

Supporting physical development in early childhood



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Contents

Introduction	8
Introduction	8
Meet the course authors	10
Week 1: The growth and physical development of young children	12
Introduction	12
1 Growth	14
1.1 Years 0–2	14
1.2 Years 3–5	16
1.3 Factors known to have a positive impact on children's physical growth	16
1.4 Factors that can compromise children's growth	18
2 Physical development	21
2.1 Years 0–2	21
2.2 Years 3–5	23
2.3 Supporting children's physical development	23
2.4 Compromising children's physical development	24
3 This week's quiz	27
4 Summary of Week 1	28
Further resources	30
Week 2: Body systems, senses and physical development	32
Introduction	32
1 Systems of the body	33
1.1 Circulatory system	33
1.2 Respiratory system	33
1.3 Muscles and bones (musculo-skeletal system)	34
1.4 Nervous system	35
1.5 Summary of the systems of the body	36
2 Developing senses	37
2.1 Hearing	37
2.2 Vision	39
2.3 Smell and taste	40
2.4 Touch	41
2.5 Vestibular sense – a sense of balance	41
2.6 Proprioceptive sense – the sense of space	42
2.7 Summary of the senses	42
3 Sensory rich environments	43

3.1 Affordances in the environment	43
4 This week's quiz	45
5 Summary of Week 2	46
Week 3: Supporting the development of children's movement skills	48
Introduction	48
1 How much physical activity do young children need?	50
2 Benefits of physical activity	53
3 Why physical activity is important for young children	55
4 Importance of supporting children	58
5 The ABCs of movement	59
5.1 Gross motor skills	59
5.2 Fine motor skills	60
5.3 Supporting the development of movement	61
5.4 Developing FMS	62
5.5 The development of FMS in your setting	63
6 Fostering and stifling creativity	65
6.1 Supporting the individual child	65
7 This week's quiz	67
8 Summary of Week 3	68
Further resources	69
Week 4: Movement and learning	71
Introduction	71
1 Understanding children's holistic development	72
2 Interactions with the environment	73
3 Encouraging healthy development	75
4 Spotting the signs	77
5 Understanding the news behind the headlines	78
6 Supportive adults	80
7 Movement and learning in early development	81
8 Developing independence	83
9 Repetitive actions and schema	84
10 This week's quiz	85
11 Summary of Week 4	86
Week 5: Physical development and play	88
Introduction	88
1 What is play?	89
2 Types of play	90

3 Promoting learning and development through physical play	91
3.1 Promoting communication and language through physical play	91
3.2 Promoting personal, social and emotional development through physical play	92
3.3 Summary of the role of play in children's development and learning	97
4 Risky play	98
5 Rough and tumble play	100
6 Building a movement rich environment	102
6.1 Floor time	102
6.2 Different spaces to move	102
6.3 Music, rhythm, dance and movement	103
6.4 Pushing, pulling, lifting, steering	103
6.5 Sand, water, mud and malleable materials	104
6.6 Mark-making	104
6.7 Summary of creating environments for physical play	105
7 This week's quiz	106
8 Summary of Week 5	107
Further resources	108
Week 6: Health and physical development	110
Introduction	110
1 Manageable and accessible daily physical activity for children	112
2 Working with parents to promote physical development and activity	114
2.1 Developing positive relationships with parents	114
3 Children who have health conditions	116
4 Chronic health conditions	118
4.1 Asthma	118
4.2 Diabetes	120
4.3 Sickle cell anaemia	121
5 Special educational needs and disability	122
5.1 Autism and ADHD	122
5.1 Complex medical needs	122
5.2 Partially sighted or visually impaired children	123
6 Obese or overweight children	125
6.1 Why children can become overweight and obese	126
7 Working with parents to encourage physical activity in children	128
8 How do you and your setting support physical activity and development?	130
9 This week's quiz	131
10 Summary of Week 6	132
Further reading and resources	133

References	135
Acknowledgements	139

Introduction

Introduction

Welcome to *Supporting physical development in early childhood*. In this course, you will learn the importance of encouraging children to take part in physical activity and the impact doing so has on their physical and mental health and wellbeing.

This course draws on research and expertise from academics from early childhood, sport and fitness at The Open University and Active Matters, and Angela Baker, Children's & Health Inequalities, Coventry City Council. Figures used in the course are based on UK statistics.

Watch Viv Bennett, the Chief Nurse and Director for Maternity in Early Years at Public Health England, talk about our most precious asset, our children, and how their physical development in the early years of life matters to their health throughout life.

Video content is not available in this format.

Video 1



By the end of this course, you should be able to:

- identify the importance of movement skills to the overall health, wellbeing and development of young children
- explore the relationship between physical growth and development
- describe the body systems and their relationship to moving and learning
- identify the appropriate physical/movement activities for each age and stage of development from 0–5 years
- explore how parents and practitioners can work together to support the physical development of all children.

Moving around the course

In the 'Summary' at the end of each session, you will find a link to the next session. If at any time you want to return to the start of the course, click on 'Full course description'. From here you can navigate to any part of the course.

Throughout the course you will come across links to external web pages that navigate you away from this course. It's good practice, if you access a link from within a course page (including links to the quizzes), to open it in a new window or tab. If you are studying on a desktop you should open the link in a new tab or window by holding down Ctrl (or Cmd on a Mac) when you click on it. If you are studying on a mobile device hold down the link and select to 'Open in New Tab'. That way you can easily return to where you've come from without having to use the back button on your browser.

The authors of this course would like to learn more of the views of the learners. To help them do this, there is a [pre-course survey](#) (press Ctrl + click on the link to open it in a new window) for you to complete if you wish. The information you provide will give the authors an insight into how helpful, interesting, and relevant the content of the course is to you. Thank you in advance for completing this pre-course survey. There is also a post-course survey at the end of the course.

Meet the course authors

This course has been written by the following:

- **Jackie Musgrave**
Jackie Musgrave is the lead author of this course. Her research and teaching explores ways of working with professionals and parents to improve young children's health. Jackie is the Programme Lead for Early Childhood at The Open University.
- **Lala Manners**
As a teacher, trainer, educator, consultant, researcher, author and broadcaster, Lala Manners has enjoyed a long and varied career in the field of early years movement studies and physical development.
- **Ben Langdown**
As well as being a lecturer in Sports Coaching at The Open University, Ben Langdown is also a strength and conditioning coach to junior and adult golfers, with a focus on youth sport and physical development.
- **Jo Josephidou**
As she used to be a primary school teacher, Jo Josephidou, who is now a lecturer in Early Childhood at The Open University, is convinced of the importance of physical development in a child's overall development and learning.
- **Lucy Rodriguez Leon**
Following a career as an early years practitioner, consultant and trainer, Lucy Rodriguez Leon joined The Open University in 2019 as a Lecturer in Early Childhood.
- **Angela Baker**
With a background as a paediatric nurse, educational supervisor, and senior lecturer at Oxford Brookes University, Angela Baker is Deputy Director of Health and Wellbeing for Public Health England in the South East, with a focus on developing local and national strategies for health improvement.

You can now go to [Week 1](#).

Week 1: The growth and physical development of young children

Introduction

To begin, study Figure 1 and then consider the following statements:

- Technology is the best source of children's learning
- Children move less than those of previous generations
- Children have less freedom now to play and explore.



Figure 1 Young children through the ages

What were your immediate thoughts about the photographs and statements?

The world children inhabit has changed significantly in the last 40 years. Spaces to play in are often limited and worries about their safety mean they don't have opportunities enjoyed by previous generations to play freely.

The education system in England is also demanding and there is a focus on teaching specific aspects of the curriculum such as maths and English that require them to sit still for long periods and not move about.

Technology has undoubtedly affected children's play choices; babies and children are given access to digital toys and other devices which means that many are spending

increasing amounts of time using a screen which is very likely to impact on their motivation to be physically active.

All these factors are affecting children's physical growth and development as well as the quality and amount of physical activity they are taking part in. In short, many children are not moving enough to properly support their overall health and wellbeing and ensure smooth growth and physical development.

Adults tend to take young children's growth and physical development for granted – meaning that, given a supportive environment, good food, enough sleep and appropriate opportunities to be physically active it will 'just happen anyway.'

In many ways this is true: they visibly grow taller and weigh more over time; baby or 'milk' teeth fall out and permanent teeth appear; hair and nails grow and need cutting; clothes and shoes require continual replacement; and they become physically more confident, competent, creative and adaptive. But children now need much more support from the adults in their lives to ensure that their growth and development is encouraged, and they are given plenty of varied opportunities to be physically active.

This is what this course is really about. Each week you will learn more about how children's physical development, health and wellbeing are linked, and how you can best support children to move more so their life chances are maximised, and they reach their full potential.

By the end of this week, you will be able to:

- describe the relationship between young children's growth and their physical development
- identify the factors that may support or compromise children's growth and physical development
- identify the available mechanisms and personnel that can support children's growth and physical development.

In this course you will see the words *growth* and *development* used throughout. These two terms are defined in the following ways:

Growth is the progressive increase in the size of the child – or parts of the child.

Development is the progression towards maturity and the progressive increase of various skills and abilities.

1 Growth

Watch the animation which looks at growth rates through years 0–5. These are representative of growth rates in the UK.

Video content is not available in this format.

Video 1



Growth involves changes to the physical aspects of the body – its size, shape, form and structure.

Children become taller and heavier as their bones, muscles and body systems develop. Growth happens within a uniquely individual time span as you will see in any group of children of similar age. Usually, it has stopped completely by age 25 and can be measured very accurately throughout childhood – many homes have a particular wall or door on which the height of resident children is recorded over years.

Two points are worth remembering:

1. Growth happens from top to bottom – the scientific term is *Cephalocaudal* – which means that growth starts at the head and then spreads down to the toes. This explains why humans compared to many other mammals take much longer to walk fluently!
2. Growth also works from the core (around the tummy area) out to the fingers and toes – this is called *Proximodistal* – and means that the core of the body must be strong and stable long before fiddly movements like writing and drawing are achieved.

1.1 Years 0–2

The body grows more rapidly in the first six months of life after birth than at any other time. Healthy newborns will double their birthweight by the time they are 4–5 months old and triple it by their first birthday. The average weight gain throughout this period is 6.6 kg and the gain in length/height is 25 cm. By 2 years most healthy toddlers are approximately half their adult height. The average gain in height between 1–2 years is 12 cm and between 2–3 years it is 8 cm but there is no routine measurement taken during this time. In terms of weight gain, between 1–2 years it is around 2.4 kg (5 lbs) and between 2–3 years it is 2 kg. In the UK, children are routinely weighed at around 12 months and again during their review between 2–2.5 years.

You will now look at the role of health professionals in supporting the growth of babies and very young children.

The role of the midwife in ensuring good antenatal care and in monitoring the progress of mother and baby up to ten days after birth is important to recognise. If all is going well, the Health Visitor takes over the care of mother and baby at this time.

Listen to Audio 1 in which Julia, a Health Visitor, tells you why certain measurements are usually taken from babies at birth, during their 6–8-week check, then again at their 9–12-month review. She also explains the relevance of the Personal Child Health Record that in England is also known as the ‘red book’ or ‘e-redbook’.

Audio content is not available in this format.



Audio 1

- What Julia has been describing is relevant to England. If you are not based in England, does the provision for midwives and health visitors work the same way in your country? If not, how and why is it different? Do you have a personal child health record or something similar to it?

Now complete Activity 1.

Activity 1

Read the case study about a community worker below and then answer the questions that follow.

Case study: Marion

Marion is a community worker who runs a local parent/toddler group. One of the mums, Amina is a recent immigrant to the UK. Her son, Karim is aged 2 years and she is pregnant with her second child.

Amina is in the early stages of learning English and is reluctant to engage with the available health services. She seems unsure what the role of the Health Visitor is.

If you were in Marion's situation, how would you best support this young mother? What three points made by Julia in Audio 1 do you think may encourage Amina to engage with the support available to her during her pregnancy and with Karim?

Provide your answer...

Discussion

You may have considered some of the following responses to Marion's case study:

- Are there any cultural issues that may impact Amina's independent contact with available services?
- Are there issues around accessing paper-based/English language resources?

- Is Amina aware of Karim's 2-year-old review?
- Is Amina aware that Karim may be eligible for 15 hours childcare per week?
- Is the family registered with a GP/HV?

1.2 Years 3–5

Providing a range of enjoyable daily opportunities for children to move freely from birth onwards plays a vital role in supporting their smooth growth and overall development.

Julia explains in Audio 2 how parents and carers should support babies and young children to engage in movement play throughout the early years.

Audio content is not available in this format.



Audio 2

Most children between 3–4 years are top heavy, small chested, have rounded tummies and short legs. As they mature their necks will lengthen, chests enlarge, shoulders broaden and tummies flatten as core strength develops.

