medicating, by purchasing, for example,unregulated drugs online. This behaviour may be very dangerous, even life threatening, as there is no medical expert, such as a doctor or healthcare professional, overseeing such drug-taking behaviour (Ardito, 2013). Searching for medical information online can also lead to increased levels of stress for individuals as the information is often unregulated (Sillence, Briggs, Fishwick & Harris, 2004).

The internet can,however, provide positive sources of support for various properly diagnosed conditions, such as online support groups for individuals suffering from or recovering from various forms of cancers, chronic, incurable, progressive or terminal diseases, such as inflammatory bowel disease, coeliac disease, Chron's disease, diabetes, muscular sclerosis, and degenerative neurological diseases, such as Huntington's disease (Coulson, Buchanan, & Aubeeluck, 2007). Computer mediated social support groups, such as those provided by 'friends' on the social media site, Facebook, can also be effective when individuals are experiencing stress due to life transitions, derived from experiences such as recovering from illness, coping with the birth of a child, moving home, changing jobs or separating from a spouse or partner (Mikal, Rice, Abeyta & deVilbiss, 2013). However when

searching for information on health related conditions becomes obsessive, this may be a sign that an individual is suffering from a particular cyber-related mental illness, sometimes referred to as cyberchondria (Fergus, 2013). So, what is cyberchondria?

The specific case of Hypochondriasis and Cyberchondriasis

The term cyberchondriasis, derived from the term hypochondriasis, has been coined to describe the condition where individuals misinterpret common symptoms of often minor illnesses as serious, life threatening signs of disease, having researched their symptoms on the internet (American Psychiatric Association, 2013). In recent times, however, the term hypochondriasis, as a specific term used to describe a particular psychological condition has been questioned. Many medical and mental health professionals have reverted to using terms such as 'health anxiety' or 'illness anxiety disorder' to describe individuals who exhibit symptoms of being overly-fearful for the condition of their health due to experiencing what are often minor ailments. The term, 'hypochondriasis', is now reserved for extreme cases of the condition (Hart & Björgvinsson, 2010), and according to Muse, McManus, Leung, Meghreblian and Williams (2012), the prevalence of cyberchondriasis, also relatively rare, is considered to be greater in individuals who experience higher levels of general health anxiety.

Conclusion

This chapter has aimed to present readers with an overview of some topics being researched by sport and health psychologists interested in the impact of technology on the sporting, and general health, lives of individuals. As is evident from the research cited above, many developers are creating novel and useful technologies to help athletes train,and prepare, more effectively for their sport, while also encouraging the general population to engage in more health conscious practices related to exercise and diet. The risks and dangers associated with using the internet as a sole source of health related information has also been highlighted.

Some exciting areas for future research in this area of sport and health cyberpsychologyhave been also been suggested, and could include (i) empirical explorations of the potential impact of GPS monitoring on the psychological well-being of athletes, which, to date, has been anecdotal in nature, (ii) more research on the possible uses of biofeedback tools in exergames and (iii) further development of the uses for virtual reality and social media, to assist athletes in their preparations for their sport, and to assist the normal population, to lead healthier, and more active lives.

Activity

Start by discussing the impact of some health related conditions with your class, i.e., the physical and psychological impact of being diagnosed with asthma, diabetes or coeliac disease. Then, perhaps in groups, ask your students to design an 'app' that might help to make life easier for a person with any one of the above cited ailments.

Discussion Questions

1. What role can new technologies play in helping athletes to cope with the physical and psychological difficulties they often experience when injured?
2. "The internet can be used for good or evil in the fight to combat growing health related issues". Discuss this statement in light of the growing, global impact of the digital age in everyday life.
3. How has the consulting role of many sport psychologists changed in recent times, due to the development of new communication technologies?
4. "Virtual Reality (VR) can contribute in a positive way in many sport, health and medical settings". Discuss this statement in light of recent advances in VR technology.

Recommended Reading List

A number of psychology journals have been published in recent years devoted to studies on cyberpsychology, sport psychology, and related topics. Students wishing to read more in-depth research studies about the areas discussed in this chapter would be encouraged to consult the following peer reviewed journals **Cyberpsychology, Behaviour and Social Networking**, **Cyberpsychology: Journal of Psychosocial Research on Cyberspace**and the **International Sport and Exercise Psychology Review.**

Articles/Texts

In this peer-reviewed article, Simon Cotterill and Rebecca Symes provide one of the first detailed reviews of the potential uses, and impact, of social media and new technologies (i.e., Twitter, Skype and Facebook) on the consulting work of sport psychologists. They highlight issues surrounding the ethical and security considerations for practitioners who opt to deliver their consulting services using such new methods of communication.

> Cotterill, S. T., & Symes, R. (2014). Integrating social media and new technologies into your practice as a sport psychology consultant. *Sport & Exercise Psychology Review, 10(1), 55-64.*

Andrew Power and Grainne Kirwan have written extensively on the topic of cyberpsychology. This text presents a number of chapters written by Power, Kirwan and a number of their colleagues, on topics in areas such as Internet interventions and therapies, and the Internet's role in education.

> Power, A. & Kirwan, G. (Eds) (2013). *Cyberpsychology and New Media*. East Sussex, UK: Psychology Press.

Glossary of terms

Cyberchondriasis - the condition where individuals misinterpret common symptoms of often minor illnesses as serious, life threatening signs of disease, having researched their symptoms on the internet.

Exergaming - the activity of playing interactive games consoles, such as the Wii and WiiFit.

Global Positioning System (GPS) – a system that involves satellite tracking to plot the movement patterns of objects. GPS devices used in sport are typically smaller than a mobile phone and are positioned in a pouch within the training gear of the athletes, usually on the back, between the shoulder blades.

Mental preparation - a broad term used to describe the ways in which athletes 'ready' themselves, mentally, to participate in their sport.

Social media – websites, and online social networks, individuals use to communicate and share information online.

Social networking – the use of websites, and other online technologies, that enable individuals to communicate with each other and share information.

Skype - a software application and online service that enables voice and video phone calls over the internet.

Twitter - an example of an online social network, where individuals post short messages that their 'followers' can read, favour and retweet.

Virtual reality – a realistic simulation of an environment, including three dimensional graphics, by a computer systemusing interactive software and hardware.

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