

Promoting childhood activity levels and preventing sports injuries

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For physiotherapists, the promotion of lifelong physical activity is very much on our radar. The term “lifelong” means that, even if we don’t treat children in our clinics, we should be reaching out in our communities to address the issues of childhood inactivity, taking a leading role in encouraging safe activity levels and advising on how to reduce injury incidence in children’s sports.

LEARNING OUTCOMES

TO SUPPORT PHYSIO FIRST QAP

- 1 Be aware of the reality of low childhood activity levels.
- 2 Understand the importance of promoting childhood activity levels for lifelong health and wellness.
- 3 Consider the need to promote injury prevention as an essential part of promoting increased sport participation.
- 4 Reflect on the role of physiotherapists in promoting increased sports participation safely.

Introduction

The Chartered Society of Physiotherapy’s (CSP) “Love Activity, Hate Exercise” programme was rolled out last year to promote the benefits of physical activity, and play a key role in addressing the major public health issue of inactivity in our population. Physical activity offers as many health benefits for children as it does for adults and if we can ask the question whether children are active enough, highlight the benefits of activity, and address inactivity levels with our own young patients we can, perhaps, set up good habits and better health decisions that will lead to our children being healthier adults. In encouraging children to be more active, however, we must also be aware of the injury rates in childhood sports and, as a profession,

play a leading role in the promotion of safe activity levels to help reduce injury incidence.

Later in this article we will expand on how, in our own clinic, we have forged links with other health providers in our community that have enabled us to collaborate on initiatives for health and wellbeing promotion and open up dialogue for injury prevention programmes with parents and coaches.

Are our children active enough?

In December 2018, Sport England published its survey, the largest of its kind, on the active lives of children and young people. The data was collected from 130,000 children in England, between the ages of five and 16, during the academic year September 2017 – July 2018. It studied the level of physical activity in children, using the Chief Medical Officer’s recommendation of 60 minutes of physical activity every day as the gold standard. The results of the survey are helpful in directing attention on the population groups that may need more input and focus in raising levels of childhood physical activity.

The findings of particular interest include:

- 17.5% of children are achieving 60+ minutes of physical activity each day
- 43.3% lead active lives, meaning they achieve on average 60+ minutes of daily physical activity, but not necessarily every day

- 32.9% of children achieve less than 30 minutes of physical activity each day
- Activity levels peak at the end of primary school age to 22% achieving 60 minutes’ activity a day, but drop to their lowest level of 14% by the end of secondary school age
- Girls achieve lower activity levels, i.e. 14% compared to boys at 20%. This difference increases as children get older, with only 10% of girls aged 9-11 achieving activity every day
- Children from less affluent families were shown, at 39%, to be more likely to achieve less than 30 minutes’ activity a day than their more affluent counterparts, where only 26% achieved low activity levels
- Ethnicity was found to have an impact on activity levels: 41% of girls from Asian and 49% from Black backgrounds were less active, i.e. achieving less than 30 minutes per day activity, compared to 32% of their white contemporaries.

From the results of this survey it is apparent there is work to be done to improve activity levels in school-age children, particularly promoting activity levels in secondary school-age girls who, it seems, are at risk of achieving less active lives. We also need to consider directing our efforts to increase physical activity involvement for children from less affluent backgrounds, and those from non-white backgrounds.

“THERE IS WORK TO BE DONE TO IMPROVE ACTIVITY LEVELS IN SCHOOL-AGE CHILDREN”

The benefits of an active lifestyle

Based on the extensive research into the benefits of physical activity and sports participation in childhood, there are several benefits to be gained that can often be carried over into adulthood. The benefits of increasing activity levels can be observed in three main areas; the child's long-term physical health, their mental health and cognitive function are all affected positively by physical activity and sports participation.

COGNITIVE FUNCTION

A review of literature (Bidzan-Bluma & Lipowska 2018) found an array of benefits that increased physical activity can have on cognition in children, including working memory, attention and language development, and executive function, i.e. motivation, the ability to set goals, and self-control. Benefits were found to be independent of the type of physical activity undertaken, whether it be community organised sport, school sports, or free play.

MENTAL HEALTH

A cross-sectional study (McMahon *et al* 2017), utilising a school-based survey completed by 11,110 adolescents from 10 European countries, examined how physical activity and sport participation was associated with wellbeing, anxiety and depressive symptoms. Analysis of the results revealed that more frequent physical activity and participation in sport were found to independently contribute to greater wellbeing and lower levels of anxiety and depressive symptoms in both sexes.

LONG-TERM PHYSICAL HEALTH

Bone density

McVeigh *et al* (2019) found a positive relationship between childhood participation in organised sports and bone density at age 20 in males and

females. Attainment of optimal peak bone mass in young adulthood is protective against osteoporosis in later life, so increased activity in childhood is likely to have long-term benefits for the individual's skeletal health.