This is the time when issues of overweight and obesity can emerge. According to the National Child Measurement Programme, in 2021/2022, 10.1% of reception age children (age 4–5) were obese, while a further 12.1% were overweight. At age 10–11 (year 6), 23.4% were obese and 14.3% overweight (NHS Digital, 2022).

You will now explore some factors that best support or compromise children's growth.

1.3 Factors known to have a positive impact on children's physical growth

Figure 2 shows the factors which have a positive impact on a child's physical growth.

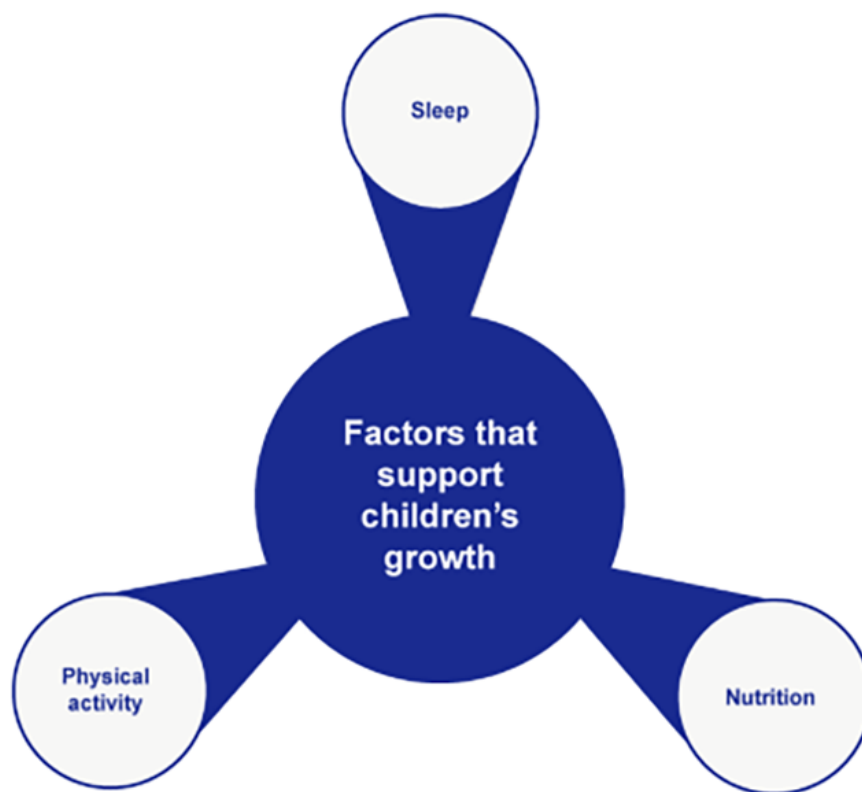


Figure 2 Factors that support children's growth

Sleep

Sleep is vitally important to children's growth because growth hormone is actually secreted during sleep. Many body movements occur during sleep that contribute to building muscle strength and mobility. Establishing sleep routines is vital and should ideally include no screen time during the two hours before bedtime. Children are more likely to become overweight or obese if they get less than their recommended amount of sleep (Miller *et al.*, 2018).

The pineal gland in the brain regulates the 'biological' clock that is connected to the production of melatonin and serotonin and is stimulated by blue light. Being active and outside every day – especially before noon – helps maintain the evening levels of melatonin that really support quality sleep (NHS Great Ormond Street Hospital for Children, 2023).

Nutrition

Nutrition is a vital factor in supporting children's growth. They need a well-balanced diet that gives them all the nutrients that are essential to promoting bone growth. Calcium is particularly important for bone growth and being regularly outside and active in the sunshine encourages the intake of Vitamin D. Vitamin D supplements are recommended from 6 months onwards.

Physical activity

Physical activity is important to provide children with opportunities to enjoy activities that encourage bone growth. These may include hanging from monkey-bars, pushing and

pulling things around, digging holes, building dams, sweeping leaves or puddles, and whole-body movements like rolling, crawling, walking, running, jumping and climbing.

Being active also improves blood flow in the lymphatic system so the immune system may respond quickly to viruses and infections. Moving every day will benefit the growth of healthy tendons and ligaments through increased blood flow. Muscle tissue growth will be stimulated by plenty of physical activity.

Being active outside also supports the manufacture of vitamin D that promotes healthy bone growth. Calcium gained through food and drink is helped by vitamin D to pass from the blood stream into the bone structure.

1.4 Factors that can compromise children's growth

Figure 3 shows factors that can compromise a child's physical growth.



Figure 3 Factors that can compromise children's growth

Exposure to stress, alcohol or smoking in utero

It is very important that effective antenatal care helps pregnant mothers provide the best environment for their growing babies. Stress, alcohol and smoking are all known to have a negative effect on the growth of babies in the womb. Data for 2021/22 show that 9.1% of pregnant women are smoking at the time of birth (NHS England, 2022).

Inadequate maternal bonding and/or postnatal depression

In the UK, 2.3 million children are living with risk due to a vulnerable family background (Children's Commissioner, 2019). In some cases, inadequate maternal bonding and postnatal depression can contribute to this and so it is critical that health professionals are available to all parents to pick up any difficulties. 829,000 children are also 'invisible' (Children's Commissioner, 2019) – i.e. they are not known to health services – these are children who may not attend preschool and are not accessing appropriate support.

Inadequate housing

Inadequate or unsafe housing environments mean children may not have opportunities to move freely and play – they may also be prone to picking up infections that affect their breathing.

Poor sleep

All children need quality sleep in a clean, safe and secure environment. Some children may be living in chaotic households or are constantly moving and have no sleep routines, continual access to screens, and no proper bed. Some may also experience disturbed sleep due to illness e.g. a persistent cough.

Physical inactivity

Children need to move in order to be safe and strong. Being physically active ensures the muscles properly support the joints and reduces the possibility of accidents and fractures.

Illness

Some children may be managing long-term health conditions, experience operations and may be prone to picking up infections.

Medication

Medication for long-term conditions, e.g. asthma or coeliac disease, may have an adverse effect on children's rate of growth.

Poverty

In the UK, an estimated 14.5 million people are living in poverty, which represents 22% of the population. (Save the Children, 2023). Of these, 4.3 million are children. According to the Joseph Rowntree Foundation (2023), for the last 25 years, children have been the demographic most affected by poverty that means they are living on less than 60% of the national average income. This will have an effect on the choices made around food, clothing and where and how they can play.

Inadequate care

Some children may experience neglect and abuse – both will have a negative effect on their growth.

Lack of stimulation

This may be physical or emotional and affects their ability to thrive.

Poor hygiene

Ensuring good personal hygiene will help minimise the possibility of picking up bacterial infections.

Activity 2

Read the case study about a mother of three below and then answer the questions that follow.

Case study: Mel

Mel has three children under 5 years old and they live together in a small flat on the fifth floor of a tower block in a city. She has family living locally who are supportive, but she has a range of health issues and her financial situation is challenging.

Which three factors included in the list of 'compromising factors' do you think may be most relevant to her life?

How would you advise Mel to best support her children's physical growth?

Provide your answer...

Discussion

This is a tricky situation for Mel, and there aren't easy answers. The compromising factors that may be most relevant to Mel and her children could be that they live in housing that is inadequate for young children. This is because the children can't access a safe outdoor play area very easily. Mel's illness may make her feel less able to get the three young children ready to go to a play area.

In addition, Mel doesn't have much spare cash because of her financial situation. Mel could be encouraged to seek the support of her family to take the children outside to a safe play area. Mel could be encouraged to find out from her Health Visitor about play groups and services that may be available in the community that they could access.

You may have thought of other ways that Mel could be supported.

2 Physical development

Physical development is closely related to growth, but it also includes all body senses and systems, reflexes and the gaining of a wide range of physical skills.



Figure 4

Physical development is all about *overall* and *progressive* changes in the body, meaning that as children become more confident and competent movers they can enjoy wider and ever more challenging opportunities to be physically active.

Physical development is also described as ‘structural’, ‘functional’ and ‘organisational’ – which means that as their skills develop, they can use them in a variety of situations and environments – becoming increasingly aware of how to successfully manage risk and adventure.

Physical development is ‘qualitative’ in nature, meaning that as children get stronger and more able you will see the transition from an emerging skill like walking – to a mature and fluent version with time and practice.

As children develop physically, they are increasingly able to make the right decisions for themselves and choose the correct movements needed for specific tasks. They are also able to think about, discuss and describe their physical abilities: what they think they are good at, not so good at, what their friends, are good at, and how they think they could improve their skills.

2.1 Years 0–2

The adults in children’s lives can play a vital role in ensuring they all become confident and competent movers.



Figure 5

By actively supporting their movement, children’s language and communication skills may also be further developed. In Audio 3, Julia explains the importance of developmental reviews and how services may support families.

Audio content is not available in this format.



Audio 3

From 0–2 years is a really critical time for children’s physical development as all the essential foundation or fundamental movement skills are learned and practised.

Being able to learn and rehearse physical skills in an unhurried and supportive environment is vital and ensures that children can experience movement transitions – like from tummy-time to rolling to crawling to walking – without any stress or pressure to perform or reach any expected ‘milestone.’

It is also important to recognise that every child follows a unique inner timetable and skills are acquired when they are ready. Remember there are many ways to the top of the mountain, but the view remains the same!

Activity 3

Read the case study about a stay-at-home father below and then answer the questions that follow.

Case study: Tim

Tim is a stay-at-home, young dad with 20-month-old twins – a boy and a girl, Adam and Beth. He has noticed a big difference in the twins’ physical development. Adam has been walking for 8 months already and is continually active. Beth is in the early stages of walking and prefers to sit and play.

He is finding it difficult to provide active opportunities that suit both children and is worried what will happen during their review as his daughter seems so behind her brother.

What questions could you ask Tim to get more information about the twins’ physical development?

What would you say to Tim that may reassure him about Beth’s physical development?

Provide your answer...

Discussion

First of all, it’s important to reassure Tim that walking has the widest age range for a physical skill, and can vary from 10–20 months, with an average of 12–14 months (Manners, 2019). Children, even twins, do develop at different rates.

You may want to ask Tim if he can provide play opportunities for Beth that will help her to walk, but it’s important not to push Beth, gently encouraging her may help to build her confidence.

Beth's play interests may mean that she is more likely to sit and play. As long as she is given gentle encouragement and opportunities to walk, it is likely that she will start to do so. If Beth doesn't make progress, Tim may want to speak with the Health Visitor.

2.2 Years 3–5

Being 'ready for school' is very dependent on children's level of physical skills and their range of prior movement experience.

In Audio 4, Julia explores the importance of providing daily movement opportunities that ensure all children may navigate the school day with ease and enjoyment and some of the issues that may emerge if not.

Audio content is not available in this format.



Audio 4

Between the ages of 3 and 5 are vital years for physical development. It is the age when children should become really competent and confident movers, and able to manage their bodies with fluency and ease in a range of situations and environments.

Balance, strength and coordination become increasingly important as they begin the process of getting 'ready for school.'

Activity 4

What do you think children need to be 'ready for school'?

What three things would you advise parents to do to make sure their children enjoy the school day?

Provide your answer...

2.3 Supporting children's physical development

You are now going to explore some factors that are known to support children's physical development.

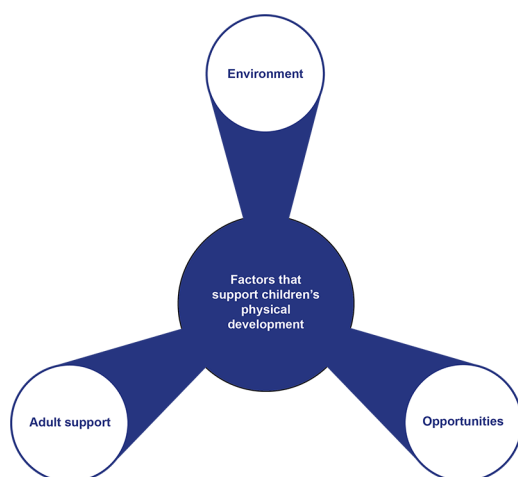


Figure 6 Factors that support children's physical development

A supportive environment

A supportive environment for children to practise their physical skills is important. It should be safe for children to explore independently, make mistakes and determine personal risks, challenges and adventures. They need to be able to move easily between activities and to change position by themselves, so avoid too much clutter or furniture if possible.

Opportunities

A wide range of opportunities to be physically active every day should be provided for *all* children. It's good to have a range of familiar and moveable resources to play with either alone or with others – indoors or outside. Quiet, calm and protected areas should be available for rest and recovery when needed. You really don't need special clothes or equipment, but always try to offer accessible and manageable possibilities for movement, adequate space and plenty of time for them to practise their skills throughout the day.

