

A country that works for all
children and young people

An evidence-based plan for
supporting physical activity
and healthy nutrition with and
through education settings

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Foreword by Anne Longfield and Camilla Kingdon



Our children are becoming unhealthier and less active. Millions of young people in the UK do not do the recommended average of 60-plus minutes of physical activity a day, and over 2 million 5-to-16-year-olds do not even get 30 minutes of activity per day. Childhood obesity has become ever more common, particularly in our country's most deprived communities, and the cost-of-living crisis and rocketing numbers of families living with food insecurity has added to the challenge. The resulting poor physical and mental health of our population is crippling the NHS and urgent action is needed.

The Government's Childhood Obesity Strategy, published in 2017, set out plans for schools to provide at least 30 minutes of moderate to vigorous physical activity a day through active break times, physical education (P.E.), extracurricular clubs, active lessons, and other sport and physical activity events. However, children's physical activity levels show no signs of increasing and the nation's health is suffering as a result.

Many children are living sedentary lives, and encouraging and supporting all our children to be physically active has not been made any easier by the encroachment of smart phones and screen time into their daily routines over the last decade. The nature of play, such an important contributor to children's physical activity, development, and wellbeing, has changed much in recent years, often away from the physical "real world" to the "online world".

We can't blame the internet and technology for all of these problems. Children and families talk about the reduced opportunities to play or be physically active. The lack of convenient and safe play areas, busier streets, a culture that often discourages play in public and private spaces, the loss of P.E. hours at school, and the inaccessibility and expense of sports clubs are all additional factors.

We also need to recognise the impact of the changing nature of many children's diets. A survey published last year suggested half

of teachers have noticed an increase in the number of pupils struggling to concentrate on learning due to hunger and fatigue. The low dietary intakes of fruit, vegetables, and fibre and the high intakes of red and processed meat, sugary drinks, sweets, and sodium during the crucially important years for a child's growth is affecting the physical, cognitive, and social-emotional development of some children.

We're not making it easy for children and young people to eat well, and the relentless advertising pressure on children to eat unhealthy food from the big food companies makes the environment for children even more toxic.

This report – the fifth in a series of Child of the North/Centre for Young Lives reports to be published during 2024 – makes evidence-based recommendations for addressing the challenges around encouraging physical activity and healthy nutrition for children, with and through education settings. One consistent message throughout these reports is the extent to which the myriad problems faced by schools often have the same root causes. For example, barriers to physical activity can contribute to mental ill health (with the third report in the series highlighting how mental health problems are plaguing our schools). In the same vein, the SEND crisis means many children with movement difficulties (handwriting, jumping, running etc.) do not have the support they need. In turn, this creates a barrier to physical activity and hinders children's education. This report showcases ways in which schools can identify such needs and help children with these difficulties (and the endnote provides powerful testament to the advantages of providing such support).

A greater focus on physical activity in school is long overdue, as are the resources and specialist staff to deliver rich physical exercise experiences. We need to better recognise those schools which are placing a greater importance on improving physical activity, healthier diets, and wellbeing by recognising their endeavours through the schools' inspection system. Widening

The cost-of-living crisis and rocketing numbers of families living with food insecurity has **added to the challenge.**

A greater focus on physical activity in school is long overdue, as are the resources and specialist staff to deliver rich physical exercise experiences.

Ofsted's remit to reward schools that follow such an approach would also encourage more schools to make this a priority for their students.

In addition, with the right support, schools have a crucial role to play as partners in developing and delivering wider approaches to supporting improved health nutrition and increased physical activity. If we get it right, some of the other challenges facing schools – the rising number of absences due to ill health, concentration levels, and classroom behaviour for example – could also be improved.

This report argues for much greater empowerment for schools to develop their own plans to support children and their development more holistically, putting a greater emphasis on health and wellbeing alongside academic achievement. It argues for a move towards a whole-school approach to promoting physical activity throughout all areas of the school day and aligning physical activity with broader educational-based goals, by creating environments which support children to be active and lead to long term change. It provides examples, such as the Creating Active Schools framework, which has developed a positive template for a whole-school approach. Twenty localities and 250 schools are already engaged with this project, and we hope this number increases and similar schemes are developed.

This report also reiterates the importance of play to children's health and wellbeing. We know that playing is a major contributor to children's physical activity. Encouraging children to establish active lifestyles through playing and connecting with nature improves mental wellbeing, coronary and respiratory health, and lowers obesity. Yet, as a society, the barriers to encourage our children to play often seem unsurmountable – concerns about safety, lack of space and time, and sometimes cost.

Every school should be able to tailor its own whole-school approach to encouraging healthier diets, promoting healthy eating, and introducing clear nutrition standards for all food and drink available at school, including school meals, snacks, and vending machines. These standards should be aligned with

dietary guidelines and prioritise nutrient-rich foods while limiting or avoiding foods high in sugar, salt, and unhealthy fats. We should look to Sweden where the introduction of high-quality lunches has raised educational attainment, improved health in adulthood, and increased earnings.

Despite much campaigning for healthier school meals, we are still a long way behind many other countries. This report includes research carried out by the University of York's FixOurFood and the Food Foundation, which investigated young people's perceptions of the food offered within secondary schools and whether young people are able to buy tasty, healthy, and sustainable food with the free school meal allowance. Its conclusions show the scale of the challenge: children faced restricted choices and had to opt for meal deals, including a main, a dessert, and possibly a drink, even though in some instances, non-meal-deal items offered healthier alternatives; there was a lack of fruit, vegetables, and salad in all schools, and portion sizes were often not filling, leaving children hungry. As one young researcher commented, "the closest thing you get to fruit is jelly".

This broken school food system and the lack of school funding to improve school meals is acting as a huge barrier to healthy food choices and improving children's health. Amongst other recommendations, we urge Government to change School Food Standards to include two portions of vegetables with every meal, ensuring schools have sufficient funding to provide access to free drinking water, and extending free school fruit and vegetables provision to all year groups. Provision of school breakfast clubs, the Healthy Start scheme, and free school meals should also be expanded. Too many low-income families are still not taking up vouchers, and too many children living in poverty still don't receive free school meals.

The trajectories of child physical activity and healthy diets are heading the wrong way, it is making it harder for children and young people to make healthy choices, and it is costing the

UK billions a year, as well as holding back life chances. Current strategies are making too little of a difference. It's time to superpower our schools and communities to help children and young people eat well, engage in physical activity, and be healthy.

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This report is a collaborative programme of work between Child of the North and the Centre for Young Lives.

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A full list of authors and contributors can be found at the end of the report.

A note about language

In this report, CYP is used to refer to children and young people.

Please note that this report often uses “schools” as shorthand for “schools, nurseries, and other educational settings such as pupil referral units and special schools”. One central message of this report is the need for a “whole system” approach that includes all relevant stakeholders, and this includes all parts of the education system.

About Child of the North

Child of the North is a partnership between the N8 Research Partnership and Health Equity North which aims to build a fairer future for children across the North of England by building a platform for collaboration, high quality research, and policy engagement. [@ChildoftheNorth](https://twitter.com/ChildoftheNorth)

About the N8 Research Partnership

The N8 Research Partnership is a collaboration of the eight most research-intensive Universities in the North of England: Durham, Lancaster, Leeds, Liverpool, Manchester, Newcastle, Sheffield, and

York. Working with partner universities, industry, and society (N8+), the N8 aims to maximise the impact of this research base by promoting collaboration, establishing innovative research capabilities and programmes of national and international prominence, and driving economic growth. www.n8research.org.uk [@N8research](https://twitter.com/N8research)

About Health Equity North

Health Equity North is a virtual institute focused on place-based solutions to public health problems and health inequalities across the North of England. It brings together world-leading academic expertise, from the Northern Health Science Alliance’s members of leading universities and hospitals, to fight health inequalities through research excellence and collaboration. www.healthequitynorth.co.uk [@_HENorth](https://twitter.com/_HENorth)

About the Centre for Young Lives

The Centre for Young Lives is a new, dynamic and highly experienced innovation organisation dedicated to improving the lives of children, young people, and families in the UK – particularly the most vulnerable. Led by former Children’s Commissioner, Anne Longfield CBE, who has been at the forefront of children’s issues for decades, the Centre’s agile team is highly skilled, experienced, and regarded. It is already widely known and well respected across government departments, Parliament, local and regional government, academia, the voluntary sector, and national and local media. The Centre wants to see children and young people’s futures placed at the heart of policy making, a high priority for Government and at the core of the drive for a future for our country which can be much stronger and more prosperous. www.centreforyounglives.org.uk [@CfYoungLives](https://twitter.com/CfYoungLives)

About the N8+

Collaboration lies at the heart of “Child of The North”. The N8 has proved a useful organising structure but the Child of The North vision is to: (i) use the North-South England divide to show the impact of inequity on all children in the UK; (ii) bring together stakeholders from across the UK to build a better country for CYP. One aspiration is to link researchers from across the UK to support evidence-based approaches to policymaking. In particular, there is a desire to unite Higher Education institutes across the North of England so we can address problems in partnership. This report is a testament to the “N8+ vision” with colleagues from the University of Bradford leading its production. This reflects the wider collaboration between the University of Bradford and N8 partners in projects such as “Born in Bradford” and the Wolfson Centre for Applied Health Research.

Quotations

The illustrative quotations throughout the report were taken from extensive qualitative and consultation work with children, families and professionals in the North of England.

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Key insights

**2-5
CHILDREN**

In every classroom, 2-5 children have motor skill difficulties which negatively impact their ability to engage with physical activity.



4,000 hours of PE have been lost from the curriculum in state-funded secondary schools in 2022/23.

ONLY 1.6%

Of packed lunches meet the Government's School Food Standards.

Physical inactivity costs the UK an estimated **£7.4 billion** each year.

**£7.4
BILLION**

82%

Of 5-15 year olds do not consume the recommended five daily portions of fruit and vegetables.

900,000 CHILDREN

Living in poverty in England do not qualify for **free school meals** due to restrictive eligibility.



Almost **four million children** are not physically active for the recommended **60-plus minutes** a day.

250,000

Eligible children are missing out on free school meals due to the out-dated opt-in system.

2x

Children aged 4-10 years are consuming almost double their recommended daily sugar limits.

**2.2
MILLION**

5-16 year olds do not get even 30 mins of activity a day.

Children and young people from the most deprived backgrounds are least likely to be active, with only **44%** achieving 60 minutes of physical activity daily.

44%

20%

Of households with children are experiencing food insecurity.

Defining physical activity and healthy nutrition terminology



Physical activity

Physical activity refers to any body movement that requires energy expenditure, typically beyond what would happen at rest. It encompasses various forms of movement, from daily activities such as walking and climbing stairs, to active play and sport. There are seven main opportunities for physical activity that education settings can directly or indirectly influence. Within school, these include curricular lessons, **physical education** (P.E.), break times, and school trips/events. Traditionally, P.E. and break times have been the main opportunities for physical activity. During break time, CYP often engage in **active play**, which includes freely chosen activities (both individual and group) that raises their heart rate. This is often spontaneous and pleasurable, performed for no external goal or reward. Meanwhile, P.E. is embedded within the curriculum to instil lifelong physical activity habits and empower pupils to lead happy, healthy lives.

More recently, education settings have adopted **physically active learning (PAL)** approaches to delivering the curriculum. PAL integrates movement with academic lessons (such as Maths and English) in response to children being sedentary for large parts of their day (despite the demonstrated benefits of physical activity on academic performance). PAL involves facilitating learning through movement. It combines movement and teaching in a meaningful way to enhance academic performance and behaviour in CYP. Outside of the core school hours, schools can influence physical activity in three other ways: (a) through before- and after-school clubs; (b) via active commuting; and (c) by supporting physical activity with the family and/or the broader community.

To readily engage in physical activity, CYP need to develop **“physical literacy”**. Physical literacy refers to the extent to which individuals have a positive and meaningful relationship with movement and physical activity throughout life (1). It is deeply personal, influenced by thoughts, feelings, engagement, and experiences. Physical literacy encompasses how a child moves physically, connects socially, thinks cognitively, and feels

emotionally when active, along with the extent to which they derive enjoyment, meaning, and value from movement and physical activity.

One important element of physical literacy is an individual’s **motor skills** – the ability to coordinate movements to interact with the world and other people. More specifically, fundamental movement skills (playground skills such as running, jumping, hopping, throwing, kicking, catching, and balancing) lay the foundations for children to be physically active throughout life.

General physical activity differs from exercise and sport because it is less structured. **Exercise** refers to activity which is planned and carried out for a specific purpose, such as physical and/or mental health benefits (e.g., improved fitness, balance, muscle strength). Similarly, **sport** refers to structured exercise that is often played according to rules and can sometimes involve a degree of competition.

