



UK Chief Medical Officers' physical activity guidelines for disabled children and disabled young people: how we developed the infographic

Introduction

This document provides further information about the methodology for the design and development of the infographic for the UK Chief Medical Officers' physical activity guidelines for disabled children and disabled young people. This infographic is the latest addition to a series commissioned by the UK Chief Medical Officers (UK CMOs) to facilitate communication of [national physical activity guidelines](#) for public health purposes.

Aim of the infographic

The infographic was developed to help communicate and promote the UK CMOs' Physical Activity Guidelines for Disabled Children and Disabled Young People. The infographic, which is aimed at disabled children, disabled young people, parents, carers, schools, health and social care professionals, as well as disability and sport organisations, provides key messages and factors to consider when encouraging and/or participating in physical activity. Professionals and organisations working with disabled children and disabled young people are encouraged to promote the physical activity guidelines and infographic across their professional networks and in their communities.



Method

Following the [2019 UK CMOs physical activity guidelines](#), the Department of Health and Social Care commissioned the physical activity guidelines for disabled children and disabled young people. This work was led by teams based at Durham University and the University of Bristol. The methodology for developing the infographic took place in 2 phases.

Phase 1: rapid review of evidence

The academic team conducted a rapid review of the available scientific evidence on the health benefits of physical activity for disabled children and disabled young people. The results of the review provided the evidence base for the physical activity public health guidelines and the supporting infographic. The research methods for this phase are detailed in the scientific evidence report.

Phase 2: co-production process

The academic team worked with a diverse group of disabled children, disabled young people, parents and carers to consider different methods for communicating the physical activity guidelines. The group decided that an infographic would be the most effective method for communicating the guidelines. The academic team worked closely with them to develop the content and design of the infographic to ensure that the guidelines are communicated to the target audience in a clear and meaningful way.

A prototype infographic was first designed by a group of 12 disabled children and young people. A variety of fonts, colours and pictures were selected as possible options for how the infographic could be designed. The prototype and options were then used in a series of workshops with over 100 disabled children, disabled young people, parents and carers to facilitate discussion about what they believed should be included in the infographic and how it should be presented.

The knowledge gained from these workshops was then used to direct the design of 5 different infographics. These infographics were shared in virtual and face-to-face workshops and via email with the people who had taken part in previous workshops. The infographics were also shared with an additional 100 disabled children and disabled young people as well as over 70 parents and carers. Education, health and social care professionals were also invited to share their thoughts on the infographics. The knowledge gained through this process was then blended into a single infographic.

The infographic that resulted from this process was subsequently returned to the group, who were invited to provide any further thoughts on the infographic. As a result of their feedback, some very small changes were made to the infographic.



Participants in the co-production process

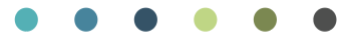
Researchers worked with numerous organisations and schools to support the recruitment of a diverse range of people, including 233 disabled children and disabled young people who participated in the co-production of the infographic. Disabled children and disabled young people ranged from 6 years of age to 17 years of age. Seventy-three parents or carers and 33 professionals from education, health and social care also participated.

The co-production of the infographic also benefitted from the support of various schools and organisations. These included:

- Abbot's Lea School (Liverpool)
- Bishop Barrington Academy (Bishop Auckland)
- British Blind Sport
- Cerebral Palsy Sport
- Clare Mount Specialist Sports College (Wirral)
- Durham Trinity School (Durham)
- Get Ahead, Disability Rights UK
- LimbPower
- Mill Water School (East Devon)
- North East Autism Society
- UK Deaf Sport
- SPARC
- Sport England
- Sport for Confidence
- St Vincent's School: A Specialist School for Sensory Impairment and Other Needs (Liverpool)
- Thornhill Park School (Sunderland)
- Youth Sport Trust

Summary of the co-production process

1. A prototype infographic with 12 disabled children and young people was created. A palette of colours, fonts and pictures were also selected.
2. One hundred and seventeen disabled children and young people took part in virtual and face-to-face workshops. The prototype infographic and palette were shared with them to facilitate discussion about design of the infographic.
3. Five infographics were created based on the knowledge produced in the workshops.
4. The 5 infographics were shared with the disabled children and disabled young people involved in the workshops for their feedback on the content of the infographics, what needed further changing, and how the presentation could be improved. The 5 infographics were also shared with an additional 116 disabled children and disabled young people as well as health, social and educational professionals.
5. A final infographic was created based on the knowledge produced in the workshops. The infographic was shared with past workshop participants for final thoughts. Small tweaks were made based on the feedback before it was finalised.