Positive adult support

Positive adult support plays a really important role in children's physical development. If you enjoy moving and being active – it is highly likely that your children will also. Offering the appropriate level of support varies from child to child, but it is vital to appreciate that adults are responsible for providing a range of opportunities that work for each stage of physical development.

2.4 Compromising children's physical development

You are now going to explore some factors that are known to compromise children's physical development.

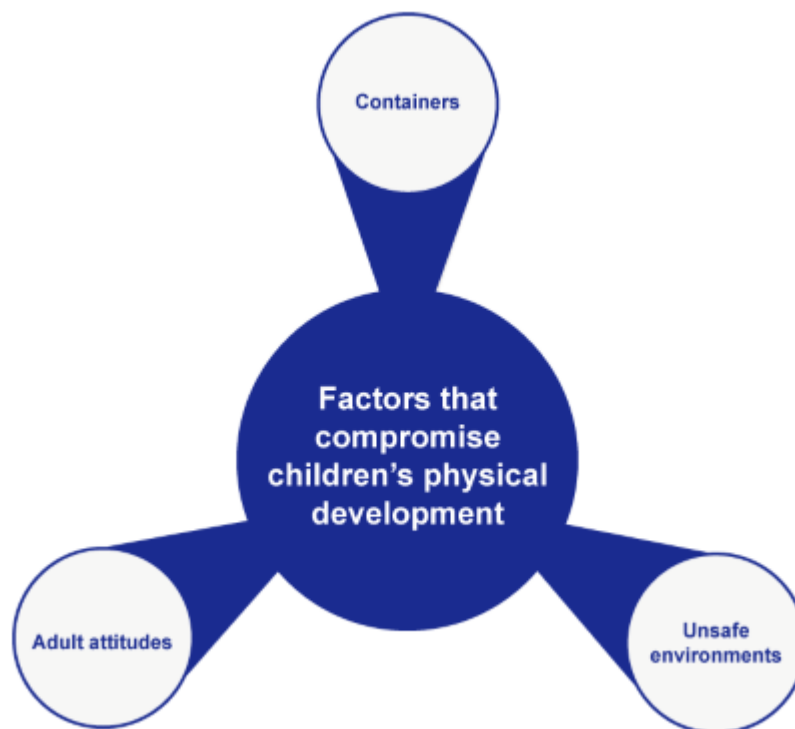


Figure 7 Factors that compromise children's physical development

Containers

Extended time sitting in 'containers' or sitting devices prevents children from experiencing the essential spontaneous movements like wriggling, stretching and bouncing that help strengthen all the muscles that support the spine. Muscle strength is vital to ensure the hips and shoulders are in the correct position for children to start crawling and walking. Lots of short or incidental opportunities to move throughout the day allow children's bodies to continually realign and practise postural control.

Unsafe environments

Many children live in environments that are not safe enough to practise their movement skills. It is important to recognise this and provide alternative/appropriate environments whenever and wherever possible for children to move and play freely.

Adult attitudes

For a range of reasons, some adults may not be properly supportive of their children's need to move on a daily basis. This may emerge in the way they talk about their children's physical abilities or in a lack of interest in sourcing opportunities for their children to be active.

Activity 5

Talk to your friends, colleagues and family members and discuss how the factors that support and compromise children's physical development may be present in your environment.

Have you experienced or seen any of the factors that support or compromise children's physical development?

Provide your answer...

3 This week's quiz

Now that you've completed Week 1, you can take a short quiz to help you to reflect on what you've learned.

Open the quiz in a new tab or window by holding down Ctrl (or Cmd on a Mac) when you click on the link. Return here when you have finished.

[Week 1 quiz](#).

4 Summary of Week 1

In this first week, you have learned how to describe the relationship between young children's growth and their physical development. You have identified the factors that may support or compromise children's growth and physical development. And you are now able to identify and record the available mechanisms and personnel that can support children's growth and physical development.

Top tips for children's growth

- Check frequently that the feet of Babygros are not getting too tight – babies need to be able to push off their feet as they begin to crawl – if their feet are all scrunched up they can't do this.
- Also check that children are wearing the right sized shoes – at any one time around 26% of children are not (Manners, 2019) – and this will have a significant impact on their balance, coordination and agility – so safety becomes a serious issue. There is no need for children to wear shoes during their first year.
- Always be aware of the language you use when talking about children's growth – they will pick up on anything negative and the effect may be long-lasting, so expressions like *a bit chubby*, *well-covered*, *shrimpy* and *twiglet legs* should be avoided – and look out for any negative or unpleasant expressions they may be using amongst themselves.

Top tips for children's physical development

- Remember that the physical development of all children is unique, individual and of profound importance to them.
- Physical development is often 'spikey' – meaning that not all skills will develop at the same time or in the same order. Some children can cycle easily but struggle with catching a ball or are competent swimmers but not confident climbers. Some cannot bat very well but are fluent, fast runners.
- Regressions and plateaus in skill acquisition are as important as progressions; children need ample time to reflect, discuss, practise in private and observe others before navigating the next level of a new skill.
- Progress may often pop up in unexpected developmental domains. Children may make new friendships with others who share the same level of skill and interest. They may start to use the language of movement in different contexts and make connections between movement as seen in pictures, poems, stories or sculpture.

Reflection

■ Reflect on the following questions:

- How will you use this information to support your relationships with children?
- How may this information positively inform your practice?
- What specific points will you pass on to others and why?

We hope you have enjoyed the first week of this course. Each week you will learn more about how children's physical development, health and wellbeing are linked, and how you can best support children to move more so their life chances are maximised and they reach their full potential.

You can now go to [Week 2](#).

Further resources

(Use Ctrl + click on the link to open in a new window.)

- [The health impacts of screen time: a fact sheet for parents](#) is a fact sheet from the Royal College of Paediatrics and Child Health on screen time.
- [Motivational Interviewing as a Counseling Style](#) is a technique in which you become a helper in the change process and express acceptance of your client.
- [Activematters](#) has lots of useful articles and videos to browse and explore.
- The [Digital Redbook pilot toolkit](#) is a welcome to the digital child health programme's pilot page.
- [Health For All Children](#) is the joint working party on child health surveillance.
- The [Digital Child Health](#) programme was created to support the vision in Healthy Children: Transforming Child Health information and to ensure key health information can be shared appropriately with all those involved in the care of a child.
- [Open Book on Growth](#) is an interactive web-based learning programme designed to teach the principles and practice of growth assessment
- The [Infant & Toddler Forum CIC](#) is dedicated to early-life nutrition – from pregnancy to preschool – working independently with parents, professionals and providers.
- [Move with me](#) is Surrey County Council's Family Information Service which provides physical development tips for parents of 0-5s.

Week 2: Body systems, senses and physical development

Introduction

Last week, you looked at children's growth and development, and how these are influenced by multiple factors. As children grow and physically develop, their senses and systems also undergo rapid change.

This week you will explore the importance of the body's senses and systems, and how these are intricately linked to good physical and mental development.

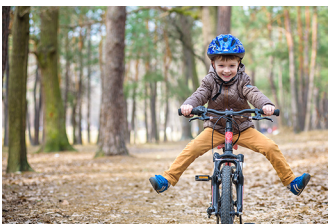


Figure 1

Section 1 *Systems of the body*, looks at the respiratory, circulatory, nervous and muscular-skeletal systems. Section 2 *Developing senses* discusses the body's senses, including vision, hearing, smell, taste and touch, and also explores vestibular sense (sense of balance) and proprioceptive sense (sense of space). Finally, Section 3 *Sensory rich environments* explores how babies and young children use their senses in their play and everyday lives.

By the end of this week, you will be able to:

- understand the four key body systems that are related to children's health and physical development
- describe how the body receives information from its seven senses
- discuss how the senses enable learning and development
- identify how the environment can optimise children's sensory development.

1 Systems of the body

The human body is complex, made up of many systems that work seamlessly together. When these systems are functioning well, you feel comfortable and can effortlessly do many things that are usually taken for granted, such as moving, breathing and sleeping. This section looks at four body systems that are closely related to children's growth and physical development: the circulatory, respiratory, nervous and muscular-skeletal systems.

1.1 Circulatory system

The circulatory system is made up of the heart and the network of vessels that carry blood around the body.

This system is responsible for delivering oxygen and nutrients to organs and cells and carrying waste products away. The circulatory system also helps to regulate the body's temperature and keep it in a safe range.

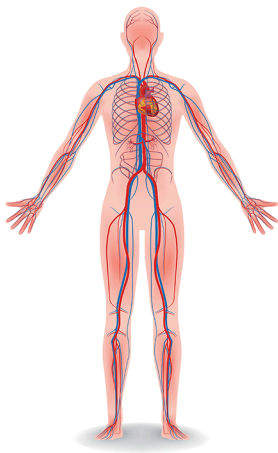


Figure 2 The circulatory system

The heart is a muscle that pumps oxygen rich blood through vessels called arteries. Arteries get smaller as they move away from the heart and connect to tiny capillaries that reach every part of the body. Capillaries connect to veins, vessels that take the blood back towards the heart.

Therefore, blood flows from heart→ artery→ capillary→ vein→ heart.

This is called circulation. However, there are two circulations in the circulatory system. The systemic circulation is how blood goes to most of the body. The pulmonary circulation is how blood goes through the lungs to collect oxygen.

When a baby is in the womb, blood bypasses the lungs as these do not inflate until after birth. However, from the moment a baby takes its first breath, the circulatory system is interlinked with the respiratory system.

1.2 Respiratory system

The respiratory system is made up of all the organs involved in the exchange of oxygen and carbon dioxide, but it has two parts.

The upper respiratory tract includes the nose, mouth, throat and sinuses (air filled spaces above and behind the nose). The lower respiratory tract is made up of the voice box (larynx), the windpipe (trachea), the airways (bronchi) and the lungs.

When you breathe in, you take in oxygen. In the lungs, oxygen is diffused into the blood and carbon dioxide diffuses out of the blood. This is called gas exchange. When you breathe out, you release the carbon dioxide. The oxygenated blood is carried to the heart to be pumped through the circulatory system.

When resting, adults and older children breathe about 12–20 times per minute. Toddlers breathe 20–30 times per minute and babies breathe 30–60 times a minute. That adds up to 17,000–30,000 breaths per day! When you exercise, even moderately, your breathing rate goes up.

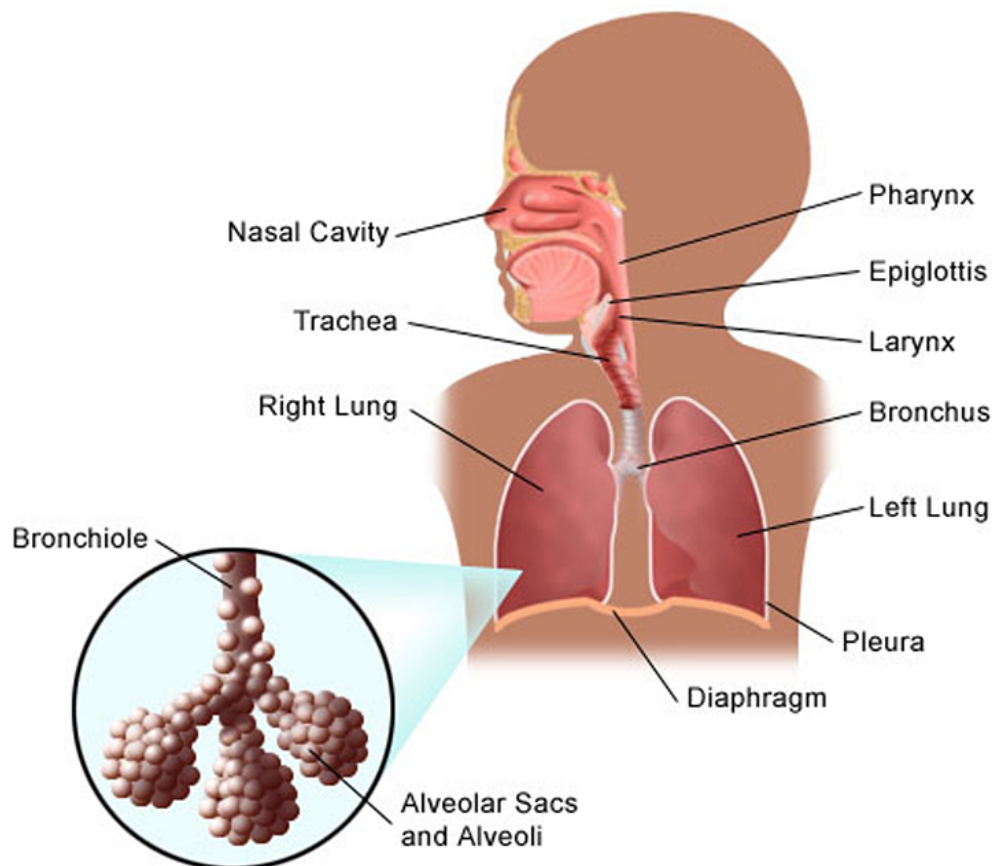


Figure 3 The respiratory system

1.3 Muscles and bones (musculo-skeletal system)

Together, muscles, bones and joints are referred to as the musculo-skeletal system; this system provides support and enables the body to move.