Insufficient access to healthy nutrition impacts growth and development in childhood, including risk for being overweight or obese.

Healthy nutrition

Healthy nutrition provides the body with essential nutrients such as protein, vitamins, fibre, and energy (calories). A healthy diet contains fruits, vegetables, and wholegrains, and includes little to no highly processed foods or sweetened beverages. **Processed foods** are made through industrial formulation, typically containing additives, preservatives, and artificial ingredients. They are often low in nutritional value and high in ingredients such as salt, sugar, and unhealthy fats.

In education settings, CYP can learn about what constitutes healthy nutrition through food education. **Food education** involves a curriculum addressing nutrition, culinary skills, and sustainable food practices to promote healthy eating habits and food literacy. Food education encompasses a holistic approach to food, emphasising the importance of nourishing the body while considering cultural, social, and environmental factors. Through food education, **food literacy** is developed, building knowledge of food sources, nutrients, food preparation techniques, and the impact of food choices on health and wellbeing. It empowers CYP to adopt healthy eating habits and navigate the complex food environment effectively. Food literacy also encompasses skills such as meal planning, grocery shopping, and cooking, as well as awareness of food-related issues such as sustainability and food insecurity.

Food insecurity relates to CYP whose family/carers do not have the financial resources required to ensure reliable access to sufficient food of adequate quality to meet dietary, nutritional, and social needs. These CYP are less likely to attain healthy nutrition. Insufficient access to healthy nutrition impacts growth and development in childhood, including risk for being overweight or obese (2). Weight status is often measured using Body Mass Index (BMI). CYP in the bottom 5% for their category are classed as underweight. Those within the 5-85% range are considered “normal” weight. CYP falling between 85-95% of the upper end of the BMI range are considered overweight, and those falling in the top 5% for their category are classified as obese.

Disordered eating encompasses a range of eating behaviours that deviate from typical patterns, but which do not meet clinical criteria for eating disorder diagnoses. **Eating disorders** describe serious mental health conditions affecting CYP of all ages, genders, ethnicities, and backgrounds. People with eating disorders display disordered eating behaviours that exceed a clinical threshold and require health service intervention. These behaviours may include eating binges, restrictive eating, getting rid of food eaten through unhealthy means (e.g., fasting, excessive exercising, vomiting or misusing laxatives), or any combination of these behaviours (3).



Policy recommendations

If the UK wishes to invest in its future and improve the health of its nation, it needs to address the child obesity crisis. A growing proportion of CYP are not meeting the minimum recommended amounts of daily physical activity. The health problems associated with childhood inactivity are further compounded by the increasing numbers of children who are not eating healthily. The combination of inactivity and unhealthy diet is fuelling the obesity epidemic with all the well documented long-term negative impacts on physical and mental health.

The childhood obesity epidemic can help to explain some of the current pressures on the NHS. The costs of poor health in childhood are the result of a health service on its knees and dealing with the clinical consequences of cardiovascular disease, asthma, cancer, diabetes, and mental ill health – with obesity being a major risk factor for all these illnesses. The resulting cost to the public purse is more than the UK can afford (even without factoring in the societal costs of an unhealthy population).

But the impact on the national economy goes far beyond the direct costs of poor physical and mental health. There are increasing numbers of CYP growing up in poverty and attending school hungry (see the [Child of The North poverty report](#)). The negative impact of hunger on learning is easy to imagine and well-established through research. A failure to ensure every child is well-nourished in school will ultimately hinder the creation of a well-educated population and starve the UK of its potential workforce.

Three core evidence-based recommendations could and should be adopted by the next government to support CYP to be more active and better nourished as a first step towards reversing the tide of health inequity and economic stagnation that will otherwise afflict the next generation.

1

Establish whole-school approaches for physical activity and healthy nutrition, bringing together health and education to better support childhood health and wellbeing.

There is no “one size fits all” approach that will benefit all CYP because of the unique nature of individual education settings. Thus, education settings need to be supported to involve all members of their school community (including teachers, parents, pupils, and support staff) to develop and deliver individualised whole-school approaches to support healthy nutrition and physical activity behaviours. Such approaches have the potential to reduce absences due to ill health and improve engagement and educational attainment across all pupils.

“It’s a culture change, but it’s not a small culture change if you want to do this properly, **it’s a massive culture change for the whole school, for every member of staff that’s in there, for the children, for everyone.**”

– P.E. lead

2

Commit to support education settings to deliver diverse curricula, teacher training, and an ethos where the health and wellbeing of pupils is central to teaching practices and the wider school environment.

Current curricula and Ofsted practices focus largely on academic achievement within schools. The narrative needs to shift so that education settings are empowered to support children and their development more holistically, with an emphasis on health and wellbeing outcomes, including healthy nutrition and physical activity. Education settings will have more agency to support disadvantaged CYP to thrive academically if the importance of physical activity and healthy eating are emphasised within assessment criteria and deliverable content.

3

Prioritise evidence-based practice and co-production to drive impactful and sustainable change within education settings.

Education settings are often presented with an abundance of interventions that are not sufficiently evidence-based, ultimately leading to non-optimal results and a severe financial drain on already stretched school budgets. Education settings should be supported to work alongside local Higher Education institutions to draw on research expertise (including physical activity and healthy nutrition) to highlight the most effective interventions and use local (and national) data to guide conversations about priorities. Such priorities must, however, be co-produced with local communities to reflect the diverse and unique culture of each school and the population it serves.

These recommendations offer immense potential for decreasing the long-term costs associated with not acting early enough (e.g., the health, social care and criminal justice bills that result from not supporting children’s needs sooner); they will help the UK benefit from the sustainable economic growth available when the talents of every child can be deployed effectively within the workforce. Whilst there are resource implications, the recommendations do not require unfeasible levels of investment.

Principles

Our health services are at breaking point, and many CYP are at high risk of poor long-term physical and mental health because of physical inactivity and an unhealthy diet. Moreover, many CYP are experiencing a diminished education because of malnourishment. These problems are not evenly distributed across the nation and there is a clear socioeconomic gradient that means CYP in our most disadvantaged areas are at the greatest risk of experiencing poor health because of factors related to inactivity and diet.

School is the place where CYP spend most of their time. Thus, we can start to encourage physical activity and support CYP to eat healthily when we place interventions within the school gates. The evidence shows that working with and through education settings is an effective way of addressing the inequalities that blight the UK. One efficient way for the UK to make progress on issues such as poverty and health inequity is to prioritise physical activity and healthy eating programmes in the schools that serve our most disadvantaged communities. Moreover, there is a large evidence base that shows that CYP learn better when they are active and well-fed. Thus, the creation of healthier schools directly benefits education as well as health services.

The recommendations on supporting physical activity and healthy eating within this report are based on seven key principles, and the evidence that underpins the recommendations and principles is laid out within this report. The recommendations are pragmatic in nature and recognise the financial constraints facing the next government and align with the following seven principles.

Our seven principles

1

Putting our children first – The future of a country depends on a healthy workforce, equipped with the skills needed by the economy and society. Childhood determines long-term health and is a critically important period for developing a positive relationship with physical activity and healthy nutrition behaviours. Placing physical activity and healthy nutrition at the heart of a school's culture will allow children to build lifelong relationships that support health and wellbeing in later life. The combination of leading a more active lifestyle and eating a healthy diet will ensure that CYP can reach their potential, and this will reduce the longer-term demand for health services. The UK must commit to working with communities to shape the physical activity and food offered in education settings to ensure the provision meets the needs of diverse communities.

2

Addressing inequity – Addressing inequities will reduce the financial burden of poor population health on public services. Concurrently, economic stagnation must be reversed to generate wealth and ensure the UK makes the best use of all its assets (i.e., the brilliant young minds located across all our communities). CYP from ethnic minority backgrounds and those living in disadvantaged areas are less likely to be physically active, and more likely to have poor nutrition. A concerted effort to improve physical activity and healthy eating with and through educational settings would start to “level up” life chances across the UK. A failure to support all CYP to live healthy lives will entrench inequity and starve the UK of talented individuals within the future workforce.

3

Adopting place-based approaches – Geography, culture, economic activity, and other factors vary between localities, changing how support needs manifest and how communities prefer to engage with services. New approaches to reaching and helping families must be planned and aligned with the needs and preferences of the locality and its communities. There are many cultural and structural factors that impact physical activity and healthy nutrition, and these local contexts must be addressed to allow children to lead healthy and happy lives. Educational establishments offer a mechanism for operationalising “place-based” working and effectively engaging

4

with communities so contextually relevant whole-school approaches to healthy activity and nutrition can be based on insights provided by people with lived experiences. Such approaches could help address inequalities associated with the “postcode lottery”.

Working together effectively across our public services

– The needs of CYP and their families cannot be neatly divided into silos such as “health” and “education”. We must recognise that our current organisational arrangements are not fit for purpose and find new ways of working so that the necessary holistic (“whole-system”) solutions to complex problems can be implemented. To create systematic change, it is essential for all system partners (e.g., Active Partnerships, multi-academy trusts, local authorities, NHS trusts) to join forces and co-develop shared provision that recognises education settings as a core organisation to support the provision of physical activity and healthy nutrition initiatives.

5

Putting education at the heart of public service delivery

– A genuine attempt to improve child health and wellbeing will involve closer working between health services and education settings. Integrated Care Boards are well positioned to act as “hubs” that can connect efforts to improve child wellbeing, but these boards must include school leaders in their work to address childhood health. Physical activity and healthy nutrition should be core pillars within education settings and supported by partners in health. To achieve this, education settings should provide the seven main opportunities for physical activity as part of the core and extended school day (4). Universal breakfast clubs and free school meal provision would ensure all CYP start the day nourished and ready to learn (5). A well-fed student is more likely to focus, engage in class, and achieve academically. By offering these services, the burden will be alleviated on low-income families, promoting equality, and removing barriers to education for students from diverse backgrounds.

6

Establishing universities as the “Research and Development” departments for local public services

– Universities can bring together insights from across multiple disciplines, ensure decisions are based on the best possible evidence, oversee the evaluation of service

7

delivery, and train future health, social care, and education professionals. There is a wide scientific literature that captures international approaches to the benefits of embedding physical activity and healthy nutrition within education contexts (6). Universities must draw on existing research to support education settings in delivering evidence-based approaches that address more holistic child development within the school gates, such as lifelong health behaviours.

Using and sharing information across public service providers effectively

– Data are currently collected within organisational silos, which fails to reflect the reality of how families interact with services. Only by connecting our public service data (i.e., education, healthcare, social care etc.), can we: (i) begin to understand how services intersect and interact within families; (ii) allow the essential information sharing that will enable CYP to lead healthy and happy lives; (iii) identify groups in society who are more likely to experience poor nutrition and lack of physical activity to inform school, community and placed-based interventions. Therefore, monitoring physical activity and nutrition behaviours in education settings is essential to allow for whole-system evaluation, including public services (where such evaluation is currently lacking). More holistic childhood development data from education can be fed into Government strategies to set targets and implement effective initiatives to support healthy development.



The evidence

The evidence is overwhelming and unequivocal: the health of CYP in the UK is getting worse. The education and health of CYP is being negatively affected by inactivity and unhealthy diets.

In 1907, Green Lane Primary School in Bradford began offering free school meals to its pupils. This was more than an innovation in health, social, and economic policy. It also represented an innovation and commitment to the application of evidence to improve CYP's outcomes, because the school also recorded changes in their pupils' weight, from the introduction of the free meals. The data showed children gained weight when the school was open and lost weight when it was closed – illustrating the ways in which education and health interact. Ultimately, the Green Lane study helped to show that supporting CYP to eat healthily had educational benefits and the study informed the UK's national policy on the provision of free school meals.

In 1907, there was a dearth of evidence on the benefits of supporting children to be active and eat healthily. But the UK showed how research could be applied to understand and address the pressing societal issues of the day. There is now a wealth of evidence that clearly shows the benefits that would be accrued if we properly supported CYP to be physically active with and through educational settings. Moreover, there are outstanding examples of how such support could be effectively provided (see the innovative approaches highlighted later in this report). There is an urgent need for the next government to look at the evidence and ensure the UK's research assets are used to build a better country for CYP.

Cumulative impact of low physical activity and poor diet on health and education

Childhood is a critical developmental period during which physical activity and healthy nutrition play pivotal roles in shaping education and health outcomes (5). Physical activity (both in education settings and in leisure time) has been shown to enhance educational attainment (7–10) as well as mental (11) and physical health outcomes (12–14).