Outcome of the co-production process

During the co-production process, there was discussion on whether it would be helpful to develop multiple infographics, tailored to different impairments. It was acknowledged that these could be used by impairment-specific physical activity or sport organisations. However, the co-production group's consensus view was that a single infographic with a public health focus, aimed at disabled children and disabled young people their parents and carers, would have a far wider reach into the population and potentially be more impactful than multiple, impairment-specific infographics. It would also recognise that some children and young people have complex (one or more) disabilities, and therefore be more inclusive to a wider range of people.

Design

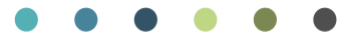
The design of the infographic was led by the disabled children and disabled young people involved with the co-production. They suggested that dividing the infographic into 3 distinct sections would be a meaningful and accessible way of communicating the physical activity guidelines.

It was important to have a clear narrative throughout the infographic:

1. It starts with why participating in physical activity is important for individuals and wider society.
2. It then moves on to the benefits people can gain from participating in physical activity.
3. It concludes with the evidence-based guidelines on how much activity is necessary to gain from participating in physical activity.

During the co-production process, the disabled children and disabled young people considered changing the order of the sections. For example, moving section 3 to the top to prioritise the guidelines and section 1 to the bottom. However, the disabled children and disabled young people were clear that the chosen order of sections was vital to maintaining their understanding of the infographic. The order of sections was therefore directed by disabled children and disabled young people themselves and the final infographic has a clear narrative that makes sense and appeals to them.

It was incredibly challenging to source pictures that inclusively reflected different disabilities, sexes, ages, and physical activities. After much discussion with the disabled children and disabled young people involved with the co-production, the 4 pictures included on the infographic were considered inclusive of differences, including visible and non-visible disabilities.



Underpinning evidence

Why participating in physical activity is important for individuals and wider society

The first section of the infographic is titled 'Getting and staying active is about'. This is positioned at the top of the infographic because the disabled children and disabled young people thought it was important to begin by setting out the essential reasons for starting and sustaining physical activity across the life course.

There is an evidence base that emphasises equality, inclusivity, fun, and feeling good as vital for participating regularly in physical activity ([Conchar L and others](#), [Shirazipour CH and others](#), [Smith B and Wightman L](#)). When physical activity opportunities are equal, inclusive, fun, and make you feel good then participation in physical activity is more likely to happen and, in turn, [benefits to be realised](#).

The evidence shows that when people do not have equal opportunities or inclusive environments, and when activities are not enjoyable or pleasant, then participation in physical activity is unlikely to happen. As a result, any benefits from participating in physical activity are unlikely to materialise. The question of 'How much physical activity should I do?' becomes also largely irrelevant when equality, inclusivity, fun, and feeling good are absent from the physical activity story.

The words 'finding' (what's fun) and 'exploring' (what make you feel good) were carefully and purposefully chosen. They promote qualities like autonomy, choice, and meaningfulness that are vital to engage the target audience and encourage them to participate in physical activity. The words communicate the importance of trying different activities when certain activities do not engender positive emotions.

Benefits of physical activity

The second section, titled 'Benefits of physical activity' is about communicating the positive gains from participating in physical activity. Two types of evidence were used to create this section:

1. evidence from the rapid review conducted by the academic team
2. evidence from lived experience that was provided through conversations with disabled children, disabled young people and their families

A quantitative evidence base exists in the scientific literature for most of the benefits emphasised (Public Health England 2018, [Physical activity for general health benefits in disabled adults: summary of rapid evidence review for the UK CMOs' update of the physical activity guidelines](#)). These include confidence, concentration, muscles, motor skills, balance, and co-ordination. Alongside this, there is qualitative evidence for the benefits of physical activity regarding meeting new people and making friends, mental health and feeling calmer and less stressed ([Giacobbi, Peter R and others](#), [Jachyra P and](#)



[others](#), [Knibbe TJ and others](#), [Morris A and others](#), [Shimmell, Lorie J and others](#) [Shields N and Synnot A](#)).