Muscles are groups of long fibre cells that have the ability to contract and relax, meaning that they shorten and lengthen. Bones are rigid structures that maintain the structure of the body and protect its organs. Joints are the areas where two or more bones meet, allowing the body to move. Muscles, bones and joints are attached to one another by ligaments and tendons.

There are over 300 bones in a baby's body, although when babies are born some of their bones are soft like cartilage. As babies grow older, their bones begin to fuse and become more solid until they are strong enough to enable a baby to start moving independently. Listen to Audio 1, which describes how opposite groups of muscles work with bones and joints to allow you to move.

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Audio 1

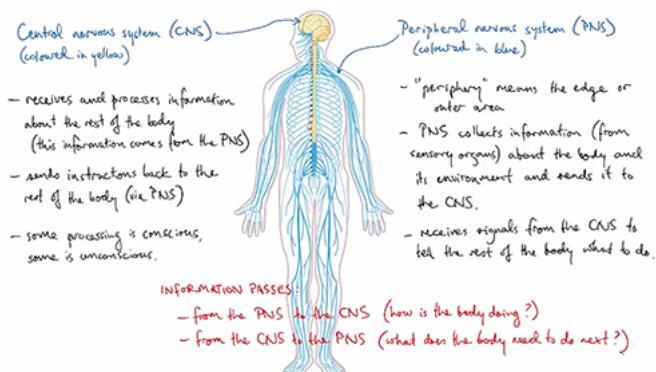
Muscles that are used frequently develop and grow strong; those that are not used fail to develop, or waste away. Therefore, movement is crucial for babies and young children's growth, health and physical development.

1.4 Nervous system

Watch Video 1 which introduces the overall structure of the nervous system and how it is made up of the brain, the spinal cord, and a complex network of nerves that run throughout the whole body.

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Video 1



The nervous system consists of two main parts, the central nervous system (CNS) and the peripheral nervous system (PNS). The CNS is made up of the brain and spinal cord. The PNS is made up mainly of nerves, which are bundles of long fibres called neurons, that connect the CNS to every part of the body.

This system allows different parts of the body to communicate and enables the brain to control and regulate what is going on. Through the nervous system, the brain detects environmental changes that impact the body, then works in tandem with other body systems to respond and maintain equilibrium.

For example, if it is hot, the brain tells the blood vessels to dilate (become wider) to reduce body temperature, if it is cold, the brain sends shiver signals out to warm the body up.

1.5 Summary of the systems of the body

The respiratory, circulatory, nervous and muscular-skeletal systems are four important body systems. However, there are also many other body systems that must continuously work together for our bodies to function well, such as the digestive system and the urinary system. Different systems depend on each other to keep the body functioning well. You can read about the [other systems](#) if you would like to find out more. *(Use Ctrl + click on the link to open in a new window.)*

The next section look at the body's senses, and how they work together to provide information about your surroundings and enable you to function in everyday life.

2 Developing senses

In Section 1 you looked at the four vital systems that keep oxygen flowing to every cell in your body, enable you to move, and allow your body to respond to the environment. In addition, the brain needs information from the world around you to ensure that the body stays safe.

Take a moment to stand up, close your eyes and use your left hand to touch your nose. Think about:

- How your finger knew where your nose was?
- Why didn't you fall over?

It is because of your senses that you are aware of your immediate environment and are able to interpret the world around you. The traditional five senses are: sight, hearing, touch, smell and taste. However, in addition there are some lesser-known senses that are also vital for health and wellbeing, and which enable humans to function. These include:

- interoception – awareness of your body's internal state, such as feeling hungry, perceiving pain (nociception) and awareness of one's body temperature (thermoception)
- vestibular sense – sense of balance
- proprioceptive sense – sense of one's body in space.

It is because of your proprioceptive and vestibular senses that you could touch your nose and that you didn't fall over.

The senses use various organs, muscles and nerves to collect information and send messages to the brain for analysis, such as smelling danger, seeing people you recognise, feeling pain or tasting things that make you feel happy. Your senses determine whether you move your hand away from the hot kettle – without your sense of touch you would not be aware that the heat was damaging your skin.

Your senses often send a lot of information to the brain at once. The brain must integrate and organise this information through a process known as sensory integration, and babies and young children need lots of opportunities to experience the world using all their senses. Movement is essential to achieving 'sensory integration' and enabling young children to learn to make sense of the world and respond to the different stimuli they encounter.

Next, you will look at the five traditional senses, along with vestibular sense and proprioceptive sense, and discuss why these are so important to children's overall development and learning.

2.1 Hearing

At about 4–6 weeks after conception, the ear begins to form and by 28 weeks of pregnancy the baby can begin to hear some sound.

At birth, once the fluid has drained from the ear canals, babies begin to hear much more clearly. Yet before birth, babies respond to their mother's voices and they can hear the womb's internal rhythms.

Figure 4 below shows the different parts of the ear.

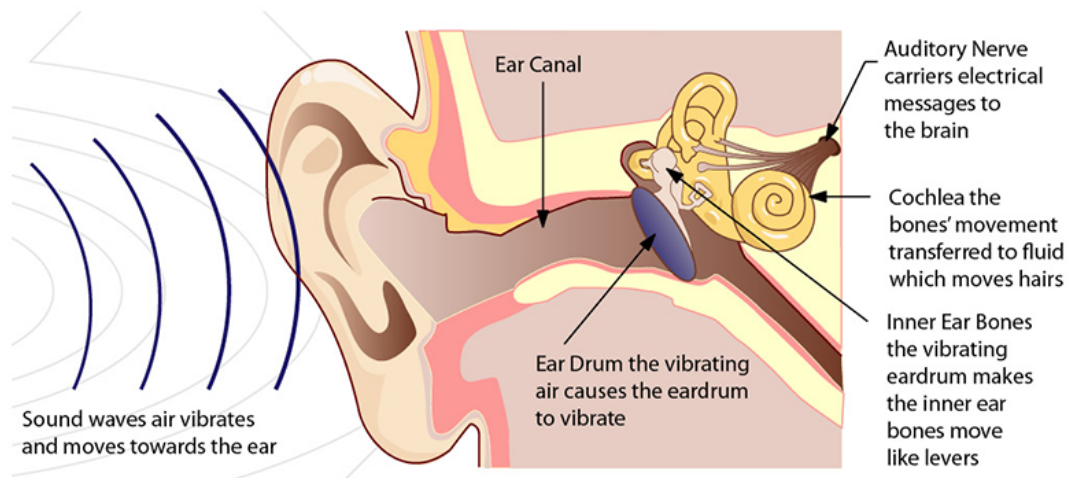


Figure 4 How humans hear

As babies grow, hearing and sound are important in helping to develop language and communication. Babies and young children copy the sounds they hear and the response they get from their carers encourages them to repeat these sounds. As young children develop, they learn what different sounds mean, such as speech, a ringing phone, music or a smoke alarm. Being able to discriminate between sounds and knowing the direction that sounds are coming from are important skills that children need to acquire.

Babies and young children have their hearing tested at regular intervals during the first few years of life, so any problems are usually detected early. Common ailments, such as colds or ear and throat infections may temporarily affect hearing.



Figure 5 Things children with hearing problems may have difficulty with

- What sorts of sounds can you hear now? Are they pleasant sounds? What sounds do you particularly enjoy – and why?

2.2 Vision

Many of us take our sight for granted, but human vision is a complex process.

To focus on something, or to 'see', the eye detects images through light reflecting off objects, which travels onto the curved part of your eye called the retina. The retina sends messages to the brain, which recognises and interprets visual stimuli through comparison with experiences made earlier in life. This means that young babies must 'learn' to see.

HUMAN EYE

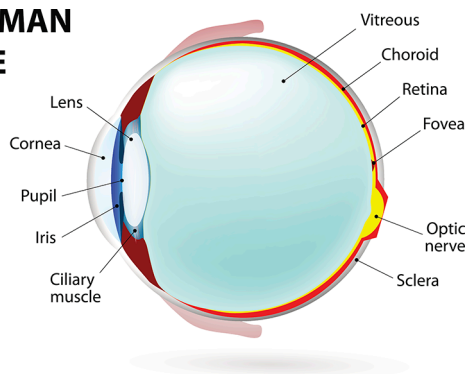


Figure 6 The human eye

Children's learning is supported by their developing visual skills. From shortly after conception to the end of the first year, babies' eyes continue to develop. Newborn babies do not have good vision; only objects at about 25–30 cm away are in focus, about the distance between a mother's breast and her face; everything else is a blur.

During the first few months babies begin to understand facial expression and recognise the facial features of their parents and carers. By four months most babies begin to see things more clearly, and during the first few years most children will begin to notice fine details in an environment or picture, notice similarities and differences and make sense of things that are only partly visible.

However, some children have visual impairments and may require some additional support to be physically active.

2.3 Smell and taste

Smell and taste are enormously important to development. Babies can identify their own mother's breast milk from very early on. Indeed, newborn babies recognise their mother by smell.

The sense of smell begins in your nose which has hundreds of tiny receptors. Different odour molecules have different features and excite specific receptors more or less strongly. This is interpreted by the brain to perceive the 'smell'.

Taste is received through sensory organs called 'taste buds' which are concentrated on the upper surface of the tongue. Smell and taste are closely linked, young children soon learn to recognise foods they like and dislike, by both taste and smell. You might notice a toddler refusing to eat food before they have even tasted it – this may be because they dislike the smell.

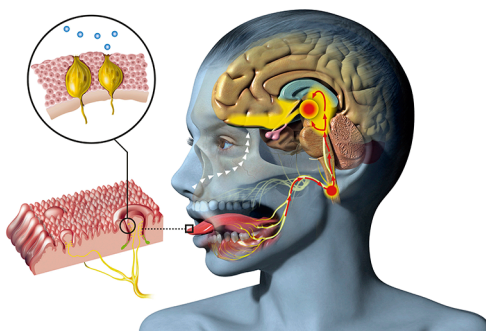


Figure 7 Taste is received through sensory organs called 'taste buds'

- Think about the sorts of foods you like or dislike and reflect on why that is. Is it the smell, the taste or possibly even the texture that you dislike?

2.4 Touch

The sense of touch involves a vast system of sensory receptors in the skin. When a sensory receptor is triggered by a specific stimulus, a signal travels to an area in the brain where it is processed and allows the sensation to be felt at the correct part of the body. Touch plays a critical role in supporting children's emotional wellbeing and development.



Figure 8

There are significant cultural differences related to touch, but it is generally accepted that touch is a positive and necessary experience for all young children. From birth, touch plays a major role in ensuring successful 'attachment.'

It is the first sense babies become aware of; touch receptors cover the entire body, but they develop in the following order: tongue, mouth, lips, face, head, fingers, arms, trunk and legs.

2.5 Vestibular sense – a sense of balance

The vestibular sense is responsible for your balance. Essentially, it is your awareness of the position and motion of your head and body. The vestibular system includes receptors in the inner ear, and it works alongside other sensory systems, particularly vision.

The vestibular sense is like a gyroscope for the body, enabling you to know whether you are upright or upside down. It also helps you to perceive your direction and speed of travel.

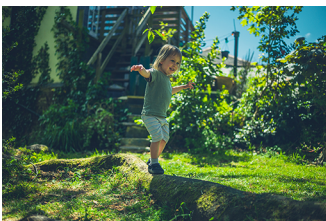


Figure 9

A well-developed vestibular sense is crucial for a child's all-round learning and development. Babies and children need a wide variety of opportunities to stimulate and develop their vestibular sense. This includes movements such as rocking, spinning, twisting, turning, jumping, bouncing, tipping, wobbling, falling and moving at different speeds.

Play gives babies and children lots of opportunities to gain these experiences and in Week 5 you will look at the relationship between play and physical development in detail.

2.6 Proprioceptive sense – the sense of space

Proprioception means ‘the perception of self’. This sense is crucial for movement and physical activity. It allows you to know where each part of our body is in space. For instance, when you walk through a doorway, your proprioceptive sense enables you to adjust your body position in relation to the door frame and navigate your body past someone coming in the opposite direction.