Similarly, consumption of a healthy diet in childhood is related to improved educational attainment (9,15), and physical and mental wellbeing (16,17). Physical activity and healthy nutrition work synergistically to impact educational performance and physical and mental health (6,18). However, since 1995, physical activity levels have been decreasing (19). In addition, diet quality has decreased with an increased intake of processed foods and reduced intake in fruit and vegetables (20,21), and food insecurity has increased (22). This is having an additive negative impact on CYP's educational

success and mental and physical wellbeing (23). The reduction in physical activity and increased intake of processed food (high in fat, sugar, and salt) are related to increased overweight and obesity rates in children and adolescents (24). Currently, obesity rates are costing the NHS around £6.5 billion a year and it is the second largest preventable cause of cancer (25).

Evidence has shown that health behaviour developed in childhood carries over into adulthood, highlighting the importance of leveraging interventions to promote increased physical activity and healthy nutrition as early as possible in educational settings (26). Schools and education settings are crucial environments to reach children from diverse ethnic and socioeconomic groups. Thus, these are ideal environments to promote and address inequalities in healthy nutrition and physical activity (27).



Current challenges

Physical activity

The UK Chief Medical Officers recommend that CYP should engage in an average of 60 minutes of moderate to vigorous physical activity (MVPA) each day (20 minutes for those with disabilities). Physical activity promotion efforts for CYP have predominantly focused on school-based programmes, given their potential to help children build physical literacy, to develop and practice habits for healthy active living. Additionally, no other setting outside of the home offers the same level of continuous contact with CYP (28).

The Childhood Obesity Strategy outlined ambitions for schools to provide at least 30 minutes of MVPA a day through active break times, P.E., extracurricular clubs, active lessons and/or other sport and physical activity events. However, the reality is that this is set against a background where teachers are under increasing pressure from an achievement-oriented culture (29). This desire for academic improvement has led to an attrition of time and priority afforded to promoting physical activity and other non-core subjects. In addition to overcoming institutional barriers, there needs to be more teacher confidence and competence to plan or deliver physical activity in schools and a reduction on the over-reliance on short-term solutions. Currently, 30.2% of CYP (2.2 million) in England are classed as inactive, achieving less than an average of 30 minutes of physical activity per day (30).

Schools are key in fostering and shaping physical activity behaviour across a child's educational journey. The benefits of engaging in physical activity are clear, with physically active children achieving higher levels of academic attainment, better cognitive health, and improved wellbeing compared to their less physically active peers (31). Despite this, almost four million CYP are not achieving the recommended 60 plus minutes of physical activity a day (30). Furthermore, 42,285 hours of P.E. have been lost in state-funded secondary schools between 2011-12 and 2020-21 (31).

The World Health Organization and UK guidance promote whole-school approaches to physical activity as a "best investment" to tackle childhood inactivity (32). The UK-based Creating Active Schools framework (see innovative approaches section) positions a whole-school approach as a cohesive and comprehensive approach to promoting physical activity throughout all areas of the school day (4). It facilitates the alignment of physical activity with broader education-based goals by ensuring supportive practices and policies, engaging all stakeholders, and creating environments (physical and social) which support CYP to be active. Such approaches have the potential to be embedded in school culture and are more likely to lead to long-term change.

In addition to physical activity, play has been shown to be a major contributor to children's physical activity (33). The right to play for all CYP up to age 18 years is preserved in Article 31 of the [UN Convention on the Rights of the Child](#), ratified by the UK Government in 1991. Under the Convention, the Government has a duty to protect and promote play opportunities for all CYP.

Helping CYP establish active lifestyles through participating in play (which is child-led and freely chosen, personally directed, and intrinsically motivated) and connecting with nature improves mental wellbeing, cardiovascular and respiratory health, and lowers obesity (34). In addition, unstructured outdoor physical activity in children's free time is a major contributor to total physical activity levels (35).

The benefits of play and outdoor learning in the early years have now been firmly recognised by educators for young children's learning and development, and initiatives such as the Bradford-based [50 Things to Do Before You're Five](#), has encouraged families to get out and play more. The majority (75%) of parents said that their child has gone outside to play more often since using 50 Things to Do Before You're Five. This matters

Continued...

because time spent outdoors is a consistent predictor of children's physical activity levels (36).

CYP's opportunities for free play have decreased in recent years for a variety of reasons, such as busier streets, less access to green space, and concerns for CYP's safety (37). It is also known that physical activity is lower in low-income households (38). Whilst there are some great initiatives, such as Child Friendly Cities and Play Streets, schools are the one place where CYP consistently assemble and can find outdoor active social time. Thus, educational settings are ideally placed to have an essential influence on CYP's health and wellbeing. Sports clubs, adult-led interventions, and P.E. cannot achieve these positive changes alone. Research

shows that most childhood physical activity takes place in the school playground, where the intensity is as high as during school-runs or leisure-time sports activities (39). Therefore, play must be an equal partner if all aspects of child health, fitness, and wellbeing are to be promoted successfully. However, more needs to be done to spread the message that play is not just for children in their first five years, but essential for all children's development, learning, and wellbeing. This is highlighted by growing evidence that many young people at secondary school lack competence in motor skills, such as balance, coordination, and agility, as well as advanced motor skills such as catching or striking objects (40).

"Nutrition is critical to children's health and development. Better nutrition is related to improved health outcomes including a lower risk of non-communicable diseases (including diabetes and cardiovascular disease), and longer lives. Healthy children also learn better."

– Registered Public Health Nutritionist

Healthy nutrition

Healthy nutrition for CYP is a major public health concern. In a survey conducted by the Child Poverty Action Group, 53% of teachers reported an increase in the number of pupils struggling to concentrate on learning due to hunger and fatigue (41). The National Diet and Nutrition Survey highlights ongoing concerns for CYP with low dietary intakes of fruits and vegetables and dietary fibre, and high intakes of red and processed meat, sugar-sweetened beverages, sugar confectionary, saturated fat, and sodium (42). Healthy nutrition is critical during childhood; a developmental period defined by the high nutritional demands required to fuel changes in physical, cognitive, and social-emotional characteristics. Given the long-term impact of child nutrition on health outcomes, effective considerations are required to target healthy nutrition for CYP.

Transforming schools into environments that promote health holds promise for lessening disparities stemming from food insecurity and limited access to nutritious food. Acknowledging that every school can tailor its approach based on its unique local and institutional circumstances is essential. Therefore, a whole-school food approach can provide a comprehensive strategy encompassing various aspects of food provision and education within a school environment (43). It aims to promote healthy eating habits, improve nutrition, and create a supportive food environment for pupils, staff, and the wider school community.

A whole-school food approach requires establishing clear nutrition standards for all foods and beverages available in the school environment, including school meals, snacks, vending machine items, and foods sold during fundraisers or events (44). These standards should align with dietary guidelines and prioritise nutrient-rich foods while limiting or avoiding foods high in sugar, salt, and unhealthy fats. The Institute for Fiscal Studies recently published recommendations supporting

a need for policy to expand free school meals in England (45). Nutritious school meals can affect CYP's health, growth, and attainment, and these benefits may extend into adulthood. For example, the introduction of high-quality lunches in Swedish schools raised educational attainment, improved health in adulthood, and increased earnings by around 3% (46).

On average, school meals are more nutritious and contain more fresh fruit and vegetables than packed lunches, although the quality of food provision does vary. School Food Standards are mandatory for all maintained schools in England (i.e., schools under local council control) and apply to all food including school lunches, as well as food provisions other than lunch (47). With the rising costs of energy and food, the price of school meals is increasing. More and more families cannot afford school meals, while school caterers report rising debts (48). Simultaneously, government funding for free school meals is not keeping pace with inflation. Ensuring good governance and appropriate level of funding is key to sustaining and improving the quality of school meals.

Promoting healthy eating within schools must not inadvertently stigmatise obesity and encourage disordered eating behaviours (49). Policies around weight and obesity, and the way they are framed, are potentially causing dangerous behaviours, especially in CYP. It is recommended that public health practices and messages should not use stigmatising approaches to promote anti-obesity campaigns. These practices are objectively harmful and, instead, public health authorities should identify and reverse policies that promote weight-based stigma while increasing scientific rigour in obesity-related public policy. Supporters of this approach include Diabetes UK, British Obesity and Metabolic Surgery Society (BOMSS), Obesity UK, Kings College London Hospitals, University College London Hospitals, North Bristol NHS Trust, APPG on Obesity, and WW (formerly WeightWatchers).

Reducing inequality in experience

Trauma-informed physical education

Childhood trauma is a growing, global, public health emergency (50). Complex childhood trauma results from exposure to multiple and varied interpersonal threats. These are often referred to as Adverse Childhood Experiences (ACEs) and include physical, sexual, and/or emotional abuse, and neglect by a parent or caregiver (51). A recent review of 206 studies, encompassing 546,458 adult participants across 22 countries, revealed that six out of ten adults had experienced at least one ACE, while one in six had been exposed to four or more ACEs before age 18 years (52). Indeed, the prevalence of ACEs and thus trauma has likely increased since the COVID-19 pandemic and subsequent lockdowns (53).

While some CYP do not experience distress related to trauma, others develop psychological, social, behavioural, and/or academic difficulties (54). Evidence suggests that traumatic stress can impact the developing brain, with early exposure to toxic stress in childhood altering the physical structure of brain DNA (55) and impacting memory storage and retrieval (56). Trauma-affected CYP are more likely to have a lower threshold for high intensity emotion, which can cause them to become hypo-aroused (dissociated, withdrawn, or shut down) or hyper-aroused (distracted, panicked, or enraged) (57). Children's ability to

regulate emotions is impacted by both states and both reduce a child's capacity to concentrate, process information, and store knowledge (58).

Importantly, physical activity is thought to be beneficial for those affected by adversity and trauma. Physical activity can provide moderate, patterned, predictable "doses" of challenge which help to heal overactive stress response systems (59). Moreover, the patterned and repetitive movement associated with some activities can help human brains self-regulate (59). However, much of the trauma-informed school-based literature is restricted to classroom settings. While there is some limited evidence to suggest that trauma-informed practice in P.E. helps to support young people's healing and build their resilience (60), there is also evidence that teachers and wider school staff lack adequate professional development and confidence to address the needs of traumatised students and implement trauma-aware practices (61,62).

Therefore, those delivering physical activity within schools (e.g., P.E. teachers, sports coaches) need to adopt a trauma-aware lens so they do not misinterpret CYP's actions and behaviours and so they can better understand and predict triggering situations. This includes adopting principles of trauma-aware learning strategies which provide the foundation for practitioners to deliver P.E. (and physical activity more broadly) in a manner that will support all CYP, but especially those impacted by adversity (63).

Physical activity for children with health conditions and/or disabilities

CYP across developmental abilities and health states can be, and often are, physically active. Intersecting data on physical activity, age, health, developmental capacity, and deprivation has shown that inequalities in physical activity exist already in very early childhood. These inequalities are also more likely to relate to child developmental capacity than sex or socioeconomic context (64). Yet, an estimated 81% of CYP accessing specialist health or developmental support have been shown to meet the guidelines for daily physical activity, suggesting that – if provided with opportunity – at least four out of five CYP with developmental problems and disabilities can meet, and exceed, current mainstream physical activity expectations (64). This suggests a need to revise the current policy and under 5-year-old physical activity guidelines to make the physical activity expectations the same for all CYP. There is no current, compelling evidence to support an assumption that expectations for children with developmental problems or disabilities need be lower than for their peers. There is increasing and emerging evidence that holding lower expectations for some groups of CYP can increase the risk of them and their families facing discrimination in access, and being denied

opportunities to participate in physical activities that promote health and development (65,66).

Food insecurity

A healthy balanced diet is essential for CYP's health, growth, and development. However, with inflation rates nearly doubling the cost of everyday foods (67), many families on a low income, particularly those living in the North of England, are struggling to access nutritionally adequate food to feed their children (68). As a result, CYP's dietary intake is affected, and their nutritional needs are often not met. Since March 2020, the Food Foundation has regularly measured food insecurity, with figures revealing a dramatic rise in rates of food insecurity since this date. In January 2024, 20% of households with CYP were estimated to be experiencing food insecurity (compared to 9.6% of households in January 2021) (69). This is mirrored by the Family Resources Survey suggesting 18% of households experienced food insecurity in 2022-23 (70). Data have shown that food insecurity is more common among households with CYP than without, and there are clear social inequalities in food insecurity, both in the North of England, and across the UK. The rising cost-of-living in recent years has put increasing financial pressure on families, with many experiencing food insecurity and having to cut back on purchasing nutrient-dense foods, such as fruits, vegetables, fish, dairy, and eggs. CYP from these families face the double burden of malnutrition, potentially suffering from both undernutrition (e.g., stunted growth and micro-nutrient deficiencies) as well as overnutrition from an excessive intake of energy-dense foods, leading to overweight and obesity. National Child Measurement Programme data from 2022-23 showed obesity prevalence was twice as high among children living in the most deprived areas, compared with those living in the least deprived areas (71).

