
2.1 Introduction

A phenomenal increase in male and female participation has been globally witnessed since the 1970s. This wave of popularity has been largely due to the combination of a fast-paced modern lifestyle and an increased awareness of the importance of health. Many individuals now turn to sport and exercise to accomplish and maintain both physical and mental fitness. For example, sports such as running, cycling and swimming are an effective way to stay in shape and relieve stress. Let us take the example of high-intensity interval training (HIIT). Based on hard efforts over very short time periods, these tough sessions are easily adaptable to different sports, time constraints and the capacity of the individual doing them – a very efficient way of developing all elements of fitness.

People of *all ages* are therefore currently involved in sport, representing an increased number of active patients in dental surgeries. Recent studies have revealed numerous potential oral health risk factors connected to sport. It is time to increase awareness of dental practitioners, health professionals and indeed athletes in order to prevent these complications.

2.2 Implications for the Dental Care Team

The number of dental patients involved in sport is therefore increasing. However, despite the pursuit of optimal physical and mental health, oral health is often undervalued. In comparison to their sedentary counterparts, people who regularly exercise are predisposed to a number of potential oral health risk factors (Frese et al. 2014). These are linked to training methods, the nutritional demands of physical exercise and hyposalivation during sporting effort. Up until recent times, little emphasis has been placed upon the link between oral health and sport, though several pertinent studies have concentrated on *elite athletes* and oral repercussions. The dental surgeon must be aware that active patients of all abilities are

susceptible to risks aggravating certain hard and soft tissue lesions. They must appreciate the interaction between dental problems and sporting performance and be able to provide suitable treatment plans adapted to their individual needs. In collaboration with other health professionals, the dentist forms part of a team that helps the sporting patient achieve their potential and maximise their overall health and wellbeing.

2.3 Understanding Participation: The Benefits of Sport and Exercise

Physiologically speaking, the benefits of regular exercise are undeniable. The numerous advantages include a reduced risk of myocardial infarction and the prevention of certain malignancies, diabetes and high blood pressure. Sport promotes longevity of life, retards the onset of dementia and is considered an antidepressant (Sharma et al. 2015). Aerobic forms of exercise that endure 20 to 40 minutes improve morale over several hours (Raglin 1990).

According to a recent nationwide poll of American adults, the benefits of sport perceived by the public were improved mental and physical health, reduced stress and improved perception of their appearance (Fig. 2.1). Furthermore, their professional and social lives flourished (NPR 2015).

Such results were closely correlated to their reasons for participating in sport and exercise (Fig. 2.2). Whether participating in certain sports or partaking in different exercises, the main reasons were for personal enjoyment and satisfaction and to optimise health and wellbeing.