As this sense develops during early childhood, you come to instinctively know how much effort or force to apply to complete a movement. For example, as you pick up a cup of coffee, you know how tightly to grasp the cup, how heavy it is likely to be, how to move the cup to your mouth and how much to tilt the cup in relation to the quantity of liquid it holds. Children whose proprioceptive sense is not well developed might appear clumsy and find it very difficult to understand personal space. Young babies need lots of opportunity to reach for, grasp and mouth objects, and as they develop, need opportunities to feed themselves, even if this is messy to begin with!

Giving young children opportunities for pushing, pulling, lifting, digging and steering, for example, stimulates and develops this sense. You will read more about this in Week 5.

2.7 Summary of the senses

These seven senses work together to provide you with information about your surroundings. It is through their senses that babies and young children learn about the world around them.

However, to really develop and sharpen these senses, babies and young children need lots and lots of opportunity to experience, explore and be active in different environments. The next section will look at the importance of sensory rich environments.

3 Sensory rich environments

In the first two parts of this week's study, you have learned about the importance of the body's senses and systems, considering how these link to physical development.



Figure 10

In this final part, you will think about how this crucial knowledge can be applied in practice. One of the ways to do this is to reflect on how the environments that children have access to can optimise their sensory, and therefore their physical development.

3.1 Affordances in the environment

'Affordance' is a useful term to consider when looking at how the environment can provide for good sensory development in young children.

The term was coined by James J. Gibson (1904–1979); he was an American psychologist famous for his research on how we come to understand the world through our senses. Keenan and Evans (2009) define affordances as 'the properties of objects that offer the individual the potential to interact', and they describe how young children 'by moving about and exploring their environment, ... come to understand which objects are best grasped, squeezed, tasted, or avoided' (p. 135).

With this in mind, you will now look at some everyday scenarios that children may engage in and consider the affordances offered by such environments.

Activity 1

Have a look at the six images in the link below of young children in both the home and the outdoor environment. They are all engaged in everyday activities that involve them using their different senses.

Open the link below in a new tab or window by holding down Ctrl (or Cmd on a Mac) when you click on the link so you can view them alongside Activity 1.

[Images for Activity 1](#)

You can see how the affordances provided for them in each environment give opportunities for their body systems and senses to work together to support the sharpening of their senses and therefore promote their overall growth and development.

Look carefully at the images and consider all the different senses that the child is using and how this may be impacting their growth and development. The first image has been done for you as an example:

Image 1

Sight: The child may be looking at their own reflection in the puddle or they may be watching the pattern of the raindrops as they fall on the surface of the water.

Hearing: The child may be listening to the sounds the rain makes as it falls (pitter, patter, pitter, patter) or the sound they make as they jump (splash!) in the puddles.

Touch: The child is learning to distinguish between wet and dry, cold and warm, the hard, gritty surface of the path and how quickly their hand can move through the smooth surface of the water.

Smell: Everything smells different in the rain, the fresh aroma of rain on the plants or the damp smell of wet clothes.

Taste: Have you noticed how sometimes children poke out their tongue to catch the rain in their mouth?

Vestibular sense: Notice how the child can balance, squatting down to investigate the puddle.

Proprioception: The child has a sense of the space they take up in the vast outdoor environment. They have chosen to place themselves in the middle of the puddle, they can see the rain coming from on high, they are gently moving the surface of the water with one hand as they explore.

Now, look at images 2–6 and think about how the child might be using each of their senses.

4 This week's quiz

Now that you've completed Week 2, you can take a short quiz to help you to reflect on what you've learned.

Open the quiz in a new tab or window by holding down Ctrl (or Cmd on a Mac) when you click on the link. Return here when you have finished.

[Week 2 quiz](#).

5 Summary of Week 2

From Week 2 you should now have a good understanding of the importance of the key body systems and how they relate to children's physical development.

In addition, you should be able to confidently discuss the role of the seven senses and how the environment can support development in this area.

Top tips

- Individual children respond to sensory stimuli differently. You should be sensitive to each child's reaction.
- Be a sensory role model! Comment on how things taste, what you can hear and how things feel.
- Be alert to new and interesting sensory experiences.
- Remember that physical experience is important and necessary to support body systems.
- Be positive and enjoy being active with children.

You can now go to [Week 3](#).

Week 3: Supporting the development of children's movement skills

Introduction

A core aspect of the role of an early years practitioner is to effectively support children in the development of movement skills. However, this is not confined to the early years practitioner and indeed, parents and others living or working with children have the perfect opportunity to support this development too. Within these roles it is often a goal to develop physical competence in many of the basic movements required in early childhood that will set the child up for their next stage of development.



Figure 1

This week has a particular emphasis on fundamental movement skills, observing them and identifying the level of these in action. This week will build on the knowledge and skills you acquired in Weeks 1 and 2 by highlighting the role movement can play in supporting an overall smooth development, the benefits of physical activity to learning, and how parents, carers and practitioners can best support the development of movement skills in young children (birth–5 years of age).

By the end of this week, you will be able to:

- identify how much physical activity is recommended for children
- define the term 'fundamental movement skills' (FMS)
- understand the benefits of physical activity and FMS to children's overall development/health/wellbeing and learning
- discuss the typical sequence of movement developments from infancy to 5 years old
- encourage more opportunities for movement in your specific setting.

In the first part of this week, you will consider the current state of physical activity in children and young people to highlight the importance of supporting physical movement skills early and to provide context to the rest of the week's material.

Although much of this context building centres around health, you will later see that many other domains (e.g. learning and socialisation) can benefit from the development of movement and inclusion of physical activity in play settings.

1 How much physical activity do young children need?

It is important to understand the benefits of physical activity in order to justify why it is vital to support physical development from birth.

Activity 1

Before you look at the current state of physical activity levels in children, test your knowledge on how much physical activity/sedentary screen time children under 5 years of age are recommended to engage in. Don't worry if you get any of the answers wrong, this week looks to increase your awareness in this area.

For better health, children under 1 year of age should have at least how much physical activity each day? (Note: this includes babies who are not yet mobile being given tummy time throughout the day.)

- ☐ 0 minutes
- ☐ 15 minutes
- ☐ 30 minutes
- ☐ 60 minutes
- ☐ 90 minutes

Children of 2 years of age are recommended to have no more than how much sedentary screen time each day? (i.e. sitting still watching a screen.)

- ☐ 0 minutes
- ☐ 15 minutes
- ☐ 30 minutes
- ☐ 60 minutes
- ☐ 90 minutes

For better health, 3–4-year-old children should have how much physical activity each day?

- ☐ 30 minutes
- ☐ 60 minutes
- ☐ 90 minutes
- ☐ 120 minutes
- ☐ 180 minutes

Following on from the previous question, how many minutes of a 3–4 year old's physical activity should be at a moderate to vigorous level each day? (i.e. raising the heart rate to a level where they are working hard.)

- ☐ 0 minutes
- ☐ 15 minutes
- ☐ 30 minutes
- ☐ 60 minutes
- ☐ 90 minutes

Figures 2 and 3 reveal the UK Chief Medical Officers' (CMO) physical activity guidelines (Department of Health and Social Care et al., 2019) and the World Health Organization's (WHO) (2019) recommendations for children under the age of 5.

It is important to note that in the UK the CMO guidelines should be your first source for activity guidelines and that, in contrast to the WHO recommendations, the UK CMO do not provide recommendations for sedentary time or sleep.

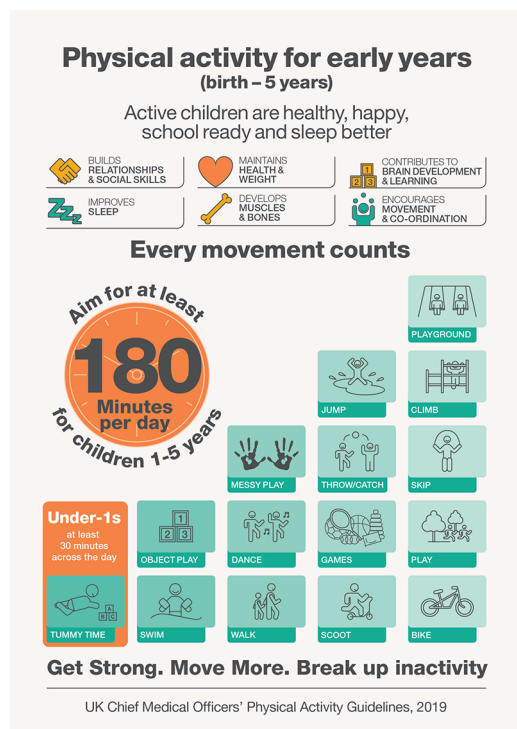


Figure 2 © UK Chief Medical Officer's Physical Activity Guidelines, 2019. Reproduced under the terms of the Open Government Licence v3.0



Figure 3 © Reproduced with the permission of the World Health Organization, <https://www.who.int/health-topics/physical-activity>

Printable downloads of both these infographics (Figures 2 and 3) are available in the Further resources section at the end of this week.

- To help support physical development it is important to know how much physical activity children should be engaged in as a minimum at each stage during their first 5 years of life. Are these guidelines given by the UK CMO and WHO met or missed within your current setting with young children?

If you are not based in the UK, are the UK CMO and WHO guidelines similar to those used in your country? How and why do they differ?

Do you use specific strategies to create a movement culture in your setting? Your answer may be as a parent with your own child or it may be as a practitioner working in an early years setting.

2 Benefits of physical activity

There has never been a more pressing time to support the development of young children's movement with the aim of them engaging in physical activity for life.



Figure 4

Rising obesity levels, coupled with ever-younger children favouring technology use over outdoor play means that almost one third of 2–15-year-olds in the UK are classed as overweight or obese (Oliver, 2016). This figure is predicted to rise to 66% by 2050 (Government Office for Science, 2007).

More specifically, in reception classes alone, 22.6% of children in England were considered overweight or obese in 2018/9 (Public Health England, 2019). The decline of outdoor play during childhood can be associated with reduced physical activity (Slutsky & DeShetler, 2017) and competence when it comes to fundamental movement skills (FMS) (i.e. the ability to complete foundation/basic locomotion, manipulation and stabilisation skills used in play and everyday life).

Indeed, a recent Active Lives Survey (Sport England, 2019) highlights that schools are not providing adequate opportunities to achieve the UK CMO (Department of Health and Social Care et al., 2019) and WHO (2019) recommended 60 minutes of moderate to vigorous physical activity each day, with only 19.6% of ~1.39 million children achieving this target.

The Gateshead Millennium Study (n.d.) also found that there was a drop in physical activity levels at 7 years of age, which is concerning for both physical and mental health, children's learning, socialisation and motivation to partake in physical activity across the life span. As you will see across the coming weeks, fostering a culture within early years settings where children are encouraged to be active and subject to positive movement experiences throughout the day (Agans et al., 2013), could lead to a movement culture that achieves these targets.

As young children progress towards school age, much emphasis is placed upon the 'core' subjects of phonics, reading, writing, and mathematics. Whilst becoming literate in these areas is undoubtedly important from a quality-of-life perspective, being physically active and developing 'physical literacy' is the only literacy that can have a direct impact on health and life expectancy. Physical literacy can be defined through combining movement competency elements and the psychosocial and cognitive elements of the definition:

The motivation, confidence, physical competence, knowledge and understanding to value and take responsibility for maintaining purposeful physical pursuits/activities throughout the lifecourse.

(Whitehead, 2013, p. 28)

While physical literacy may not be achieved in the first five years, this definition does stress the important role early years practitioners and parents have in supporting the development of movement opportunities. This can ultimately lead to competence in

physical skills as well as the confidence and motivation to engage in physical activity long term, be ready to manage the school day, and independently achieve physical tasks.

- Are the obesity levels and physical activity statistics given in this step similar to those in your country? How and why are they different?

3 Why physical activity is important for young children

'We learn more physical skills in our first five years than at any other time in our lives. Therefore, it's important that young children have lots of time to practise and develop these skills.' (British Heart Foundation, 2012, p. 13)

Listen to Audio 1 where this week's author Ben Langdown describes why physical activity is important to young children. Then study the infographic in Figure 5, which defines physical literacy and the associated benefits of physical activity for years 0-5.

Audio content is not available in this format.