6 out of 10 adults have experienced at least one Adverse Childhood Experience.

18% of UK households experienced food insecurity in 2022-23.

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Healthy Start

The Healthy Start scheme is a means-tested scheme in England, Wales, and Northern Ireland for pregnant women (after 10 weeks) and families with children under four years, who are on a low-income. It provides weekly vouchers redeemable against infant formula, milk, fruits and vegetables, and vitamins (families get £4.25 each week from the 10th week of pregnancy to birth, £8.50 each week for children from birth to one year old, and £4.25 each week for children between one and four years old). Healthy Start has the potential to help many families on low incomes access nutrient-rich foods and essential vitamins. Studies have shown that it can lead to increased spending on fruit and vegetables (72), as well as making mothers think more about their health and diet. However, the effectiveness of the scheme is currently hampered by a number of issues that are yet to be addressed; (i) Healthy Start voucher uptake is at 66% across England, meaning that one-third of eligible households are missing out on this vital support; (ii) the value of the Healthy Start weekly allowance has not increased in line with rising food price inflation; (iii) the eligibility criteria for Healthy Start is restrictive – only those with a household income of £408 per month or less excluding benefits are currently eligible – which means that many low-income families experiencing food insecurity miss out on the scheme; (iv) Healthy Start only supports families with children under four years of age – this means there is a gap in the current support for vulnerable young children before free school meals start, given that UK children typically start school between the ages of four and five years; (v) there is confusion regarding advice for under 18-year-olds living in sheltered housing or outside the family home.



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Free school meals

Free school meals are a means-tested government programme designed to ensure that school-aged CYP from low-income families have access to nutritious meals during the school day and act as a nutritional safety net for the most disadvantaged in society. There are differences in access to free school meals across UK nations. In England, currently all children in Reception, Year 1 or Year 2 are entitled to free school meals, regardless of household income. However, for children in Year 3 or above, only children from households with an income below £7,400 a year (after tax, before benefits) are eligible for free school meals. For many CYP, a free school meal can be the only hot, nutritious meal they have all day (73). Although the quality of school meals could be improved in some cases, the majority of school meals contain far more nutrition – including fruits and vegetables – than average packed lunches (74). Whilst almost 25% of children in England are entitled to means-tested free school meals, approximately 11% of families do not apply, resulting in around 250,000 children missing out on a free hot meal. Receiving free school meals reduces financial burden on families, alleviates symptoms of food insecurity, and provides funding of up to £1455 per pupil to schools to support children from disadvantaged backgrounds. The reasons for not applying include burdensome and complex administration, language or literacy issues, and a feeling of stigma or embarrassment from families. Case studies have highlighted inequalities in the registration processes for application-based free school meals. For example, in one London borough, 89% of newly identified pupils came from lone parent households, 59% came from households with English as an Additional Language, and 79% from Black, Asian, and Multi-Ethnic backgrounds (compared to 66% of the wider school population eligible for free school meals).

CYP with disabilities are also at increased risk of failing to access free school meals for a variety of reasons, despite meeting the Government's eligibility requirements. CYP with special educational needs and disabilities (SEND) are almost twice as likely to be eligible for free school meals than those without (70). Yet, research from the charity Contact highlighted issues such as dietary requirements or sensory processing difficulties, and long-term medical conditions, as reasons preventing more than 164,000 SEND children from accessing the free school meal to which they are entitled. CYP with neurodevelopmental conditions are at greater risk of feeding and eating disorders, including anorexia nervosa, avoidant restrictive food intake disorder (ARFID) and pica (eating non-food items) (75–77).

Many may also require additional support within schools at mealtimes together with the provision of individualised diet plans to take account of their eating, emotional, and sensory needs. Recent progress was made on this issue with the updated Department for Education Free School Meal Guidance in March 2024, which now includes a section on making reasonable adjustments for disabled CYP. A review of the current funding is needed to ensure schools can follow this guidance and deliver accessible free school meal provision for all eligible CYP.

Co-producing research on free school meals

A daily allowance of ~£2.53 is provided to secondary school pupils in receipt of free school meals, but evidence suggests that this is insufficient. FixOurFood and the Food Foundation conducted research investigating whether young people felt that the free school meal allowance enabled them to buy tasty, healthy, and sustainable food (78). Forty-two pupils (aged 11-15 years) were recruited as citizen scientists (members of the public that contribute to research) across seven secondary schools. These citizen scientists were trained in basic research methods and provided with a daily budget equivalent to the free school meal allowance at their school for one week. They were asked to buy what they perceived to be healthy, tasty, and sustainable meals. In addition, they completed daily food diaries and participated in group discussions within their schools. Key findings were as follows:

(i) Pupils had restricted choices and often had to opt for “meal deals”, including a main (usually a sandwich), a dessert, and a bottled drink. In some instances, non-meal-deal items offered healthier alternatives.

(ii) Unlike their peers, pupils did not always have access to their allowance during break times.

(iii) There were either no menus available beforehand, or prices were not available at the point of selection. This led to quick and unhealthy decisions being made at the point of purchase, and instances where food had to be embarrassingly returned.

(iv) There was a lack of fruit, vegetables and salad in all schools and rarely was fruit offered as part of the meal deal offer.

(v) Portion sizes were inconsistent and often left pupils hungry.

(vi) Pupils were unable to “roll over” any underspent allowance to the next day, and available funds were unable to go into the minuses, unlike pupils who were not on free school meals.

(vii) The allowance was flagged as inadequate. Pupils highlighted that a greater allowance would increase choice and provide a more filling meal.

(viii) Pupils lacked access to free and clean drinking water, leading to unnecessary use of the budget to buy a drink and contributing to high volumes of plastic bottle disposal. In one school, up to 2000 plastic bottles were thrown away daily.

(ix) Short lunch breaks and long queuing times led to less healthy food choices, such as “grab and go” options (e.g., pizza on a napkin) and provided insufficient time for pupils to finish their meal, leading to food wastage and hunger.

This research highlighted a broken school food system and lack of school funding that acted as barriers to healthy food choices.

"There's a water fountain but it's often **broken and sometimes the water comes out gross.**"

– Secondary school pupil

“The closest thing you get to fruit is jelly.”

– Secondary school pupil

Continued...

Universal free school meals

The current, very stringent eligibility criteria for free school meals have meant that a third of children living in poverty are not eligible for a free nutritious meal. Research shows parents facing food insecurity often skip meals to ensure there is sufficient food for their children, and highlights that children are having to eat less so that food lasts longer (79).

Child Poverty Action Group and the National Education Union conducted surveys and interviews across two London boroughs in 2022-23 to investigate how universal free school meals impact parents' experiences of school and home life, whilst interviews with school staff explored how universal free school meals impacted child learning and attainment. Results suggested six main impacts:

- (i) Financially struggling parents voiced that universal free school meals offered financial and psychological security, whereby they were less worried about the costs of food at school.
- (ii) CYP had improved nutrition and school engagement. School staff believed that school attendance, concentration levels, and engagement in the classroom had all improved since the introduction of the policy.
- (iii) Provision of free school meals to all pupils reduced the stigma and social exclusion faced by CYP relating to means-testing.
- (iv) Improved relationships were formed between parents and schools, due to pressures of processing lunch money collection had been lifted.
- (v) The communal dining experience encouraged CYP to try new foods and develop their social skills.
- (vi) Parents have been able to invest in extracurricular activities and hobbies for their children from the financial savings incurred.

Currently, universal infant free school meals provide funding for all government-supported schools to offer free school meals to pupils in Reception, Year 1, and Year 2. The London Mayor expanded this provision to all primary school pupils in London for the academic years 2023-24 and 2024-25, with some other local authorities implementing this policy earlier.

A cost-benefit analysis of free school meal expansion found that if free school meals were expanded to include families on universal credit, then for every £1 invested there would be an estimated £1.38 in core benefits over a 20-year period (2025-2045) (80). On the other hand, if free school meals were expanded to be universal for all state school pupils, every £1 invested would generate an estimated £1.71 in core benefits, demonstrating a positive return on investment in both scenarios. Core benefits included increased lifetime earnings and contributions, increased cost savings to schools, increased NHS savings from obesity-related disease, and increased savings on food costs for families.

National school breakfast club programmes

There are several aims of school breakfast programmes, including alleviating hunger and improving health, nutrition, and educational attainment, alongside the provision of childcare. Whilst breakfast is the most frequently skipped meal of the day, there is strong evidence for the positive benefits of habitual breakfast consumption (5). Research suggests CYP who habitually consume breakfast typically have better nutritional profiles, compared to their peers who skip breakfast. There is also compelling evidence that school breakfast programmes improve mood, alertness, and alleviation of hunger (81–83). School breakfast programmes also improve CYP's dietary intake (5,84), academic achievement (85), social interaction

(86), and increase engagement in educational and physical activities and childcare (87).

Currently in England, the DfE funds a [National School Breakfast Programme](#) (NSBP) delivered by Family Action, a charity which supports 2500 schools by providing breakfast to over 350,000 children. Wales funds a Free Breakfast in Primary Schools Programme (FBIPSP), and the Scottish Government, in 2021, pledged to introduce a universal free breakfast offer to all primary schools. Currently, there is no government school breakfast programme in Northern Ireland. However, there are several school and charity

funded breakfast programmes operating across the UK. [Blackpool Council](#) was one of the first councils to provide all primary school children with a free school breakfast. Blackpool provides an effective, long-term case study for the impact of a universal free school breakfast programme in England. The programme was introduced in January 2012 and aimed to improve children's health and wellbeing through the provision of a universally free school breakfast and milk to all primary and special school children attending schools under the jurisdiction of the Council. The scheme is still running and delivers more than 11,000 breakfasts each day to 33 primary schools.

If free school meals were expanded to be universal for all state school pupils, every £1 invested would generate an estimated £1.71 in core benefits.

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Packed lunch policies

Unlike school meals, which must adhere to nutritional food standards, and are frequently monitored and modified (68), packed lunches do not have to adhere to any quality policies. Data have continuously suggested that the nutritional quality of packed lunches is inferior to those provided within school meals (47). More recently, intake of foods high in unhealthy fats, salt, and sugar has been found to be 20% greater in packed lunches than school dinners (88). Primary school children who eat school meals are also more likely to meet minimum requirements of fruit and vegetable intake, and not exceed maximum recommendations for salt and sugar, in comparison to those on packed lunches (74). Results from a survey assessing changes in the nutrient quality of English primary school children's packed lunches also suggested that only one in 100 packed lunches met nutritional guidance and one in five children had any form of vegetables or salad (47).

Often, local packed lunch policies state that CYP should not have crisps, chocolate, or fizzy drinks in their packed lunch (89). However, in a qualitative study of parents' perspectives on providing a packed lunch for their primary-aged children, parents highlighted that packing a lunch which their child enjoys, whether it is healthy or not, ensures the food gets eaten (89). It has been reported that placing strict guidance on packed lunch content can lead families from ethnic minority and more socioeconomically deprived backgrounds to feel stigmatised due to difficulties in adhering to such policies (90). More recently, the Food Foundation highlighted that the cost of a healthy packed lunch for children

has increased by up to 5%, making it increasingly difficult for financially struggling households to provide healthy food options (91). A recent report investigated impacts of the cost-of-living crisis on the cost of food and school food (92). Survey results, based on responses from 180 organisations and contacts of the All-Party Parliamentary Group on School Food, found almost 50% of respondents reported a decrease in the number of paid school meals, with 36% also reporting a decrease in the quality of packed lunches.

[FixOurFood](#), a research programme that aims to transform the Yorkshire food system, has conducted extensive research within schools exploring current school food policies, provision, and quality. Although data collection is still underway, interim findings based on school observational data, interviews with school leaders and focus groups have highlighted the difficulties faced by school senior leaders in implementing strict packed lunch policies. This has led some schools to opt for a guidance-based approach only, which has consequently led to a lack of compliance. Interviews with school leadership outlined negative consequences of implementing packed lunch policies, including a drop in student attendance, and poorer relations between the school and parents. FixOurFood has been utilising the whole-school approach to food resource, [CONNECTS-FOOD](#), to put forward recommendations to schools concerning the school food landscape. These recommendations could potentially decrease the backlash associated with packed lunch policies; for instance, involving parents and CYP in developing policies that are considered both acceptable and achievable should mitigate family concerns.

"This community
is very much built
on relationships...
It's all built on
relationships."