The experiential knowledge of disabled children and disabled young people, parents and carers that was shared during the co-production process emphasised additional benefits of participating in physical activity. The main benefit identified was 'meet new people' so this was positioned first. However, the other benefits should not be viewed as hierarchical in terms of where they are placed along the infographic because different disabled children and disabled young people within the co-production team experienced and prioritised the benefits differently. For example, children with cerebral palsy or young amputees highlighted the benefits physical activity has for their balance, muscles and/or co-ordination. Meanwhile, children on the autistic spectrum emphasised the benefits of being active in terms of feeling calmer and less stressed.

Despite such differences in emphasis, the co-production team appreciated the different and multiple benefits that can be experienced through physical activity. It was also noted that some benefits not emphasised at present might be elevated in importance later in life. The co-production team commented that it is important for public health messaging to highlight a variety of health and social benefits to encourage different people to engage in physical activity across the life course.

The words 'improves', 'strengthens', and 'builds' were used in early drafts of the infographic; primarily in the context of 'improves concentration', 'builds confidence', and 'strengthen muscles'. However, the children and young people with intellectual or learning disabilities within the co-production team said they did not understand these messages, that they did not make sense. As a result of this feedback, verbs such as 'improves' and 'strengthens' were removed and replaced with a white tick against a green background as a visual symbol of improvement. A revised version of the infographic was tested with other disabled children and disabled young people parents, carers and professionals and the feedback was that the white tick was an effective way of communicating the benefits of physical activity to the target audience in a meaningful and relevant way.

20 minutes of activity each day

The available evidence indicates that, for likely improved health outcomes, it is important for disabled children and disabled young people to participate in 120 to 180 minutes of aerobic physical activity per week at a moderate-to-vigorous intensity ([Public Health England 2018](#)). The evidence suggests that this may be achieved in different ways (for example: 20 minutes per day or 40 minutes 3 times per week). There is currently little evidence to support guidelines that disabled children and disabled young people engage in at least a weekly average of 60 minutes per day of moderate-to-vigorous intensity physical activity.

There was some discussion during the co-production process on how to communicate these guidelines in a motivational way. Feedback from disabled children and disabled young people, disabled young people, their parents and carers suggested that a 120 to 180 minute message or an average 150 minute message would be demotivating, especially for those who are mostly inactive, while a 20 minute message was more appropriate and achievable.



Intensity of physical activity

The available evidence indicated that for likely improved health outcomes, it is important for disabled children and disabled young people to participate in moderate to vigorous intensity activity. Unless training for elite sport as a highly dedicated athlete, intensity was deemed by disabled children and disabled young people, along with many parents and carers in the co-production team, to be an unnecessary, irrelevant and/or confusing message for the infographic to communicate. For example, the disabled children and disabled young people did not monitor or think about intensity when contemplating being active or doing physical activity. Therefore, intensity was not considered a meaningful message which fit with the daily reality of how they wanted to get or stay active. Adding an intensity message also had the potential to confuse the 20 minute message, which was considered more important.

A focus on intensity alone will be unlikely to motivate disabled children and disabled young people to get or stay active. However, it may be useful to ask about intensity when giving disabled children and disabled young people advice about physical activity as some may already undertake moderate-to-vigorous activity while others are doing much less intense activity. It is recommended to talk to the individual child or young person and ask them how much activity they feel comfortable doing and what activities they enjoy doing. It is also suggested not to recommend vigorous activity to disabled children and disabled young people who are new to physical activity. Instead, you can emphasise that a child or young person should aim for a moderate intensity, starting gradually, and doing activities they find enjoyable and make them feel good.

‘Small amounts of physical activity are good for you as well’

There is some evidence to suggest there are health benefits from lower amounts of physical activity, therefore [some activity is better than nothing](#). The disabled children and disabled young people, parents, carers, and professionals involved in the co-production process suggested communicating this evidence through a positive, ‘gain framed’ message. They finessed the message with ‘as well’ to denote that 20 minutes of activity is good, but that you can also do the physical activity in smaller amounts throughout the day to cumulatively reach 20 minutes.

‘When starting build up slowly’ and ‘ask: can you do this today?’