Audio 1

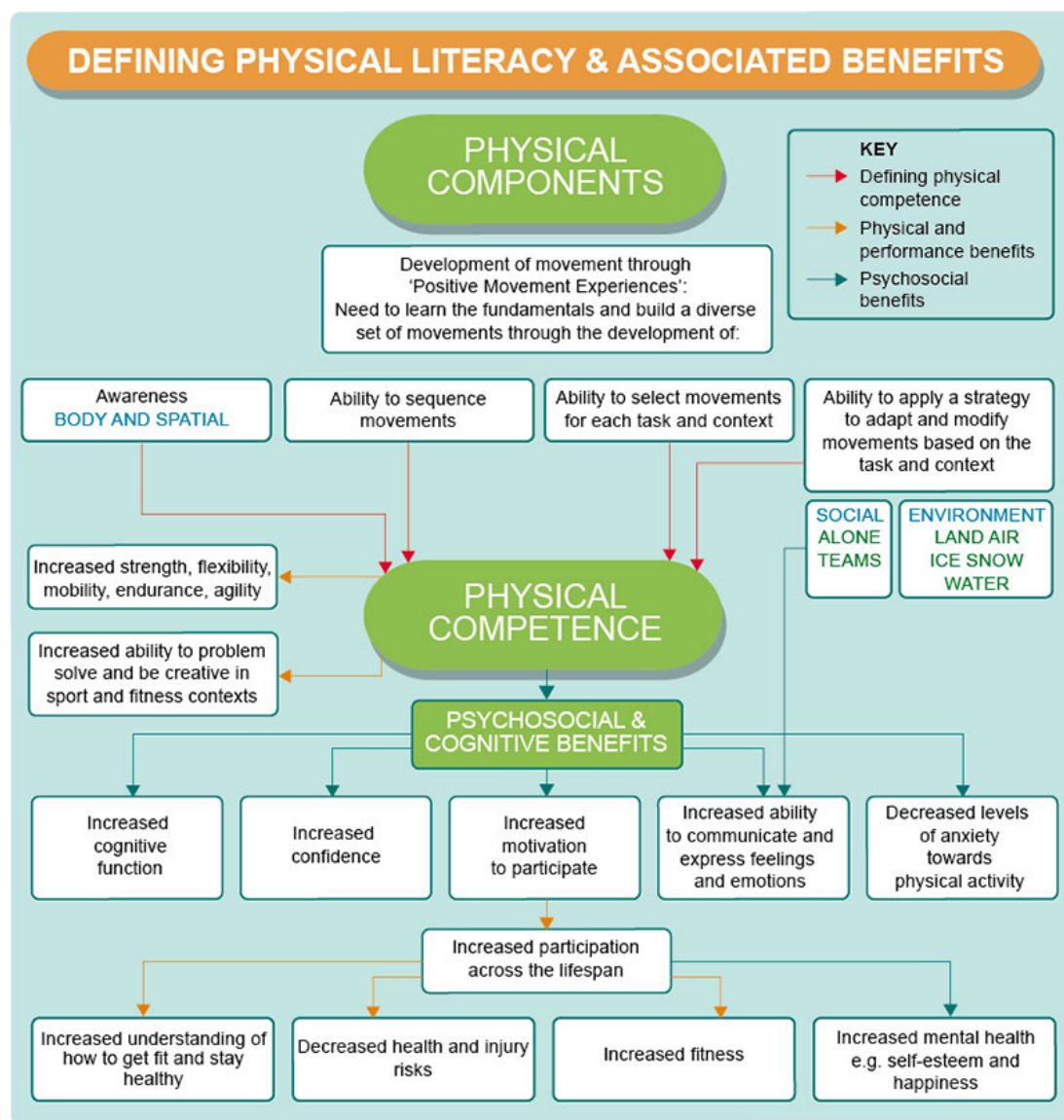


Figure 5 Defining physical literacy and associated benefits

Now have a go at Activity 2.

Activity 2

Consider what you listened to in Audio 1, what you took from viewing Figure 5 *Defining physical literacy and associated benefits* and the quotation from the British Heart Foundation above.

Make a list of three ways, that are relevant to your engagement with children, in which you could infuse/apply the benefits of physical activity for young children into your context. What reflections may you pass on to others, i.e. the children themselves or the adults supporting physical development?

You may also choose to reflect on what relevant changes you have seen in any early years settings you have been involved with over the years (e.g. the levels of physical activity, changes in confidence of children and practitioners to engage in physical activity, etc.).

Finally, add any further reflections that directly answer the question – why is it important to support the development of fundamental movement skills?

Provide your answer...

4 Importance of supporting children

Physical skills play a critical role in supporting the overall development of children from a health and wellbeing perspective through to their learning and academic achievements.



Figure 6

The acquisition, rehearsing and refinement of movement skills should be an organic element of every child's day, whether at home, nursery or school. You will consider these environments further in Weeks 4–6. In this section, you will continue to explore the term physical literacy and the benefits developing movement skills can provide. Watch the video below to explore the term.

Video content is not available in this format.

Video 1



In order to support a child's development towards physical literacy, it is important that you are aware of the phases that children will move through. It is argued that being physically literate involves more than just being able to move effectively. In practice, it is also about children being provided with the opportunities to overcome movement challenges (Pot et al., 2017).

In the next section, you will explore the different types of skill and the development of FMS to support health, self-care, learning and the development of physical literacy.

5 The ABCs of movement

As babies develop into toddlers and on into young children, they build upon their existing acquisition of movements. Gross movements (or 'motor skills') are developed first, which then allows the smaller more refined movements (called 'fine motor skills') to be learnt and put into action.

Gross motor skills definition: Skills performed using large parts of the body (or even the whole body) and requiring less precision are classified as gross motor skills, e.g. crawling or running safely.

Fine motor skills definition: Skills that require greater precision in the control of small muscles are classified as fine motor skills, e.g. grasping an object.

It is important to note that foundation/fundamental movement skills (FMS) usually emerge in a specific order, but that the rate of development, the confidence and movement competence depends on the learning environment, the opportunities they are provided with and the motivation they have to learn. Children often skip movement 'milestones' and catch up later through spikey or uneven (known as asynchronous) development.



Figure 7

This is usually of little concern and as such the organic process of acquiring movement skills should be supported through the infusion of the movement culture discussed later in this week. At this point it is worth noting that children with Down syndrome often experience delays in motor milestones (Hayward and Getchell, 2014).

Listen to Audio 2 in which educator Lala Manners talks about the link between developing gross and fine motor skills and the development of health, self-care, learning and physical literacy.

Audio content is not available in this format.



Audio 2

5.1 Gross motor skills

When babies are born, they are able to do a few things, breath, cry, suck and move their legs in alternating patterns (Hayward and Getchell, 2014).



Figure 8

As you are aware, this does not mean that they are able to walk straight away! With time they acquire and refine FMS, strength and stability. These skills are vital to their development towards overall locomotion, object control and stabilisation. Being able to identify what FMS individual babies, toddlers and young children should be acquiring through rehearsal and refinement at specific ages is useful to all those supporting physical development.

Activity 3

Interactive content is not available in this format.



When babies and young children are learning the gross FMS, it is important to note that they do not need to be forced into actions, e.g. sitting up, crawling or walking. Supporting walking and jumping through the use of baby walkers or jumpers for example is not required for them to learn these FMS and can in fact compromise their smooth emergence/acquisition.

5.2 Fine motor skills

In the previous section you rearranged the 15 gross movement skills into the most likely order of skill acquisition (i.e. learning the movement skills).

Now do the same for the 12 fine motor skills in Activity 4.

Activity 4

Interactive content is not available in this format.



For a reminder of the discussions around this topic area refer back to Week 2. Additional resources, including a motor development timeline and ideas on how play can be used to develop these gross and fine movement skills can be found in the further resources links at the end of this week.

5.3 Supporting the development of movement

When supporting the development of FMS, it is not necessary to teach skills in isolation. In fact, FMS can and should be acquired organically through play, experimenting in different environments, contexts and under various task constraints or guided play activities.



Figure 9

Thinking back to earlier in this week, when you looked at the guidelines for physical activity, you may be able to recall the UK CMO (2019) infographic for physical activity for early years. At the bottom of that graphic it states 'Get Strong. Move More. Break up inactivity'.

By breaking up inactivity you will help to ensure that you are supporting physical development and allowing children to reach the target of 180 minutes of physical activity per day. What you can observe during active periods is where you will now focus your attention.

Movements will be learnt best through the creation of a culture where movement is infused into the early years setting, celebrated and often presented as positive challenges to the children. Through such movement cultures, practitioners should aim to establish a child's level of physical development as early as possible and monitor over the course of time that is spent supporting that individual child (i.e. weeks, months, years).

It is only through time that disciplined and systematically focussed observations of the critical features of each FMS can take place. The observer must themselves learn the skill of observation and analysis to become effective at identifying the development needs of each child more efficiently (Hayward and Getchell, 2014).

Activity 5

The following steps are the critical movement features of a developed throwing action:

1. A long contralateral step – i.e. stepping forwards with the opposite foot to the throwing arm over a distance of more than half the child's standing height.
2. The throwing arm rotates backwards as the step is taken.
3. The trunk rotates forward to add force to the throw.
4. The throwing arm comes forward as, or just after, the trunk rotates to a front-facing position. This creates lag in the arm to create more force in the throw.

Now, identify what you would consider to be the top 3 or 4 critical movement features of the following developed FMS: crawling on all 4s (also termed creeping) and jumping.

Provide your answer...

Discussion

For crawling on all 4s (termed creeping), we would expect to see that the child is able to support their own body weight with their stomach off the floor (stomach on the floor is termed crawling), and that they can move with their legs and arms working alternately – i.e. that they can support themselves on one hand and the opposite leg as they move.

For jumping, we would expect to see the feet leaving the ground at the same time, the legs extending at the knees after the heels leave the floor and that the arms swing backwards before swinging forward to a position overhead at take-off.

5.4 Developing FMS

As previously mentioned, FMS do not need to be developed in isolation. In fact, it's more effective to develop them in context, e.g. play settings.

In order to be able to apply appropriate support/interventions, practitioners, parents and others need to know what they are observing when attempting to assess the level of development already achieved by individual babies/children.

As discussed in the previous section, it is useful therefore, to be able to identify the critical features of FMS before trying to observe and assess the stage of development a child is at.

Activity 6

Watch Video 2 below, which shows young babies and children enjoying completing the following five FMS:

1. Rolling over
2. Crawling
3. Walking
4. Running
5. Jumping.

Watch the video several times and note down any observations you have about the specific development points for each skill. You will need this information to be able to complete the activity in following section.

Video content is not available in this format.

Video 2 (no speaking)



Provide your answer...

5.5 The development of FMS in your setting

When observing movements, it can be useful to refer to skill cards to help identify the stages of development a child is at for each part of a movement. In the next activity, examples of these are provided for you to refer to.



Figure 10

Activity 7

Using these [skill cards \(pdf\)](#) as a guide, expand the notes you made on your observations about specific development points for each skill in Activity 6.

(Open the skill cards in a new tab or window by holding down Ctrl (or Cmd on a Mac) when you click on the link). A [text only version](#) is also available.

You may wish to go back to the previous section to watch Video 1 again once you have looked through each card.

Give a short explanation of how you could further support the development of that FMS in your setting.

Provide your answer...

It is worth noting that the development of a movement is not a linear process, it can be spikey, can involve regression and plateaus, especially during phases of rapid growth. Progress can often emerge in another developmental domain, e.g. new friendships/use of language/practising sequencing of skills through play, etc.

6 Fostering and stifling creativity

How often have you observed a child tripping over, falling off their bike, not quite landing a jump, running into another child or object?

Without mistakes children would not learn, without appropriate celebration of those mistakes they would be reluctant to try again.

Watch the video below from 00.56 to 02.36 in which Trevor Ragan discusses celebrating mistakes to help children 'learn ugly'.

View at: [youtube:5Nymq7IVFSE](https://www.youtube.com/watch?v=5Nymq7IVFSE)



Video 3 (Youtube link: The Open University is not responsible for external content)

It is useful to reflect on the feedback you provide children within any setting and how that feedback or 'off-the-cuff comment' could impact their motivation, confidence and ultimately FMS competence. Here are some of the top tips for using effective feedback and dialogue with children to develop movement creativity:

- Celebrate mistakes, encouraging them to try again, find another way, ask a friend to demonstrate/support
- Encourage free play for creative exploration of movement to emerge
- Develop varying constraints on tasks and play based scenarios to guide specific movement development
- Consider adult attitudes/feedback towards movement and the use of 'off the cuff comments' that limit risk taking and stifle creativity in movement (e.g. 'be careful')
- Engage your child in movement in all appropriate environments. It doesn't have to be anything complicated or expensive, just involve fun and movement!
- Ensure that movement is at the heart of the majority of activities and that everyone in the setting buys into this to foster a movement culture and many positive movement experiences for babies and children of all ages.

6.1 Supporting the individual child

In previous sections you have seen how FMS can be observed and used as feedback to provide support for movement development. However, it may not always be appropriate to provide an intervention at that specific time for that individual child. The child may have their own views on what they'd like to achieve or what they consider they struggle with (e.g. ball skills, swinging across the monkey-bars, climbing). Or the practitioner may see that there is a need to develop their movement for specific reasons in their setting (e.g. safety/socialisation/to aid language development, etc.).