– Teacher

Health Literacy

Physical Literacy

One's relationship with physical activity is a key driver for initiating and sustaining physical activity habits from childhood through adulthood. Sport England's Active Lives survey demonstrates that only 36% of CYP in the North of England report three or more positive attitudes towards physical activity (30). This is important because this 36% are also twice as likely to be active and report higher levels of mental wellbeing. Additionally, an emerging evidence base highlights the positive benefits of physical literacy on a wide range of outcomes, including body composition, fitness, resilience, and quality of life (93). These findings underscore the importance of nurturing physical literacy from an early age to promote lifelong engagement in physical activity and foster broader positive trajectories in child health, wellbeing, and development.

Positive experiences of physical activity build "physical literacy" by supporting learning and development across physical, social, cognitive, and affective domains (94) and encourage sustained physical activity participation (95). Sport England's survey has highlighted concerning trends regarding CYP's development. In the North of England, only half of the respondents "strongly agreed" that they enjoy taking part in exercise and sports, while even fewer felt confident when doing so (38%). Furthermore, while a majority understood the benefits of sport and physical activity (65%), only one in four CYP found exercise and sport easy, reflecting low perceived competence. The survey also revealed inequalities in physical literacy, with less positive attitudes towards physical activity found in girls, those with disabilities or long-term health conditions, certain ethnicities, and those from less affluent households. This evidence emphasises the need for more inclusive opportunities that meet the needs of all CYP.

Additionally, comprehensive training for educators and practitioners is crucial to deliver tailored approaches that place the child at the centre of the experience and support their development.

Even more crucial than supporting the areas of learning and development is CYP finding enjoyment, value, and meaning in active play, physical education, sport, and broader physical activities. These factors signify a positive relationship with physical activity and represent the primary motivators for CYP to participate in physical activity (96). Educators and practitioners should listen to children's perspectives, understand what matters to them and what they enjoy, and design and implement positive experiences using these insights to foster lifelong engagement in physical activity.

One specific element of physical literacy is the development of motor skills. The acquisition of motor skills is fundamental to childhood development and provides children with increasing opportunities to interact and learn about their world. CYP with clinical motor skill difficulties (such as Developmental Coordination Disorder; DCD) often struggle with their fine motor coordination (such as using a knife and fork and handwriting) and gross motor coordination (such as running, catching a ball, and balancing). DCD is diagnosed in approximately 5-6% of school-aged children (97). These difficulties start early in childhood and tend to continue to impact day-to-day functioning throughout the lifespan. The number of CYP falling behind with their motor skill development, is however, much larger, with research showing a downward trend in childhood motor skill proficiency - particularly as a result of the COVID-19 pandemic (98,99).

DCD, and low motor ability more generally, can have long-reaching mental and physical health consequences. For example, CYP with motor skill deficits are less likely to engage in physical activity and group-based play and prefer to spend

their free time engaged in sedentary activities, such as playing video games (100,101). This means that these CYP have fewer opportunities to develop their social skills, which can contribute to loneliness and depression (102). Furthermore, this lack of physical activity can have detrimental short-term consequences for their fitness and body weight (101,103) as well as long-term consequences for their physical health, including increased risk of cardiovascular disease (104).

A range of interventions exist to improve motor skills in CYP with DCD and poor motor skills and these have been trialled for use in schools (105).

Amongst these are task-oriented approaches, which aim to help CYP achieve daily living milestones and thus improve their opportunities to participate in activities. It has, however, been reported that families frequently struggle to access the clinical DCD services that their child needs (102). Closer collaboration between schools and health services could create greater opportunities for the early identification of DCD and the provision of effective interventions, which may not only reduce CYP's motor difficulties but also have wider benefits (see also FUNMOVES in the "Innovative approaches" section).



Food literacy

Across the UK, the devolved nations have individual regulations regarding school food education, but the principles remain consistent (106). In England, food education has been compulsory within the national curriculum since 2014 for all pupils in Key Stage 1-3 and can be delivered within other subjects such as design and technology, P.E., and Physical, social, health and economic (PSHE) (107). In Key Stage 1-2, pupils are expected to develop an awareness of a healthy, varied diet and knowledge of food seasonality and origins. In Key Stage 3, pupils should experience practical food preparation and a variety of cooking techniques (108,109). Moreover, Key Stage 4 pupils can attain a “Cooking and Nutrition” GCSE, although the Food A-Level was withdrawn (110).

Schools are typically well-positioned to host food-related interventions (111) because of their existing infrastructure, including large spaces and integrated food systems, and research has shown the subsequent benefits of school-based food education, including reduced BMI and increased fruit and vegetable consumption (112). Likewise, Jamie Oliver’s Kitchen Garden Project resulted in CYP becoming more aware and enthusiastic about food, improving their cooking skills, self-esteem, and willingness to try new foods, and demonstrating an increased likelihood to cook at home (89). Moreover, the “Project Daire” study found that CYP who participated in a whole-school food-related intervention significantly improved in emotional and behavioural wellbeing, consumption of nutritious foods, willingness to try new foods, and perceived cooking competence (113).



Innovative approaches trialled in the real world

The evidence is clear: there are numerous barriers preventing CYP living healthy lives with appropriate levels of physical activity and nutrition – and this is especially the case for families already experiencing disadvantage.

The long-term consequences of physical inactivity and poor nutrition can be seen both in the chronic ill health of children growing up in disadvantaged communities – and the long-term health problems experienced by adults who grew up in poverty. The costs to individuals, families, and health and care systems are more than the UK can afford.

This section of the report highlights leading examples of work undertaken with and through education settings to support CYP to live healthy, active lives.

These case studies are inspirational and demonstrate the transformational benefits that could be achieved if the next government committed to improving the health and life chances of CYP growing up in the UK.

1

Auto-enrolment of free school meals

FixOurFood, at the University of York, in collaboration with Bremner & Co and the Food Foundation, aims to support and evaluate the set-up of auto-enrolment processes for free school meals. This involves combining different benefits datasets, identifying entitled free school meals households, then writing to parents to inform them that their children will be automatically registered unless they opt-out. This process, therefore, removes the reliance on families to directly apply for free school meals which may help overcome barriers to the current application process, and reduce inequalities.

Through engagement with local authorities, a toolkit was developed which provides guidance on setting up auto-enrolment processes alongside templates and case studies; whilst workshops facilitated shared learning. To evaluate the project, interviews with twenty government and national stakeholders are being conducted, aiming to explore the barriers and facilitators that could impact on successful roll out of the programme (e.g., context, setting and partners). Through an impact evaluation, routine data are consistently being gathered from local governments to assess free school meals registrations, school meal uptake, delivery costs, opt-out rates, and pupil premium data (associated funding provided to schools). In addition, interviews with school stakeholders and parents are being conducted to explore the attitudes, acceptability, and consequences of free school meal auto-enrolment processes. Findings are shared throughout the research to encourage discussion and action learning with national stakeholders and policymakers.

In the first year of implementation, eight out of the 22 local authorities approached, launched free school meal auto-enrolment (with at least 10 preparing to launch in the second year), and five provided early impact data based on the October 2023 census. In these five, an additional 2,814 children were identified and registered to receive free school meals, providing a boost of £4.7 million in additional school income, predominantly through pupil premium. Free school meals auto-enrolment has grown in popularity since the start of the project, with over 50 local authorities expressing interest.

Despite the growing interest and current success in the roll out of auto-enrolment, early evidence from interviews suggests that local authorities do face some barriers to its implementation. This has primarily included (i) finalising the legal basis to the current process, including consent to use welfare data; (ii) internal capacity and resource constraints to carry out auto-enrolment processes (e.g., data matching) to meet school census deadlines; and (iii) difficulties obtaining buy-in and support from key teams and colleagues. Collaborative working between schools and local authorities, with guidance from central government, could ensure the success of this scheme on a larger scale and help address inequality and improve the health of our nation.

"Some of the staff in the free school meals and admissions side were more, 'Oh, this can't be done. We haven't got that capacity,' you know, they didn't have that sort of, if I'll be honest, that can-do attitude. So, me, I was just like, 'Yeah, we can do it. We can do it. We'll get the resource to do it.'"

– Local authority stakeholder

3

Bite Back

Bite Back is a youth activist movement, launched in 2019, with a mission to half childhood obesity in the UK by 2030. Bite Back is driven by young people and empowers young activists to gather evidence about the food industry's promotion of unhealthy options, challenge the food industry's narrative, and devise a social action project that will transform the food system, so that child health is put first.

The Bite Back movement is based in communities and schools. It aims to ensure access to healthy food within schools – for Bite Back this means ensuring schools meet School Food Standards and that strict criteria for free school meals are removed, so they are accessible to those in need. Bite Back also aims to challenge marketing tactics used in communities by many major food companies, so that marketing seen by CYP promotes healthy, nutritious foods, and so that marketing is not using misleading health claims. Bite Back has acted on these aims, collected insights and evidence from young people on topics related to them, and produced reports with findings and solutions. Some examples include reports on unhealthy foods promoted through sports-related marketing, on young people's experiences of free school meals, and on the impact of advertisements of unhealthy food products on teens, among others.

Bite Back offers the opportunity for schools to become involved in the movement, having worked with over 200 schools to date. Schools can sign up or be nominated to participate.

Once signed up, schools take part in a programme that begins with an assembly led by a Bite Back youth activist, followed by sessions for a whole year-group in Key Stage 3. Following this, a team of 10-15 students is recruited to serve as School Food Champions, to improve their school food environment. Bite Back provides training and resources for the school to deliver informative, engaging sessions on topics such as how to create a healthy food culture, how to design successful youth-driven campaigns, and how to build an effective team, with the skills necessary to ensure the team's voices are heard.

After the sessions, the young activists review the school's current food culture. Then they work with school leaders and caterers to develop a social action project that puts nutritious, great-tasting food in the spotlight. As a benefit of participation, schools gain access to the Bite Back in Schools community – like-minded schools who understand the vital role school food plays in children's health.

Bite Back is actively shaping a future where child health takes precedence through empowering young activists to challenge the status quo of the food industry and advocate for healthier options. With over 200 schools already engaged and many youth-driven campaigns underway, Bite Back is inspiring a generation to prioritise nutrition and health, for the wellbeing of all.

4

Keighley Schools Together Rethink Food project

The “Act Locally” project aims to tackle issues affecting CYP in three areas of Bradford – Holme Wood, Manningham & Girdlington, and Keighley. It brings together schools, residents, businesses, services, and policymakers to find solutions based on local data and community insights.

In Keighley, the Act Locally convening partnership rated tackling food insecurity and poor diet and nutrition as a top priority. School leaders consistently report that food insecurity is an issue across the Bradford district. However, this issue is particularly acute in Keighley. The data show Keighley scores very highly on related markers of deprivation in comparison to the rest of the UK, with 8.2% of adults reporting that they experienced hunger in 2021. Keighley also has high rates of CYP who receive free school meals, CYP who are nearly twice as likely to report issues around food insecurity. Keighley Schools Together (KST) is a self-organised network of local schools who took the lead on addressing this priority problem. First, they worked with charitable food organisation “Rethink Food” to re-route surplus supermarket food through schools, giving families a more accessible alternative to food banks. KST then worked with the Leeds Institute for Data Analytics (LIDA) to deliver data workshops in local schools, enabling pupils to analyse (and in some cases, provide their own) data and information on access to affordable and healthy food options in the community. These workshops also encouraged and allowed pupils to gain experience in data science and research as a potential career.

KST have termly “Act Locally” convening partnership meetings (with a range of practitioners and stakeholders) to continue the joint action on tackling food insecurity and poor diet and nutrition as their locally identified priority issue affecting CYP. The group has agreed to support parents to find the “right support at the right time” by developing their own local offer pamphlet that can be given to parents who need specific advice or support around this issue. Keighley schools have also agreed to support families to access NHS Healthy Start vouchers which support access to food and milk.

The scheme wasn't previously widely known to schools, but school leadership agreed they could promote this to eligible parents to improve uptake of the scheme for local families. One example of promoting this was by putting on NHS Healthy Start champion training to widen support. Act Locally: Keighley are also working with academics and researchers from Born in Bradford's Centre for Applied Education Research to support local research into school lunch options and healthy choices, through food surveys and meal measurement approaches. They have also teamed up with the “Bite Back” initiative to enable secondary school pupils to carry out impactful social action projects to improve their school canteens.



The Creating Active Schools (CAS) framework was co-developed by 50 UK and international stakeholders from research, policy, and practice. Based on the CAS framework, the CAS programme supports schools in taking a place-based approach to transform the whole-school physical activity culture. The professional development programme supports schools to review current provisions against four key domains: vision and policy, social and physical environments, school stakeholders and opportunities for physical activity. The schools are then supported to build impactful and sustainable provisions, using their existing assets. CAS is underpinned by behaviour change theory and recognises that every school is different and features components that flex depending on the school's needs, stakeholder input, relationships, and context.