Obesity

Organised sport and increasing activity levels in children are linked with reduced obesity and with better adult health.

Children who are obese tend to remain so into adulthood (Simmonds *et al* 2015) and, as adults, are more at risk of illness. In a review of 37 studies, Llewellyn *et al* (2016) identified a strong positive association between a high childhood BMI and adult obesity. In addition, the same authors found a positive association between high childhood BMI and adult coronary heart disease, diabetes and a range of cancers.

In a later study of 238 adolescents (Agata & Monyeki 2018), it was found that children participating in sports had lower BMI, higher fitness levels, and received greater social support than children who did not participate in sport.

The research into these three key areas of health show that there are proven benefits to increasing the activity levels and sports participation for the child population. The fact that it has also been shown that activity levels in children are currently lower than recommended means that we, as health professionals, are well placed to play a role in encouraging childhood activity in an effort to address the potential health issues that this population is storing for the future and, in doing so, we must also ensure that any increase in activity is as safe and injury-free for the participant as possible.

Preventing sports injury

If we promote increased activity levels,

it should follow that we must also be aware of injury prevention measures to ensure that children newly participating, or increasing their level, in sports and healthy activity, do so in a safe way. Our parallel goal to increasing activity must be in the avoidance of injury.

Intervention and prevention with regard to childhood sports injuries is driven by the data. Where there is clarity on the specific risks that apply to particular sports and particular age groups, then our goals towards sports injury prevention can be focused and relevant. Kirkwood *et al* (2018) analysed sports injuries presenting at NHS emergency departments. They looked at the sports that were being played at the time of injury, the type of injury, and the age and gender of the injured.

The results revealed that almost half (47.4%) of presentations for sports injuries to NHS A&E departments were children aged 0-19. Of these, 68% were male and 32% female. The most common age to present was 12 years in females and 14 years in males. The most common sports played at the time of injury in the males were football, rugby union and rugby league and, in the females, trampolining, netball and horse riding. The most common injuries were fracture at 22.6%, and of those fracture injuries, 43.8% were in the upper limb.

This study reveals the burden on NHS hospitals from the attendance of children and adolescents for sports-related injury, showing that there is a need for serious injury prevention work in this area. The authors of the study state: "If public health departments in local authorities

“WE CAN PLAY A ROLE IN PREVENTING POTENTIAL HEALTH ISSUES BEING STORED FOR THE FUTURE”

and schools were to adopt a strategy for the prevention of injury in high-risk activities, they should target those in the first four years of secondary school. For younger age groups, trampolines in the home warrant improved safety” (Kirkwood *et al* 2018).

In addition to the injury profile from NHS emergency departments we, as physiotherapists, often come face-to-face with many and varied sports-related soft tissue injuries. These may be due to trauma, accidents and over-use resulting in ligament sprains, cartilage damage, muscle injuries or, particularly in relation to adolescent patients, be growth conditions such as Severs and Osgood Schlatters. It is in these sport injury scenarios that we are often the primary contact for assessment and management, and it is in this environment where we can also have an impact in the area of sports injury prevention. As practitioners, we need to be aware of the research supporting injury prevention programmes and be advocates for them.

The evidence for injury prevention programmes

There is growing evidence to support the development of injury prevention in sport, with studies showing the effectiveness of programmes through a variety of sporting activities. For example, developing the landing skills of junior Australian football players has led to a reduction of injury incidence (Scase *et al* 2006), while Myklebust *et al* (2003) advocated sport-specific balance training programmes in the reduction of ACL injuries for female participants in the sport of handball.

Studies into school-age soccer players suggest that conditioning training

programmes delivered either as part of post-injury rehabilitation (Jung *et al* 2002), or in advance of the playing season (Cahill & Griffith 1978), can be effective in reducing the incidence and severity of sports-related injuries and, in the case of Cahill & Griffith (1978), specifically in early season knee injuries.

A review of 21 randomised controlled trials (RCTs) and controlled intervention studies in organised sport (Rössler *et al* 2014) found that injury prevention in general, and those with a focus on specific injuries, showed significant reduction in injury incidence. Programmes that include jumping / plyometric exercises showed to have a significantly better injury preventive effect than studies that did not include such exercises.

The popular Federation of International Football Association (FIFA) 11+ injury prevention programme has been shown to lead to an impressive 30% – 70% reduction in injuries (Barengo *et al* 2014). The FIFA programme includes dynamic warm-up, core stabilisation, eccentric training of thigh muscles, proprioceptive training, dynamic stabilisation and plyometric drills performed with good postural alignment. As these programmes can be followed with no technical equipment, and in minimal time, i.e. 10-15 minutes, they can easily be adopted as a fundamental tool for coaches and physiotherapists involved in training and promoting sporting activities for children.