Figure 11

By infusing movement into the culture of any early years setting you are in, it is possible for positive movement experiences, alongside listening to the child's voice, to organically highlight the areas children need support with. Forcing movement may lead to specific foci being targeted for development which contradicts the notion of meeting the individual's holistic needs.

Activity 8

Describe three ways in which your environment supports physical development and describe three things you would like to do differently/change following this week of study.

Choose a movement skill from each age group and describe how you could support/enhance it over time in your setting.

Provide your answer...

7 This week's quiz

Now that you've completed Week 3, you can take a short quiz to help you to reflect on what you've learned.

Open the quiz in a new tab or window by holding down Ctrl (or Cmd on a Mac) when you click on the link. Return here when you have finished.

[Week 3 quiz](#).

8 Summary of Week 3

This week you have built on the knowledge and skills acquired in Weeks 1 and 2 by gaining an understanding of the role that movement can play in supporting an overall smooth development.

You have also learned the benefits of physical activity to learning, and how parents, carers and practitioners can best support the development of movement skills in young children (0–5 years of age).

Top tips

- Be aware that all children develop at different rates – age is the least useful indicator when considering physical skills.
- Physical skills do not need to be forced in any way – remember that constraint-based supports may in fact compromise their development e.g. baby-walkers.
- You don't need specialist equipment to encourage children to move – just a clean floor when babies and then space outside when older.
- Acknowledge the benefits of how early positive movement experiences can impact later successful engagement with physical activity.
- Remember that while FMS are the cornerstones to becoming physically literate, progression does not occur in a linear fashion and that progress may come in the form of other domains.
- Bear in mind the UK CMO guidelines with the goal of supporting children to 180 minutes of physical activity per day – 'Get Strong. Move More. Break up inactivity'.

You can now go to [Week 4](#).

Further resources

Here is a list of further resources that you may find interesting and useful.

- [UK CMO Physical activity for early years \(birth – 5 years\) pdf](#)
- [WHO physical activity guidelines pdf](#)
- [UK CMO Physical activity guidelines \(Department of Health and Social Care et al., 2019\).](#)
- [Results from the Active Lives Survey \(Sport England, 2019\)](#)
- [Active Lives Survey](#)
- [Gateshead Millennium Study](#)
- [Defining physical literacy and associated benefits](#)
- [A visual timeline of motor development](#)
- [Baby and toddler play ideas](#)
- [How to keep your baby or toddler active](#)

Week 4: Movement and learning

Introduction

Movement is vital for children – it is ‘central to young children’s learning’ (Bilton, 2004, p. 92). As you have learned so far in this course, children need the right environment and supportive adults to help them develop both gross and fine motor skills as they grow and learn. This week you will explore in more detail the links between children moving and children learning.



Figure 1

In Week 3 you saw that there are typical sequences of movements for children from birth to 5 years old and key milestones you can look out for. At the same time, it is important to consider every child as unique and understand that they develop in their own way and their own time.

This week you will continue to see that it is not appropriate to just focus on one area of a child’s development but that instead you need to consider how all areas of development are interlinked so that each one impacts on the other. In the context of young children this means that if you are talking about what they are doing with their bodies you must also consider the impact on their brain (cognitive development) and vice versa.

By the end of this week, you will be able to:

- describe the holistic nature of children’s development
- explain the impact a child’s environment has on their holistic development
- identify the importance of practitioner/parental knowledge in supporting young children’s physical development
- identify aspects of physical development in young children’s everyday activity
- discuss how physical development contributes to all areas of learning.

1 Understanding children's holistic development

The term 'holistic development' is often used to describe a way of seeing a child as a whole person whose areas of development intertwine and interact with each other.

You can see what this looks like in practice by reading the description of Monique (9 months old) by Doherty and Hughes (2014, p. 26) below. They describe an everyday scenario of a baby at mealtime. At first glance it may look like the child is only developing fine motor skills by learning to hold a cup, however the authors encourage you to look more closely by indicating in brackets all the other learning that is taking place.

Case study: Monique

Over the past few months, her mother and father have helped to feed her and encouraged her to hold the plastic cup on her highchair and guide it to Monique's lips. The cup sits in front of her as usual but one morning while waiting, she looks at it intently (**perception**) and moves a hand towards it.

At first, she knocks the cup but then grasps it firmly and raises it off the plastic tray (**physical**); 'Oooh' she gurgles (**language**) as her mother rushes over smiling and saying 'What a clever girl. Well done Monique!'

Monique beams back at her (**social**) and gurgles again.

(Source: Doherty & Hughes, 2014)

Activity 1

Although there can be a tendency to think about some areas of learning and development, such as language or maths, as happening in the mind and therefore as intellectual pursuits, learning noticeably happens through physical interactions, as shown in the example of Monique.

Can you think of examples when you have seen different aspects of development in a child's simple action as you saw in the description of Monique?

You might like to think of a child doing something physical (jumping, climbing, gripping, drawing) and consider what other learning could have been taking place.

Perhaps you have your own children where you have noticed this, or it could be children that you work with.

Provide your answer...

Discussion

You may have thought of a child jumping and counting their jumps at the same time (physical and mathematical development), a child conquering their fear of heights by climbing up the steps of a slide (physical and emotional development) or even a child drawing a get well soon picture for a friend (physical and social development).

2 Interactions with the environment

The environment provided for children to develop physically is all important, but it need not be something that costs a lot of money. Not all children have access to a large garden, gymnastic clubs or forest schools.

The knowledgeable adult can look to cheaply enhance any environment to provide as many opportunities as possible so that the environment becomes 'a third educator' (Strong-Wilson and Ellis, 2009); this is a phrase used in ECEC (Early Childhood Education and Care) to describe how the environment is as important as both the child and the adult in a child's learning.

There are many opportunities for you to support children in their physical development. Included in this are the space and resources you provide. For example, you could push the furniture back to make a space to dance and then provide scarves or ribbons, picked up cheaply from a charity shop, to help the child extend their movements as they dance. Other easily accessible resources within the environment to support the development of fine motor skills could include a collection of plastic bottles with their corresponding lids, which are cheap, easily accessed in most homes and can keep children (3–4 years) absorbed building up their concentration as they try to match the correct lid to the bottle and tighten them. By applying learning from this course, you will be able to confidently consider what already exists in the environment to enhance physical development.

Another key term associated with physical opportunities for young children is 'risk taking'. The idea of physical development and 'risky play' (Sandseter, 2009) fit very well together. Positive risk taking is an important part of children's lives; it develops their confidence, their thinking skills, their creative skills, their problem-solving skills and is vital for their wellbeing. But what does this term actually mean?

Below are some definitions from those who have carried out research with young children in this area:

- Little et al. (2011, p. 115) describe it as 'play that provides opportunities for challenge, testing limits, exploring boundaries and learning about injury-risk'.
- Stephenson (2003) described 4 year olds' risky play as 'attempting something never done before, feeling on the borderline of "out of control" often because of height or speed, and overcoming fear' (p. 36).
- Greenfield (2004) said 4-year-old children talked about 'risk, speed, excitement, thrills, uncertainty and challenge' (p. 4).

Linked closely with the idea of risky play is the playful wrestling that children often engage in and is frequently described as 'rough and tumble' play. Research tells us how important 'rough and tumble' play is for young children (Bosacki et al., 2015). It enables them to develop many skills such as self-control, self-regulation and spatial awareness. You will explore 'risky play' and 'rough and tumble' play in greater detail in Week 5.

A final important feature to provide in the environment are opportunities to stimulate a child's curiosity. Many people recognise the need to put precious ornaments out of the child's way once they start crawling. The child moves towards them out of curiosity; they are like a young scientist exploring their environment (Wray, 1999). Therefore, these ornaments can be replaced with other objects safe for a child to move towards and explore, objects that excite them and make them curious. Remember a moving child is a learning child.

If you would like some ideas of what kinds of objects to provide, have a look at this leaflet on [Treasure Baskets by North Yorkshire County Council \(2017\)](#). Treasure baskets are collections of everyday objects that stimulate young children's curiosity and therefore

support both small (fine) and large (gross) movement skills. *(Use Ctrl + click on the link to open in a new window.)*

Activity 2

This section has shown the importance of considering all the opportunities offered in the environment to enhance and encourage physical development.

Look around the environment you make available for children and reflect on the variety of opportunities:

- Can children run, jump, crawl, dance, climb, roll?
- Can they manipulate objects?
- Can they make big movements and small movements, slow movements and quick movements?
- Can they feel exhilarated and a sense of accomplishment?

An environment that offers all these possibilities is not only vital but needn't be expensive.

You may have reflected that you spend a lot of time asking children not to run or climb because these are not safe movements in your usual environment. Of course, you must ensure always that children are safe, but if you realise that they have very little opportunity to engage in these (or indeed other movements), are you able to plan visits to different environments where they could do so?

- For example, is there a park nearby?
- What facilities are there in your neighbourhood and how could you find out?

Provide your answer...

3 Encouraging healthy development

In Section 2 you looked at how important the role of the environment is. In this section you will look more closely at the role of the adult whether that be parent or practitioner.



Figure 2

You have looked at how adults can resource the environment to aid child development, but they also need to think about how their own actions and behaviours can encourage both physical and holistic development. Adult–child interactions are very important in play. Vygotsky was a famous child development psychologist whose work has had a lot of impact on how adults engage with young children, particularly in educational settings. A key phrase of his translates into English as the 'More Knowledgeable Other' (MKO); this can describe the adult who supports a child in their play so that they are operating within their 'Zone of Proximal Development' (ZPD).

This may sound like a tricky term but really all it means is the difference between what a child can do on their own and what they can do with adult intervention.

Zone of Proximal Development

"The Sweet Spot"

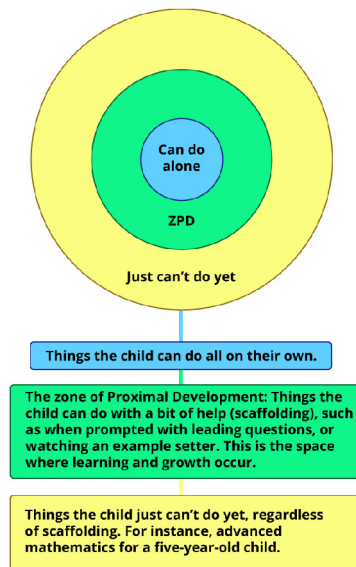


Figure 3 Zone of proximal development - the 'sweet spot'

The adult intervention could be questions, assertions or actions that the adult uses when the children are playing. It's always helpful to see what this looks like in practice so let's look at the example of a child jumping.

The practitioner is watching a child jumping and says:

- How can you make yourself jump higher? (question)
- If you use your arms and bend your knees you can jump higher! (assertion)
- Look at me! (action: the adult models how to jump higher).

4 Spotting the signs

Sometimes practitioners and parents can feel confused over the role they should be carrying out as they accompany play. Although it is important to interact with children to enhance learning and development, it is equally important to sometimes adopt a 'watching and waiting approach' (Bennett et al., 1997) so that adults do not 'hijack' their play and experiences (Fisher, 2016).

Careful observation is a key skill for those working with young children and it is important to know what the learning needs of the child are and then how the environment could be enhanced to meet these. The uniqueness of each child and how they develop at their own pace is essential, yet careful observation may highlight areas we feel concerned about. For example, what if all the child's peers are already walking but he or she shows no interest? What if the 4-year-old in your setting seems particularly clumsy? When is it important to get further information or advice?

One useful resource is [What to expect, when?](#) This booklet is aimed at parents and focuses on all areas of development, but it is also useful for those working with children. *(Use Ctrl + click on the link to open in a new window.)* Although it emphasises that each child has their own unique journey of development, it signposts what you might observe at different ages. It also offers helpful examples of how adults can interact with children at these different ages. It can help you to decide whether you need to seek further help or advice from a medical or educational professional, if you have concerns about a child's holistic development.

5 Understanding the news behind the headlines

Sometimes things in the media related to children's physical development can leave us feeling confused and unsure of who to believe.

For example, when the World Health Organization updated some of their recommendations for physical activity for young children under the age of 5 in 2019, these updated guidelines were picked up and interpreted by the press in various ways:

(Use Ctrl + click on the link to open in a new window.)

- [The BBC](#): 'No sedentary screen time for babies'
- [Professional magazine](#) (Nursery World): 'Guidance recommends no screen time for under-tuos'
- [Tabloid newspaper](#) (The Sun): 'Kids under two should never be allowed to watch ANY screens – or they'll get fat'.

You need to be able to look at these headlines critically and delve a bit deeper to know how they relate to the children in your care. For example, the recommendations made about screen time in the WHO report only make up a very small section; other issues it covers include physical activity, sedentary behaviour and sleep.