Unlike other whole-school physical activity approaches, CAS promotes data-driven decision-making at all system levels (individual schools, partnerships and nationally). This has only been made possible by the co-development between researchers, practitioners, and policymakers at every stage of the CAS design, development, and evaluation process. It also reflects the integration of practice-led research. CAS improves school physical activity culture and teachers' ability to integrate more physical activity into the school day. The CAS programme is regarded by schools as highly supportive, with schools valuing the step-change approach to implementing CAS long-term, and that it is a viable model to facilitate system-level change for physical activity in schools. CAS is highlighted as good practice by the World Heart Federation and the International Society for Physical Activity and Health. A video on the impact of CAS in Bradford schools can be seen [here](#).

CAS is a practice-led programme; therefore, locality partnerships and schools opt in based on local needs. To date, 20 localities and approximately 250 schools have engaged with CAS nationally in England. Internationally, the national team has consulted with partners from other countries, such as Wales, Denmark, the Netherlands, Chile, Spain, Slovenia, and Kuwait, to support the translation of CAS into different country contexts.

The CAS programme was developed by the University of Bradford and Yorkshire Sport Foundation. The national CAS team recruits, trains and supports locality partnerships (e.g., Active Partnerships or multi-academy trusts). Local "CAS champions" are recruited and trained to support their schools. Using a professional development approach, the CAS Champion supports their allocated schools to create cultural change for physical activity using a four-step annual cycle.

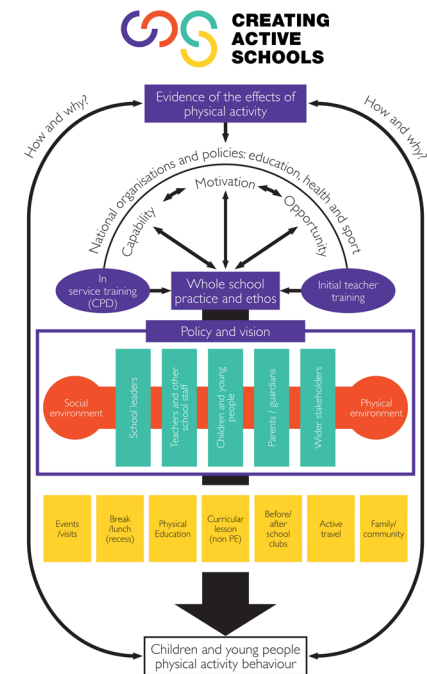
Review (May to June): CAS Champions support in-school CAS leads to review current provisions using an [online profiling tool](#). Schools receive a profile score and recommended priority actions based on areas for high impact.

Priority selection (June to September): Schools select three priority areas and identify evidence-informed initiatives to address the priority areas using APEASE criteria. These initiatives are included in the School Development Plan for the next academic year. CAS champions use a locality dashboard to review all school profiles to identify common areas of need and develop locality-based communities of practice. Pioneering schools and external support may be recruited to support school-to-school learning.

Programme delivery (September to July): Schools deliver their chosen initiatives, supported by online continuous professional development modules, CAS champions, termly communities of practice and external training and support.

Evaluation (September to July): Schools are encouraged to monitor the impact of their initiatives through the completion of the Sport England Active Lives Survey and/or in-school surveys/focus groups with staff and pupils. These data will be used for the next CAS profiling exercise.

For more information, please visit www.creatingactiveschools.org.uk



6

Physically Active Learning

Physically active learning (PAL) is the integration of movement within academic lessons for the purpose of learning. PAL was originally developed to overcome the health consequences related to the highly sedentary nature of school academic lessons, but recent evidence demonstrates that PAL improves educational outcomes (115). Despite the strong evidence of effectiveness and PAL being seen as an acceptable use of the P.E. and School Sport Premium, the use of PAL in schools across England is often limited to a small number of pioneering teachers and schools. To embed PAL as a sustainable pedagogical practice there is a need to integrate PAL within initial teacher training and to develop high-quality continuing and professional development courses.

The Erasmus+ funded ACTivate project was a six-country cross-European partnership formed to improve teachers' use of PAL. The project developed a teacher training curriculum to support the integration of PAL within initial teacher training and CPD courses. The [curriculum](#) is designed around five units of learning that build a teacher's capability and confidence to use PAL and is underpinned by behavioural science. The curriculum underpins two free-to-access training programmes for student and qualified teachers.

The ACTivate programme and other similar courses support teachers to develop the wide range of skills needed to iterate PAL within the teaching practice and overcome some of the many perceived challenges of pupils being active during academic lessons.

Evaluation on the use of PAL has found:

- CYP who have a higher level of physical fitness and are more physically active do better in maths, reading, and overall academic scores.
- PAL does not have a detrimental impact on academic performance, and in many cases has been shown to improve academic performance.
- Children engaged in PAL have shown four months of additional learning gains in maths and spelling compared to those who learn while sat down.
- PAL can benefit all demographic subgroups, and in particular benefit children with low educational attainment.
- CYP have a greater focus on the task in hand after being physically active.

However, despite this evidence and the fact that the strategies can be integrated rather than added into an already overwhelming curriculum and wider school programme, very few schools are implementing PAL due to a variety of concerns over impact on learning time, behaviour, and a trend towards instructional approaches to teaching.

[Move & Learn](#) took the evidence from research and the feedback from practice to develop the Move & Learn programme which:

- Aligned the implementation of PAL with the principles and approach of the Creating Active Schools framework.
- Prioritised the pedagogical benefits of PAL strategies before the movement ones.
- Ensured that schools were not working in isolation but part of a local network so they could learn quickly from best practice in their area.

This has led to the development of local expert practitioners who can continue to share and embed "Move & Learn" approaches further in their own schools but also beyond their existing network. As a result of this change in emphasis and systems-based approach, PAL/Move & Learn has gathered momentum, with further projects commissioned on how these approaches can effectively support neurodivergent pupils.

"I can clearly see it benefits the children's learning as they actively learn to read, write, discuss or solve problems throughout lessons. By introducing active learning children are now learning by doing."

– Teacher

7

FUNMOVES

"The beauty of FUNMOVES is we can batch them... I think we see six children per screening session, which means **we can really rattle through the waiting list.**"

– Physiotherapist

FUNMOVES was developed to empower schools to deliver an assessment within a P.E. lesson for all pupils and identify children struggling to develop the foundational motor skills that are essential for participation in physical activity. FUNMOVES is a freely available tool that enables two members of teaching staff to assess a class of children using resources readily available in education settings (e.g., beanbags). It focuses on six key playground movement skills – running, jumping, hopping, throwing, kicking, and balancing. FUNMOVES was developed alongside schools in Bradford, and the views of teachers through schools across the UK to ensure it is feasible for use in increasingly pressured school environments.

Preliminary research has shown good evidence for the efficacy of this approach - with FUNMOVES scores aligning well with scores obtained from clinical assessments (116). Following one hour of training, teaching staff can score pupils very accurately on all activities. Thus, it can provide a cost-effective way to identify children with motor skill difficulties. With overwhelming demand within NHS services for the diagnosis and support for DCD and services not sufficiently staffed to cope with this, waiting lists are long and children are being underserved. Challenges in accessing these services are even more profound for ethnic minority families and those that live in deprived neighbourhoods, despite often being the populations that would benefit most from additional support with motor development. Universal approaches like FUNMOVES therefore, also offer an opportunity to reduce inequalities in access to support.

Such approaches are being trialled in the Bradford District Area, with FUNMOVES being used to help the Occupational Therapy and Physiotherapy team responsible (in part) for DCD to prioritise their waiting list. This approach has reduced waiting times significantly and has helped ensure that those with the most severe difficulties are seen in a timely manner. Working alongside the therapy team, FUNMOVES universal intervention resources have also been co-produced, for both schools and families, which are based on evidence-based clinical practices used in clinical settings. The school resource provides activities for teachers to embed within P.E., break time and classroom movement breaks while the home resource empowers families to include more motor skill practice in their everyday routines. Intervention resources are separated into the different skills assessed in FUNMOVES, allowing their use to be tailored for each child.

Ultimately, FUNMOVES enables a cost-effective, more equitable and expedited pathway to support children with motor skill difficulties. Such approaches will not only likely improve physical activity outcomes, but also broader developmental outcomes including academic achievement.

"The stars aligning over Bradford was just a **wonderful day in our lives.**"

– Occupational Therapist



End word



| Joe Copley and Clare Copley

I am 45 years old and received a diagnosis of Developmental Coordination Disorder (DCD) three years ago. Despite coming late in life, this diagnosis provided validation for the difficulties and attitudes that I have had towards physical activity, health, and exercise throughout my life. Attitudes which undoubtedly impacted my confidence to participate with playground games, P.E., extra-curricular activities and my overall enjoyment and experience of school. I have overwhelming negative memories of school. I remember feeling an extreme sense of shame and embarrassment around many aspects of childhood play and physical education at primary school. I was uncoordinated and clumsy and spent a lot of time trying to be invisible. I would sit on the sidelines in the playground whilst the other girls made up dance routines, I faked illness and injury to get out of P.E. lessons and I would frequently choose to sit quietly drawing and colouring – something that became a coping strategy that nobody questioned. My avoidance mechanisms developed into secondary school, where I began to have a lot of time off, suffering frequently with headaches, sore throats, and exhaustion, which I now recognise was stress and anxiety. I felt completely overwhelmed with having to constantly try to cover up the fact that I was unable to cope with the physical demands of the school day and this impacted my experience of childhood and education more generally.

Despite being told that I “did not shine” at the interview, I made it to university where “I don’t do exercise” became a mantra for me. I can remember close friends joining sports societies and using the university gym and I desperately wanted to join in, but this desire was overshadowed by my deep-rooted lack of confidence.

When my son Joe was seven years old, he received a diagnosis of DCD. Upon receiving Joe’s diagnosis, I felt an overwhelming sense of relief that there was a reason for his motor difficulties and his reluctance to join in with team games. I also had a sudden realisation about my own issues and was determined to ensure that Joe’s experience of participation with physical activity was different to my own. We encouraged Joe to try out numerous extra-curricular clubs and although he was slower than other children to master new skills, with persistence, patience, and most of all determination from Joe, he has developed a good relationship with physical activity. Joe enjoys many aspects of P.E. lessons and engages with sport outside of school. Now in his teenage years, Joe seems to really value physical activity and recognises the

benefits it provides, not just physically but also cognitively, emotionally, and socially. Having DCD means that Joe struggles to learn and master new skills, he experiences physical fatigue and cognitive overload, which can all impact his confidence with participation and school more generally. However, because physical activity has become such a fundamental aspect of Joe’s day-to-day life, it remains firmly embedded in his daily routine and helps him to cope.

To reframe my own relationship with physical activity, I have engaged with running over recent years. Running has significantly improved my wellbeing and provided me with a confidence about my physical self that I never imagined possible, and I regret that I wasn’t encouraged to engage with physical activity at school.

I am conscious of the time, money, and effort that we have been privileged enough to invest to ensure a positive outcome for Joe. These are opportunities that should be readily available to all children, and this should be regardless of inequalities, including developmental problems or disabilities.

Schools are exceptionally placed to provide opportunities for physical activity and healthy nutrition – aiding the development of motor skills and ensuring physical literacy, which undoubtedly impacts health and wellbeing, providing our children with an opportunity to shine.