Encouraging activity

There can be no argument that promoting activity levels and sports involvement is good for the health and wellbeing of the population, and something that should be encouraged from an early age.

We as physiotherapists need to take a leading role in advancing the benefits of sports participation and activity, while ensuring that we educate child participants, their parents and coaches on the effectiveness and ease of application of injury prevention programmes.

Having recognised this as our challenge we organised, through our West London clinic, a summer “Super Saturday of Sport” event to address the need for promoting participation in activity, and to highlight the need for injury prevention programmes. The parallel benefit to us as a clinic has been an increase in exposure in the community. Our role as organisers and sponsors of the event gave us the opportunity to develop relationships with our neighbouring sports clubs and medical facilities to whom we could promote our services in injury management and prevention. The aim is to build on these relationships with the development of new referral pathways and joint ventures with these new contacts. It has been a challenging but highly rewarding project that we hope to hold as an annual community event.

Super Saturday of Sport: a case study

In the summer of 2019 we held our Super Saturday of Sport with the vision of encouraging the children in our area – and beyond – to increase their activity levels and sports involvement, with a view to improving their health and, by extension, leading to improved lifelong activity levels and wellbeing.

More than 30 of our local sports clubs and health and fitness representatives supported the event by offering on the day free sports taster sessions, and information about childhood health, wellness and injury prevention. Our clinic team worked hard in planning the event; local businesses with an interest in sport and wellness were invited to participate and help fund it and, having secured their commitment, we emailed contacts from our network of parents, coaches and sports clubs who, having

“CHILDREN AGED 0-19 YEARS MAKE UP ALMOST HALF OF THE INDIVIDUALS PRESENTING AT A&E WITH SPORT RELATED INJURIES”

received an explanation of our concept, were keen to come onboard.

On the day, children were encouraged to try as many of the offered sports and activities as possible, with the added reward of participation stamps, which were entered into a prize draw, giving them the chance to win activity and sport-related prizes and vouchers.

The activities available included football, cricket, tennis, judo, taekwondo, jiu-jitsu, rowing, basketball, skateboarding, rugby, American football, table tennis and gymnastics (figures 1-5). In recruiting sport clubs, we looked for those with a range of sporting activities that would offer all children a way into a new activity, whatever their tastes and preferences.

Free advice and yoga and Pilates sessions were available from health and fitness clinics for both adults and children, and physiotherapists, GPs, and

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Pilates instructors were on hand for free assessments. Local gyms also joined us to showcase their health and fitness services.


The feedback from families who attended the day was very positive. One mother of a 10-year-old boy said: *“My son has never been one of the football lads. He loves being active but never felt ball sports were his thing. At Super Saturday he was able to try Parkour (www.parkour.uk) and has been blown away. He is completely passionate about it. We were able to sign him up for weekly classes through the club at Super Saturday, and he is already stronger, more active, and more confident physically. Amazing.”*

And from a dad of two girls: *“... the younger one has always loved*

football. At Super Saturday we found our local girls’ football team, which she has joined, and she is super happy to be in a proper club, to be getting good coaching and playing every week. We are so pleased.”

Another parent who had never considered that their son might be interested in rowing said: *“At Super Saturday one local rowing club brought in four rowing machines, and he was able to get a taste for rowing and is now keen to continue. I wouldn’t have known how to introduce him to this sport otherwise.”*

Conclusion

Our introduction to activity to our local area was an incredible success. Around 2,000 children and their families had a great time sampling sports and learning about health and wellness. Having physiotherapy clinics involved in the day emphasised how we, as physiotherapists, can encourage healthy activity for all ages, and play an important role in 

Super Saturday of Sport



FIGURE 1: Taekwondo display



FIGURE 3: Silent spin class



FIGURE 2: Kitted out for American football



FIGURE 4: Warming up for Kung-fu



FIGURE 5: Gymnasts performing back arches

helping the public to maintain a healthy lifestyle and avoid injury.

From this initiative we are anticipating a stronger connection with many local sports clubs and sports coaches. We have opened up the dialogue for injury prevention programmes and injury management strategies and we are planning to offer workshops and seminars to further promote the benefits of active participation, together with the need for injury prevention in children.

We believe that, at a time when physical activity levels in children are lower than recommended, it is up to our profession to highlight the potential impact this will have not only on the physical, mental, and cognitive wellbeing of our younger generation, but also how it will affect that population into adulthood. With innovative events and profile-raising activities, physiotherapists can have a major role in educating our communities and involving them in improving their participation in physical activity and being aware of how to prevent injury.

About the author

Sarah is a private practitioner physiotherapist in London. She owns and runs OneBody Clinic in Notting Hill Gate and Chiswick. Her career experience includes working in elite sports, teaching at university and, now, working to build a private practice that will have a strong reputation in the treatment and rehabilitation of injury and has a voice in her community through the support of local health and wellbeing initiatives.

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