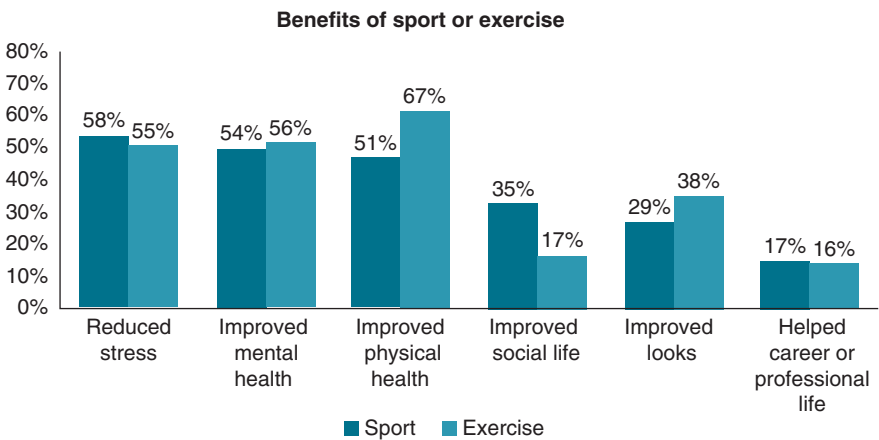


Fig. 2.1 The benefits of sport and exercise

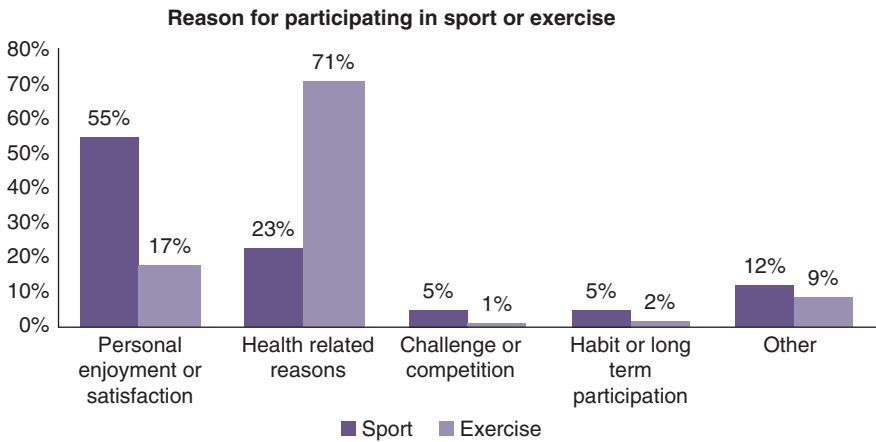


Fig. 2.2 The reasons for participating in sport and exercise

2.4 Participation in Sport and Exercise: A Few Statistics

Across the Atlantic, the Eurobarometer survey of all 28 European Union member states on sport and physical activity (European Commission 2004), showed similar socio-demographic trends to those from the USA. However, it revealed a considerable variation in the numbers participating in sport across the member states. Northern European countries such as Sweden were the most active, with 70% of the population engaged in weekly exercise. Equally, French national statistics revealed that in the last few years, two-thirds of the French population participated in sporting activity every week. Half of those who did regular activity were affiliated to sporting federations. Endurance sports clubs proved to be the most popular to join (Ministère des Droits 2014).

To illustrate the popularity of sport and exercise, we need only to look at the renowned road running classical endurance event – the marathon (42.195 km). It celebrates huge success across the world, inviting runners of all abilities to challenge this gruelling feat. Nearly 50,000 people participated in the New York Marathon in 2016, and the Paris marathon attracted 43,317 competitors and London approximately 38,000. Such high levels of participation in just one event give an insight into just how many individuals could be affected by sports-related dental problems.

2.5 The Participation of Children in Sport

Children participating in sport from an early age equally reap an array of benefits. Like adults, their physical and mental health is optimised, as are the emotional, social and educational sides of their development. According to parents of American children, again investigated by the 2015 national poll, the perceived benefits of their participation in sport also included development of discipline and dedication, team

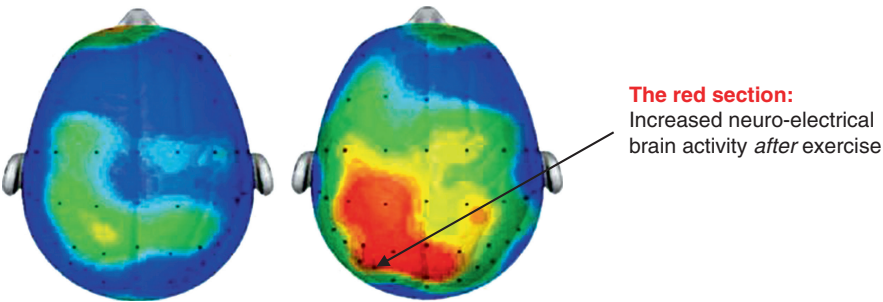


Fig. 2.3 Brain activity of children before and after exercise: a 20 minute walk (Source: Dr Chuck Hillman, University of Illinois)



Fig. 2.4 Children in sport

cohesion, improved social life and skills positively contributing to both further education and careers (NPR 2015). Studies show that adolescents engaged in sporting activities are eight times as likely to continue the sport into adulthood (Perkins 2004).

An interesting study by Chuck Hillman, of the University of Illinois, investigated the cerebral neuroelectrical activity of 20 school children (Hillman 2009). A first MRI scan was taken after 20 min of sitting quietly and a second after a 20 minute walk (Fig. 2.3). Results revealed greater brain activity after physical exercise. This confirms that the benefits of sport and exercise, for both children and adults, stretch far beyond the initial obvious physical gains.

Finally, encouraging greater participation of children and adolescents in sport (Fig. 2.4) is also a key element of the battle against the global rise of obesity (Aspen Institute 2015). In the USA, the number of participants in high school sports increased for the 26th consecutive year in 2014–2015 – topping the 7.8 million mark for the first time (National Federation of State High School Federations).

2.6 Disabled Athletes in Sport

Increasing numbers of people with disabilities have been helped and encouraged to participate in sporting activities across many countries. This positive trend has been reinforced by the 2008 United Nations Convention on the Rights of Persons with Disabilities (Article 30):



Fig. 2.5 The popularity of sport

People with disabilities have the right to take part in cultural life on an equal basis with others, including access to cultural materials, performances and services, and to recreational, leisure and sporting activities.

The expanding numbers of Paralympians reflect the changing motivation and inclusion in sporting activities. In the 1960 Rome Olympics, 23 countries were represented by 400 athletes. In London 2012, over 4000 athletes from 164 countries took part (Australian Paralympics Committee 2016).

The sporting world is embracing more and more people (Fig. 2.5).

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