References and author list

Infographic references

Physical Activity

Denysschen M, Coetzee D, Smits-Engelsman, B C M. Children with poor motor skills have lower health-related fitness compared to typically developing children. *Children (Basel)*. 2021 Oct;8(10): 867. Gov UK. 'Subjects taught in state funded secondary schools' from 'School workforce in England'. 2023. <https://explore-education-statistics.service.gov.uk/data-tables/permalink/0fbd9109-1e31-45d4-ce3d-08db9969b0eb>

Public Health England. *Everybody Active, Every Day: An evidence based approach to physical activity*. 2014. <https://www.gov.uk/government/publications/everybody-active-every-day-a-framework-to-embed-physical-activity-into-daily-life>

Sport England. *Active lives children and young people survey: academic year 2022-23*. 2023. https://sportengland-production-files.s3.eu-west-2.amazonaws.com/s3fs-public/2023-12/Active%20Lives%20Children%20and%20Young%20People%20Survey%20-%20academic%20year%202022-23%20report.pdf?VersionId=3N7GGWZMKy88UPsGfnJVUZkaTkLwB_L

Nutrition

Child Poverty Action Group. *Free school meals: third of kids in poverty miss out*. 2023. <https://cpag.org.uk/sites/default/files/2023-08/Free%20school%20meals-%20third%20of%20kids%20in%20poverty%20miss%20out.pdf>

GULP. *The facts on sugar*. 2017. <https://foodactive.org.uk/wp-content/uploads/2016/07/GULP-1-The-Facts-on-Sugar-v2.pdf>

Lord A, Easby J, Evans H. *Pupils not claiming Free School Meals - 2013*. 2013. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/266339/DFE-RR319.pdf

The Food Foundation. *Families stuck in food insecurity are buying less fruit and veg as UK's health divide widens*. 2024. <https://foodfoundation.org.uk/press-release/families-stuck-food-insecurity-are-buying-less-fruit-and-veg-uks-health-divide-widens#>

University of Leeds. *Children's packed lunches lack nutritional quality*. 2020 Jan. <https://www.leeds.ac.uk/news-science/news/article/4522/children-s-packed-lunches-lack-nutritional-quality#>

References

1. Sport England. Our Physical Literacy Consensus for England. 2023; Available from: https://www.sportengland.org/funds-and-campaigns/children-and-young-people?section=physical_literacy
2. Long MA, Defeyter MA, Stretesky PB. Holiday Hunger in the UK: Local Responses to Childhood Food Insecurity. 2022. 1–152 p.
3. BEAT. Beat: The UK's eating disorder charity [Internet]. [cited 2024 Apr 25]. Available from: <https://www.beateatingdisorders.org.uk/>
4. Daly-Smith A, Quarmby T, Archbold VSJ, Corrigan N, Wilson D, Resaland GK, et al. Using a multi-stakeholder experience-based design process to co-develop the Creating Active Schools Framework. *International Journal of Behavioral Nutrition and Physical Activity*. 2020;17(1):13.
5. Harvey-Golding L, Donkin LM, Blackledge J, Defeyter MA. Universal free school breakfast: A qualitative model for breakfast behaviors. *Front Public Health*. 2015;3.
6. Drouka A, Brikou D, Causeret C, Al Ali Al Malla N, Sibalo S, Ávila C, et al. Effectiveness of school-based interventions in Europe for promoting healthy lifestyle behaviors in children. *Children*. 2023;10(10):1676.
7. Kari JT, Pehkonen J, Hutri-Kahonen N, Raitakari OT, Tammelin TH. Longitudinal associations between physical activity and educational outcomes. *Med Sci Sports Exerc*. 2017;49(11):2158–66.
8. Álvarez-Bueno C, Pesce C, Cavero-Redondo I, Sánchez-López M, Garrido-Miguel M, Martínez-Vizcaíno V. Academic achievement and physical activity: A meta-analysis. *Pediatrics*. 2017;140(6):e20171498.
9. Meli AM, Ali A, Mhd Jalil AM, Mohd Yusof H, Tan MMC. Effects of physical activity and micronutrients on cognitive performance in children aged 6 to 11 years: a systematic review and meta-analysis of randomized control trials. *Medicina (B Aires)*. 2022 Jan;58(1):57.
10. Watson A, Timperio A, Brown H, Best K, Hesketh KD. Effect of classroom-based physical activity interventions on academic and physical activity outcomes: a systematic review and meta-analysis. *International Journal of Behavioral Nutrition and Physical Activity*. 2017;14(1):114.
11. Biddle SJH, Asare M. Physical activity and mental health in children and adolescents: a review of reviews. *Br J Sports Med*. 2011;45(11):886–95.
12. Poitras VJ, Gray CE, Borghese MM, Carson V, Chaput JP, Janssen I, et al. Systematic review of the relationships between objectively measured physical activity and health indicators in school-aged children and youth. *Applied Physiology, Nutrition, and Metabolism*. 2016;41(6 (Suppl. 3)):S197–239.
13. Carson V, Lee EY, Hewitt L, Jennings C, Hunter S, Kuzik N, et al. Systematic review of the relationships between physical activity and health indicators in the early years (0-4 years). *BMC Public Health*. 2017;17(5):854.
14. Borodulin K, Anderssen S. Physical activity: associations with health and summary of guidelines. *Food Nutr Res*. 2023;67.
15. Lam LF, Lawlis TR. Feeding the brain – The effects of micronutrient interventions on cognitive performance among school-aged children: A systematic review of randomized controlled trials. *Clinical Nutrition*. 2017. 36(4):1007–14.
16. Dimov S, Mundy LK, Bayer JK, Jacka FN, Canterford L, Patton GC. Diet quality and mental health problems in late childhood. *Nutr Neurosci*. 2021;24(1):62–70.
17. Teixeira B, Afonso C, Rodrigues S, Oliveira A. Healthy and sustainable dietary patterns in children and adolescents: A systematic review. *Advances in Nutrition*. 2022;13(4):1144–85.
18. Chatterjee P, Nirgude A, Chatterjee P, Nirgude A. A systematic review of school-based nutrition interventions for promoting healthy dietary practices and lifestyle among school children and adolescents. *Cureus*. 2024;16(1).
19. Conger SA, Toth LP, Cretsinger C, Raustorp A, Mitas J, Inoue S, et al. Time trends in physical activity using wearable devices: A systematic review and meta-analysis of studies from 1995 to 2017. *Med Sci Sports Exerc*. 2022;54(2):288–98.
20. Onita BM, Azeredo CM, Jaime PC, Levy RB, Rauber F. Eating context and its association with ultra-processed food consumption by British children. *Appetite*. 2021;157:105007.
21. Chang K, Khandpur N, Neri D, Touvier M, Huybrechts I, Millett C, et al. Association between childhood consumption of ultraprocessed food and adiposity trajectories in the Avon Longitudinal Study of Parents and Children Birth Cohort. *JAMA Pediatr*. 2021;175(9):e211573.
22. Francis-Devine B, Danechi S, Malik X. Food poverty: Households, food banks and free school meals. 2024; Available from: <https://commonslibrary.parliament.uk/research-briefings/cbp-9209/>
23. Naveed S, Lakka T, Haapala EA. An overview on the associations between health behaviors and brain health in children and adolescents with special reference to diet quality. *Int J Environ Res Public Health*. 2020;17(3):953.
24. Crawford D. *Obesity Epidemiology: From Aetiology to Public Health*. Oxford University Press; 2010. 487 p.
25. DHSC Media Team. Department of Health and Social Care Media Centre. 2023 [cited 2024 Apr 25]. Government plans to tackle obesity in England. Available from: <https://healthmedia.blog.gov.uk/2023/06/07/government-plans-to-tackle-obesity-in-england/>
26. Lang JJ, Zhang K, Agostinis-Sobrinho C, Andersen LB, Basterfield L, Berglund D, et al. Top 10 international priorities for physical fitness research and surveillance among children and adolescents: A twin-panel Delphi study. *Sports Medicine*. 2023;53(2):549–64.
27. Buchanan LR, Wethington HR, Finnie RKC, Mercer SL, Merlo C, Michael S, et al. A community guide systematic review: School dietary and physical activity interventions. *Am J Prev Med*. 2023;64(3):441–51.
28. Story M, Nanney MS, Schwartz MB. Schools and Obesity Prevention: Creating school environments and policies to promote healthy eating and physical activity. *Milbank Q*. 2009;87(1):71–100.
29. Ball SJ. *The Education Debate*. 3rd ed. 2017.
30. Sport England. Active Lives Children and Young People Survey: Academic Year 2022-23. 2023. Available from: https://www.sportengland.org/funds-and-campaigns/children-and-young-people?section=physical_literacy
31. Youth Sport Trust. Evidence Paper – The Link Between Physical Activity and Attainment in Children and Young People. 2022. Available from: <https://www.youthsporttrust.org/media/zyyo133r/pe-and-attainment-evidence-paper-january-2022.pdf>

32. Milton K, Cavill N, Chalkley A, Foster C, Gomersall S, Hagstromer M, et al. Eight investments that work for physical activity. *J Phys Act Health*. 2021;18(6):625–30.
33. Mackett RL, Paskins J. Children's Physical Activity: The contribution of playing and walking. *Child Soc*. 2008;22(5):345–57.
34. Zare Sakhvidi MJ, Mehrparvar AH, Zare Sakhvidi F, Dadvand P. Greenspace and health, wellbeing, physical activity, and development in children and adolescents: An overview of the systematic reviews. *Curr Opin Environ Sci Health*. 2023;32:100445.
35. Veitch J, Salmon J, Ball K. Children's active free play in local neighborhoods: a behavioral mapping study. *Health Educ Res*. 2007;23(5):870–9.
36. Sallis J, Prochaska J, Taylor W. A review of correlates of physical activity of children and adolescents. *Med Sci Sports Exerc*. 2000;32:963–75.
37. Brockman R, Jago R, Fox KR. Children's active play: self-reported motivators, barriers and facilitators. *BMC Public Health*. 2011;11(1):461.
38. NHS Information Centre for Health and Social Care. Health Survey for England 2008: Physical Activity and Fitness. 2009. Available from: <https://digital.nhs.uk/data-and-information/publications/statistical/health-survey-for-england/health-survey-for-england-2008-physical-activity-and-fitness>
39. Nielsen G, Bugge A, Hermansen B, Svensson J, Andersen LB. School playground facilities as a determinant of children's daily activity: A cross-sectional study of Danish primary school children. *J Phys Act Health*. 2012;9(1):104–14.
40. Campbell B. Pupils Leaving Primary's unable to run or catch. *Evening Standard*. 2013; Available from: <http://www.standard.co.uk/news/education/pupils-leaving-our-primariesunable-to-run-or-catch-says-sports-chief-8453728.html>
41. Child Poverty Action Group. Free school meals: third of kids in poverty miss out. 2023. Available from: <https://cpag.org.uk/sites/default/files/2023-08/Free%20school%20meals-%20third%20of%20kids%20in%20poverty%20miss%20out.pdf>
42. Office for Health Improvement and Disparities. National Diet and Nutrition Survey. 2021. Available from: <https://www.gov.uk/government/collections/national-diet-and-nutrition-survey>
43. Rose K, O'Malley C, Lake A, Lalli G. 'Doing school food!': a practical toolkit for adopting a whole school food approach. *Perspect Public Health*. 2023.
44. Bryant M, Burton W, O'Kane N, Woodside J V, Ahern S, Garnett P, et al. Understanding school food systems to support the development and implementation of food based policies and interventions. *International Journal of Behavioral Nutrition and Physical Activity*. 2023;20(1):29.
45. Cribb J, Farquharson C, McKendrick A, Waters T. The policy menu for school lunches: options and trade-offs in expanding free school meals in England. 2023. Available from: <https://ifs.org.uk/publications/policy-menu-school-lunches-options-and-trade-offs-expanding-free-school-meals-england>
46. Lundborg P, Rooth DO, Alex-Petersen J. Long-term effects of childhood nutrition: evidence from a school lunch reform. *Rev Econ Stud*. 2022;89(2):876–908.
47. Evans CEL, Melia KE, Rippin HL, Hancock N, Cade J. A repeated cross-sectional survey assessing changes in diet and nutrient quality of English primary school children's packed lunches between 2006 and 2016. *BMJ Open*. 2020;10(1):e029688–e029688.
48. LACA. LACA survey finds price of school lunch expected to rise further in 2023. 2022. Available from: <https://laca.co.uk/news/laca-survey-finds-price-school-lunch-expected-rise-further-2023>
49. Bristow C, Meurer C, Simmonds J, Snell T. Anti-obesity public health messages and risk factors for disordered eating: a systematic review. *Health Promot Int*. 2020;35(6):1551–69.
50. UNESCO. Education as Healing: Addressing the Trauma of Displacement through Social and Emotional Learning (Global Education Monitoring Report No. 38). 2019. Available from: <https://data.unicef.org/covid-19-and-children/>
51. Felitti VJ, Anda RF, Nordenberg D, Williamson DF, Spitz AM, Edwards V, et al. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. *Am J Prev Med*. 1998;14(4):245–58.
52. Madigan S, Deneault A, Racine N, Park J, Thiemann R, Zhu J, et al. Adverse childhood experiences: a meta-analysis of prevalence and moderators among half a million adults in 206 studies. *World Psychiatry*. 2023;22(3):463–71.
53. Van Lancker W, Parolin Z. COVID-19, school closures, and child poverty: a social crisis in the making. *Lancet Public Health*. 2020;5(5):e243–4.
54. Perfect MM, Turley MR, Carlson JS, Yohanna J, Saint Gilles MP. School-related outcomes of traumatic event exposure and traumatic stress symptoms in students: A systematic review of research from 1990 to 2015. *School Ment Health*. 2016;8(1):7–43.
55. Danese A, McEwen BS. Adverse childhood experiences, allostasis, allostatic load, and age-related disease. *Physiol Behav*. 2012;106(1):29–39.
56. Grogan S, Murphy KP. Anticipatory stress response in PTSD: Extreme stress in children. *Journal of Child and Adolescent Psychiatric Nursing*. 2011;24(1):58–71.
57. Siegel D. *The Developing Mind: How Relationships and the Brain Interact to Shape who we are*. New York: The Guilford Press; 1999.
58. Brunzell T, Stokes H, Waters L. Trauma-informed flexible learning: Classrooms that strengthen regulatory abilities. *International Journal of Child, Youth and Family Studies*. 2016;7(2):218.
59. Perry BD. Applying Principles of Neurodevelopment to Clinical Work with Maltreated and Traumatized Children: The Neurosequential Model of Therapeutics. In: Webb NB, editor. *Working with traumatized youth in child welfare*. The Guilford Press; 2006. p. 27–52.
60. Altieri V, Rooney M, Bergholz L, McCarthy J. Becoming a student of your students: Trauma-informed, culturally relevant practices for physical education teachers. *J Phys Educ Recreat Dance*. 2021;92(1):8–18.
61. Berger E, Bearsley A, Lever M. Qualitative evaluation of teacher trauma knowledge and response in schools. *J Aggress Maltreat Trauma*. 2021;30(8):1041–57.
62. Berger E, Martin K, Phal A. Dealing with student trauma: Exploring school leadership experiences and impact. *Leadersh Policy Sch*. 2022;21(4):780–90.
63. Quarmby T, Sandford R, Green R, Hooper O, Avery J. Developing evidence-informed principles for trauma-aware pedagogies in physical education. *Phys Educ Sport Pedagogy*. 2022;27(4):440–54.
64. Kolehmainen N, Thornton C, Craw O, Pearce MS, Kudlek L, Nazarpour K, et al. Physical activity in young children across developmental and health states: the ActiveCHILD study. *EClinicalMedicine*. 2023;60:102008.
65. Shields N, Synnot A. Perceived barriers and facilitators to participation in physical activity for children with disability: a qualitative study. *BMC Pediatr*. 2016;16(1):9.