Concern is often expressed that physical activity for disabled children and disabled young people is not safe ([Shields N and Synnot A](#), [Smith B and Wightman L](#)). The evidence review that underpins the infographic found no evidence that physical activity presents an adverse risk to most disabled children and disabled young people, if appropriately supervised and tailored to the needs the individual or group. Messages around mentioned ‘safety’, ‘risk’, or seeking ‘advice from trained professionals’ to communicate safety messages were discussed and rejected for inclusion in the infographic because they could



be misinterpreted as medicalising disabled children and disabled young people. It could also position them as a vulnerable group and one that health and social care professionals should be overly cautious about promoting physical activity to.

Message 1: ‘when starting build up slowly’.

This refers to a practical and sensible approach to getting active that can minimise any harm caused by over strenuous or too intense activity, especially for those starting an active lifestyle or with a health condition.

Message 2: ‘ask: can you do this today?’

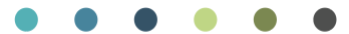
This is a dual message. On one hand, it is designed to encourage disabled children and disabled young people to ask themselves, as experts of their own bodies, ‘Can you do physical activity today?’ A person’s answers could mean that adjustments should be considered for the activity or, for other people, such as those with chronic fatigue syndrome or ME, rest is best.

On the other hand, the message ‘ask: can you do this today?’ was designed to encourage professionals (for example, PE teachers) to ask a disabled child or disabled young person about their physical activity needs, rather than assuming they know as professionals. This makes clear that the advice needs to be tailored to the individual. This message was considered particularly helpful by individuals with chronic fatigue syndrome or ME because it could remind others that just because a disabled child or disabled young person can do a certain amount of physical activity at a certain intensity at a particular time, we should not assume that their bodies can do the same on a different occasion.

Whilst the messages ‘when starting build up slowly’ and ‘ask: can you do this today?’ are considered useful and relevant, if you have concerns about potential risks associated with physical activity, you should seek advice from medical professionals. This includes people with chronic fatigue syndrome or ME, or long COVID

Do challenging but manageable strength and balance activities 3 times per week

The available evidence base suggests that for good health it is important for disabled children and disabled young people to do challenging strength and balance-focused activities on average 3 times per week. This message was considered very important by the disabled children, disabled young people, parents and carers involved in the co-production process who collectively agreed that good strength and balance are vital for disabled children and disabled young people’s quality of life across their life course.



Do bitesize chunks of physical activity throughout the day

There is evidence that [small amounts of physical activity are beneficial for health](#) so it was important to communicate that it is still beneficial for disabled children and disabled young people to [do a small amount of physical activity throughout the day](#) and/or to break sedentary behaviour.

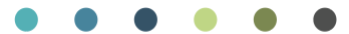
The message that the co-production team considered most relevant, relatable, and applicable to everyday life was to 'Do bitesize chunks of physical activity throughout the day'. The co-production team chose the word 'bitesize' because they thought it was culturally meaningful and understandable because it was part of their vocabulary learnt through school.

Activity opportunities

Activities that disabled children and disabled young people find fun and enjoyable should be encouraged. Advice should be tailored to the individual and encourage them to do an activity that makes them feel like they are working hard. Choices and advice should encourage the person to feel like they are working hard.

Examples of physical activity to recommend include (but are not limited to):

- adapted sports (cycling, gymnastics, ice skating, tap dancing)
- aerobic exercises (walking, running, cycling)
- aquatic exercise
- balance training
- cycle ergometry
- dancing
- functional power and strength training
- gross motor skill exercises
- indoor wall climbing
- locomotor training
- martial arts
- modified sports (basketball, cricket, netball, soccer, tee-ball)
- progressive resistance training
- rope jumping
- proprioceptive activities
- surfing
- Special Olympics
- VR/exergaming
- wheelchair sports
- yoga



Outdoor activities in green spaces (such as parks and forests) or blue spaces (such as rivers and lakes) are also encouraged because these are good for health.

There are numerous sport and leisure organisations, local and national user-led disability and inclusive sport organisations which can offer information and resources to support physical activity. Local Active Partnerships can also provide information and it can sometimes be beneficial to talk to an education, health or social care professional.

Contact

If you have any questions on the UK CMO physical activity guidelines for disabled children and disabled young people, email physicalactivity@phe.gov.uk.

Acknowledgements

We are very grateful to all the disabled children and disabled young people, , parents, carers, education, health and social care professionals and sport and disability organisations who were involved in the co-production of this infographic. Thank you.