References

66. Dixon K, Braye S, Gibbons T. Still outsiders: The inclusion of disabled children and young people in physical education in England. *Disabil Soc.* 2022;37(10):1549–67.
67. Sustain. Cost of some everyday groceries has more than doubled in a year, consumer champion Which? finds. Sustain web. 2023; Available from: <https://www.sustainweb.org/news/mar23-grocery-costs-double-year-consumer-which/>
68. Goudie S. New data show 4 million children in households affected by food insecurity. 2022. Available from: <https://foodfoundation.org.uk/publication/new-data-show-4-million-children-households-affected-food-insecurity>
69. Food Foundation. Food insecurity tracking. 2024; Available from: <https://foodfoundation.org.uk/initiatives/food-insecurity-tracking>
70. Gov UK. Special educational needs in England. 2023. Available from: <https://explore-education-statistics.service.gov.uk/find-statistics/special-educational-needs-in-england>
71. NHS England Digital. National Child Measurement Programme, England, 2022/23 School Year. 2023. Available from: <https://digital.nhs.uk/data-and-information/publications/statistical/national-child-measurement-programme/2022-23-school-year#>
72. Griffith R, von Hinke S, Smith S. Getting a healthy start: The effectiveness of targeted benefits for improving dietary choices. *J Health Econ.* 2018;58:176–87.
73. Defeyter G, Bundy D, Bremner M, Page A. Hunger in the Classroom. In: Routledge International Handbook on Equity and Inclusion in Education. Routledge; 2023.
74. Haney E, Parnham JC, Chang K, Lavery AA, Hinke S von, Pearson-Stuttard J, et al. Dietary quality of school meals and packed lunches: a national study of primary and secondary schoolchildren in the UK. *Public Health Nutr.* 2023;26(2):425–36.
75. Westwood H, Tchanturia K. Autism Spectrum Disorder in Anorexia Nervosa: An Updated Literature Review. *Curr Psychiatry Rep.* 2017;19(7):41.
76. Sanchez-Cerezo J, Nagularaj L, Gledhill J, Nicholls D. What do we know about the epidemiology of avoidant/restrictive food intake disorder in children and adolescents? A systematic review of the literature. *European Eating Disorders Review.* 2023;31(2):226–46.
77. Papini NM, Bulik CM, Chawner SJRA, Micali N. Prevalence and recurrence of pica behaviors in early childhood within the ALSPAC birth cohort. *International Journal of Eating Disorders.* 2024;57(2):400–9.
78. Food Foundation. A better deal for free school meals. 2023. Available from: https://foodfoundation.org.uk/sites/default/files/2023-11/TFF_FSM%20Allowance_Report_FINAL.pdf
79. Yang TC, Power M, Moss RH, Lockyer B, Burton W, Doherty B, et al. Are free school meals failing families? Exploring the relationship between child food insecurity, child mental health and free school meal status during COVID-19: national cross-sectional surveys. *BMJ Open.* 2022;12(6):e059047–e059047.
80. Impact on Urban Health. Investing in children's future: a cost benefit analysis of free school meal provision expansion. 2022. Available from: <https://urbanhealth.org.uk/wp-content/uploads/2022/10/FSM-Full-Report.pdf>
81. Adolphus K, Lawton CL, Champ CL, Dye L. The effects of breakfast and breakfast composition on cognition in children and adolescents: A systematic review. *Advances in Nutrition.* 2016;7(3):590S-612S.
82. Defeyter MA, Russo R. The effect of breakfast cereal consumption on adolescents' cognitive performance and mood. *Front Hum Neurosci.* 2013;7.
83. Adolphus K, Lawton CL, Dye L. Associations between habitual school-day breakfast consumption frequency and academic performance in British adolescents. *Front Public Health.* 2019;7:283.
84. Murphy S, Moore G, Tapper K, Lynch R, Clarke R, Raisanen L, et al. Free healthy breakfasts in primary schools: a cluster randomised controlled trial of a policy intervention in Wales, UK. *Public Health Nutr.* 2011;14(2):219–26.
85. Crawford C, Edwards E, Farquharson C, Greaves E, Trevelyan G, Wallace E, et al. Magic Breakfast: Evaluation Report and Executive Summary. 2016.
86. Defeyter MA, Graham PL, Russo R. More than just a meal: Breakfast club attendance and children's social relationships. *Front Public Health.* 2015;3.
87. Defeyter G, Harvey-Golding L, Forsey A. A literature review on the effects of breakfast consumption and school breakfast clubs. 2020.
88. Parnham JC, Chang K, Rauber F, Levy RB, Millett C, Lavery AA, et al. The ultra-processed food content of school meals and packed lunches in the United Kingdom. *Nutrients.* 2022;14(14):2961.
89. Ensaff H, Bunting E, O'Mahony S. "That's his choice not mine!" Parents' perspectives on providing a packed lunch for their children in primary school. *J Nutr Educ Behav.* 2018;50(4):357-364.e1.
90. Metcalfe A, Owen J, Dryden C, Shipton G. Concrete chips and soggy semolina: the contested spaces of the school dinner hall. *Popul Space Place.* 2011;17(4):377–89.
91. Food Foundation. Price of a healthy children's packed lunch rises in four out of five major supermarkets. 2023.
92. APSE. APPG on school food report: impact of food cost on school meals. 2022. Available from: <https://apse.org.uk/index.cfm/apse/research/current-research-programme/impact-of-food-cost-on-school-meals/appg-impact-of-food-cost-on-school-meals/>
93. Hurter L, Essiet I, Duncan M, Roberts WM, Lewis K, Goss H, et al. Physical literacy consensus for England: evidence review. Liverpool; 2022.
94. Martins J, Onofre M, Mota J, Murphy C, Repond RM, Vost H, et al. International approaches to the definition, philosophical tenets, and core elements of physical literacy: A scoping review. *Prospects.* 2021;50(1–2):13–30.
95. Cairney J, Dudley D, Kwan M, Bulten R, Kriellaars D. Physical Literacy, Physical activity and health: Toward an evidence-informed conceptual model. *Sports Medicine.* 2019;49(3):371–83.
96. Beni S, Fletcher T, Ní Chróinín D. Meaningful experiences in physical education and youth sport: A review of the literature. *Quest.* 2017;69(3):291–312.
97. Blank R, Smits-Engelsman B, Polatajko H, Wilson P. European Academy for Childhood Disability (EACD): Recommendations on the definition, diagnosis and intervention of developmental coordination disorder (long version). *Dev Med Child Neurol.* 2012;54(1):54–93.
98. Brian A, Pennell A, Taunton S, Starrett A, Howard-Shaughnessy C, Goodway JD, et al. Motor competence levels and developmental delay in early childhood: A multicenter cross-sectional study conducted in the USA. *Sports Medicine.* 2019;49(10):1609–18.

99. Pombo A, Luz C, de Sá C, Rodrigues LP, Cordovil R. Effects of the COVID-19 lockdown on Portuguese children's motor competence. *Children*. 2021;8(3):199.
100. Magalhães LC, Cardoso AA, Missiuna C. Activities and participation in children with developmental coordination disorder: A systematic review. *Res Dev Disabil*. 2011;32(4):1309–16.
101. Riviliis I, Hay J, Cairney J, Klentrou P, Liu J, Fought BE. Physical activity and fitness in children with developmental coordination disorder: A systematic review. *Res Dev Disabil*. 2011;32(3):894–910.
102. Cleaton MAM, Lorgelly PK, Kirby A. Developmental coordination disorder in UK children aged 6–18 years: Estimating the cost. *British Journal of Occupational Therapy*. 2020;83(1):29–40.
103. Barnett LM, Webster EK, Hulteen RM, De Meester A, Valentini NC, Lenoir M, et al. Through the looking glass: A systematic review of longitudinal evidence, providing new insight for motor competence and health. *Sports Medicine*. 2022;52(4):875–920.
104. Fought BE, Hay JA, Cairney J, Flouris A. Increased risk for coronary vascular disease in children with developmental coordination disorder. *Journal of Adolescent Health*. 2005;37(5):376–80.
105. Eddy LH, Wood ML, Shire KA, Bingham DD, Bonnicksen E, Creaser A, et al. A systematic review of randomized and case-controlled trials investigating the effectiveness of school-based motor skill interventions in 3- to 12-year-old children. *Child: Care Health Dev*. 2019;45(6):773–90.
106. School Food Matters. School food facts. 2024. Available from: <https://www.schoolfoodmatters.org/news-views/schoolfood-facts>
107. British Nutrition Foundation. Curriculum, qualifications and frameworks. [Internet]. 2024 [cited 2024 Apr 17]. Available from: <https://www.foodfactoflife.org.uk/whole-school/whole-schoolapproach/curriculumqualifications-and-frameworks/>
108. Dimpleby H, Vincent J. The school food plan [Internet]. 2013. Available from: https://assets.publishing.service.gov.uk/media/5fb407d28fa8f54aada6df60/The_Schoo_Food_Plan.pdf
109. Department for Education. National curriculum in England: framework for key stages 1 to 4 - GOV.UK. 2014. Available from: <https://www.gov.uk/government/publications/national-curriculum-in-england-framework-for-key-stages-1-to-4/the-national-curriculum-in-england-framework-for-key-stages-1-to-4>
110. Jamie Oliver Food Foundation. A Report on the Food Education Learning Landscape. School Food Matters. 2017. Available from: <https://www.schoolfoodmatters.org/sites/default/files/2021-12/%EF%80%A1%EF%80%A1FELL%20REPORT%20FINAL.pdf>
111. Walker TJ, Craig DW, Pavlovic A, Thiele S, Natale B, Szeszulski J, et al. Physical activity and healthy eating programming in schools to support student's health-related fitness: An observational study. *Int J Environ Res Public Health*. 2021;18(21):11069.
112. Silveira JAC da, Taddei JA de AC, Guerra PH, Nobre MRC. The effect of participation in school-based nutrition education interventions on body mass index: A meta-analysis of randomized controlled community trials. *Prev Med (Baltim)*. 2013;56(3–4):237–43.
113. Brennan SF, Lavelle F, Moore SE, Dean M, McKinley MC, McCole P, et al. Food environment intervention improves food knowledge, wellbeing and dietary habits in primary school children: Project Daire, a randomised-controlled, factorial design cluster trial. *International Journal of Behavioral Nutrition and Physical Activity*. 2021;18(1):23.
114. Long MA, Defeyter MA, Stretesky PB. *Holiday Hunger in the UK: Local Responses to Childhood Food Insecurity*. London: Routledge; 2021. 160.
115. Norris E, van Steen T, Direito A, Stamatakis E. Physically active lessons in schools and their impact on physical activity, educational, health and cognition outcomes: a systematic review and meta-analysis. *Br J Sports Med*. 2020;54(14):826–38.
116. Eddy LH, Preston N, Boom S, Davison J, Brooks R, Bingham DD, et al. The validity and reliability of school-based fundamental movement skills screening to identify children with motor difficulties. *PLoS One*. 2024;19(2):e0297412–e0297412.

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