Figure 4

It's not easy to find advice on whether babies should be watching television, and for how long. The [American Academy of Pediatrics](#) recommends that the only type of digital media that children under 18 months should be engaging with is chatting by video calling.

Another reliable source of information you may find helpful if you would like to find out more about issues around young children and screen time is the [RCPCH](#) (Royal College of Paediatrics and Child Health).

Activity 3

Read the case study below and consider what advice you might give to this parent.

Case study: Aisha

Aisha is worried because the mums at her baby and toddler group have been talking about how harmful technology can be for young children.

They discuss newspaper headlines about children sitting still for too long and how harmful this can be. She wonders if she should take the iPad off her son who is 3 years old.

Provide your answer...

Discussion

You might ask her to think about how much time every day her son is using the iPad – if she tracks this she might be surprised. Other things you could talk about are how long he engages in physical activity in a day and how this compares with iPad use. She could also consider whether he gets outside daily and whether he has a good sleep routine. Aisha may find she has nothing to worry about or she may decide to tweak her son's routine after your conversation.

6 Supportive adults

You should now have an understanding of how adults can support children in their physical development.

Build on this understanding by watching the video at the link below about how the development of physical skills supports learning. Open the link in a new tab or window by holding down Ctrl (or Cmd on a Mac) when you click on the link. Return here when you have finished.

[Link: Video – how the development of physical skills supports early learning](#)

(The Open University is not responsible for external content).

Activity 4

Having watched the video at the link above, consider your responses to the following questions:

- How are adults in the video supporting children in their physical development?
- Can you list all the physical movements you observe?
- How would you describe the adults' actions and behaviours in the video? (e.g. warm, encouraging, joyful, etc.)

Provide your answer...

7 Movement and learning in early development

If you think back to your learning in Week 3 you will recall the idea of ‘milestones’ in physical development. Below is a reminder of these, starting with very young children, in the first year of their life.



Figure 5 Milestones for children in their first year of life

The table below offers suggested ages for certain physical milestones and their links to learning. Remember this is just a guide – each child is an individual and so develops at their own pace.

Table 1 Milestones from birth to 14 months

Age	Physical milestone	Link to learning (cognition)
6 weeks	Hold head upright whilst in a prone position	Smiles at mum's voice
2 months	Roll from back onto side	Developing attention and focus
3 months	Reach for objects	Babbles to indicate speech development
5–7 months	Sit without support	Recognises name

9–14 months	Stand without support	Can understand simple instructions
8–12 months	Walk with support	Imitates speech – may say one or two words
12 months	Use of pincer grasp	Copies adults
12–14 months	Walk alone	Increases vocabulary

Adapted from Keenan and Evans (2009). Copyright © Thomas Keenan and Subhadra Evans 2009

If you are interested to find out more about further milestones from birth to adulthood this pdf [Physical and Cognitive Developmental Milestones](#) is a useful resource. It demonstrates how physical movements are helping the child to learn. *(Use Ctrl + click on the link to open in a new window.)*

8 Developing independence

As children become independent walkers their physical development is closely linked with them wanting autonomy to make their own choices, interact with others and imitate cultural practices.

Activity 5

Watch this short video of children playing in a sand and water tray. Make a note of both the physical and holistic areas of development they are demonstrating. Use the questions below to help you:

- What kind of physical movements are children making?
- How are they making choices?
- In what ways are they interacting with others?

Video content is not available in this format.

Video 1 (no speaking)



Provide your answer...

9 Repetitive actions and schema

Movement and learning in young children cannot be discussed without acknowledging the importance of schema in their holistic development.

Schema can be defined as a 'framework that places concepts, objects, or experiences into categories' (Levine and Munsch, 2011, p. 233). As children make sense of their world, including new concepts, objects and experiences, they develop schema and act out their understanding through their movements.

For instance, May (2011) gives the example of a child who is exploring the concept of circles – they spend time making circular movements, such as stirring a toy pan, painting round shapes or dancing until they are dizzy (p.21).

Cathy Nutbrown, a professor of Early Childhood at Sheffield University, has worked with the BBC to create a TV programme for young children that acknowledges and incorporates their learning and developmental need for schema. Read about it and [watch this short accompanying video](#). (Use Ctrl + click on the link to open in a new window.)

Activity 6

Read the case study below and then consider any schema you have noticed developing in the children you care for.

Case study: Dylan

Paul is worried that his two-year-old son, Dylan, has suddenly begun to throw things. He came home from nursery upset because he was told off for throwing bricks. Paul is concerned he will get a reputation as a 'naughty' boy. One of the other dads suggests that Dylan may have a trajectory schema (i.e. he may be exploring ideas around movement and direction).

Paul does some research on the internet about how best to help his son explore these concepts in a safe way. He also prints off some resources to take into the nursery; one of the practitioners sets up some outdoor games such as throwing beanbags in to buckets.

As you care for young children, have you noticed any schema developing? Sometimes they can be problematic as Paul and the nursery found out! Think about young children you work with or care for and some of their movement behaviours that could be schema.

How could you best support them?

If you would like to find out more about schema, you can read [Schemas](#) from the Pen Green Centre for children and their families. (Use Ctrl + click on the link to open in a new window.)

Provide your answer...

10 This week's quiz

Now that you've completed Week 4, you can take a short quiz to help you to reflect on what you've learned.

Open the quiz in a new tab or window by holding down Ctrl (or Cmd on a Mac) when you click on the link. Return here when you have finished.

[Week 4 quiz](#).

11 Summary of Week 4

This week you have considered how children physically interact with their environment to develop in a holistic way. You have also seen how important physical development is for all other areas of development.

Therefore, as those who work with or care for young children, it is vital that you have a good understanding of children's developmental needs and behaviours, that you can recognise when children are demonstrating learning and what the role of the adult should be.

Top tips

- Be active yourself. Put the radio on and dance around the room. Your child will copy you.
- Be a collector. Make a collection of things that enhance your child's physical development. You might like to make a treasure basket or box. Have a look at what is already in the environment without going out and spending money.
- Ask questions. When you observe your child moving, try to ask questions that enhance their movements. You might find you do this without thinking.
- Be an encourager. Use language that encourages children to extend themselves in physical movement.
- Allow choice. Consider how you encourage autonomy and choice as your child becomes more independent.
- Be a problem solver. If you notice some movement behaviours that are problematic, such as throwing, see if you can introduce activities where children can act out their ideas safely.

Next week you will build on the learning from this week and focus specifically on the links between movement, play and learning. You will explore different kinds of play and how they support physical development. In addition, you will consider how the parent or practitioner can plan for play, including planning an environment that supports children's physical development and yet, at the same time, does not cost a lot of money to set up.

You can now go to [Week 5](#).

Week 5: Physical development and play

Introduction

So far in this course you have looked at the importance of babies and young children experiencing and developing gross motor (whole body) and fine motor (manipulative) movement skills.

You have considered how movement stimulates vestibular and proprioceptive senses and provides opportunity for children to integrate the information they receive through their different senses. Movement, therefore, is crucial for holistic development and learning.



Figure 1

As babies learn to move, they move to learn. Independent mobility enables young children to make decisions, to initiate interactions with their parents, carers and other children, and to interact with their environment. Being active helps children to be interactive.

This week looks at the crucial role of play in children's physical and overall development.

By the end of this week, you will be able to:

- describe the concept of play and different types of play
- explain how physically active play supports children's overall development and learning
- understand 'risky play' and 'rough and tumble play' in more detail and why they are important for children's development
- identify how everyday resources, materials and environments can extend possibilities for physical play.

1 What is play?

Children (and the young of other animal species) have an innate desire to play. Yet 'play' is a broad term that can refer to a wide variety of activities and behaviours.

Parents, early years practitioners and children may all have quite different ideas about what play is. To further complicate the issue, the ways in which young children play differs between cultures and in different geographical locations, both in the UK and internationally.

For example, a child growing up in the countryside might have different experiences of play to a child growing up in an urban area.

Activity 1

Take a moment to think about your own childhood and recall your strongest memories of play.

- What activities were involved?
- Where did you play?
- Who did you play with?

Now make a note of the sorts of gross motor skills you used (for example running, jumping, lifting, crawling, climbing) and the fine motor skills you used (for example manipulating objects, connecting building bricks).

Provide your answer...

Movement in play

Looking at your example, you may have noticed just how much movement is involved in different sorts of play. This movement is often spontaneous and children may be largely unaware of the ways in which they are moving. However, not all types of play involve vigorous physical activity and therefore parents and practitioners need to provide opportunities for children to engage in many different sorts of play, to ensure children get the recommended amounts of physical activity you read about in Week 3.

In the next section you will look at different types of play, before looking at some practical ways that practitioners and parents can promote children's overall development, health, wellbeing and enjoyment through play.

2 Types of play

Play involves a wide range of different activities and behaviours. Children's activity also often involves multiple types of play at once or may flow from one type to another seamlessly. Different types of play involve different types of movement and varying levels of physical activity. Whilst playing, children often repeat actions purely for pleasure, such as swinging, spinning, jumping, pushing/pulling, digging, pouring (water), for example, and in doing so, they both stimulate their proprioceptive system and develop control or mastery of the action.

Play involves many different activities, but essentially it is about having fun! Play can be described as 'what children do when they follow their own ideas and interests, in their own way, and for their own reasons' (Play England, 2020). From this perspective, play might be considered an 'end in itself', yet simultaneously, play serves a powerful developmental purpose. Therefore, providing children with opportunities to engage in a range of self-chosen play is crucial.

Bob Hughes, a play specialist, studied children's activity and identified sixteen different types of play, known as the 'Taxonomy of Play Types' (Hughes, 2002). These are shown in Figure 2.

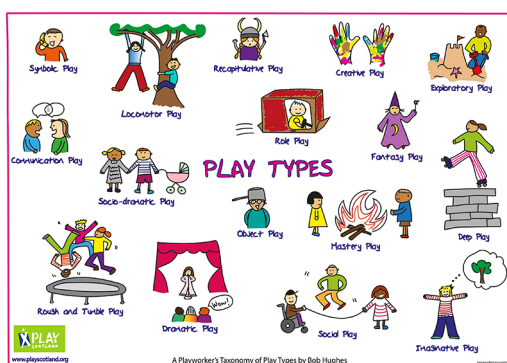


Figure 2 Taxonomy of play types

A printable download of Figure 2 is available in the Further resources section at the end of this week.

3 Promoting learning and development through physical play

You may recall from Week 3 that fundamental movement skills provide the building blocks of children's physical literacy, but young children do not develop these skills in isolation. In the Early Years Foundation Stage Framework (Early Education, 2012), physical development, personal, social and emotional development, and communication and language are known as the 'prime areas' because these aspects are interconnected and together lay the foundations of all areas of learning. Play is a vehicle through which children learn and develop these prime areas.

In Weeks 1–3 you read about children's physical development in great detail. In this section you will briefly explore how physical play promotes communication and language, and social and emotional development.

3.1 Promoting communication and language through physical play

'Movement is our first and enduring language.'

(White, 2015, p. 77)

Long before they begin to use recognisable words, babies and young children express themselves through movement, gesture and facial expression. For example, through pointing, a young child draws their parent's/carer's attentions to something of interest to them, without having to know the specific vocabulary.



Figure 3

As children's speech develops, they continue to use large movements, physical gestures and fine movements to convey messages to others.

White (2015) explains that through physical play, children learn the vocabulary associated with movement, action or position in a meaningful way.



Figure 4 Benefits of physical play

This vocabulary helps children to communicate their plans and actions, yet they are not just words, they are also concepts, that help them to organise and structure their thinking and understanding of the world around them.

3.2 Promoting personal, social and emotional development through physical play

Babies develop relationships with their closest carers from birth. Through combinations of touch, gaze and sound, they form close attachments.

As children become independently mobile, opportunity for physical play enables them to develop wider social relationships. To participate successfully in physical play with others, children need to 'tune in' to each other's body language, coordinate their movement and negotiate their ideas for the play to progress. So physical play is a hotbed for developing friendships.



Figure 5

Physical play also provides opportunities for children to discover and challenge their own physical capabilities. Developing the movement skills to climb up to a slide, kick a ball or up-end a bucketful of sand, for example, takes practice. Many children experience failure

before they experience success, yet in playful, supportive environments many repeat the activity over and over again to achieve their goal and improve their skills.

Canning (2020) suggests that through social and physical play, children experience a sense of empowerment. As they interact with the environment, resources and other children in their play, they begin to understand that they influence the situations in which they are involved. They begin to understand their own self-efficacy. So physical play also builds perseverance, resilience, confidence and children's self-esteem.

Activity 2

Watch the video below of children playing and think about how their movement is promoting motor skills, communication and language, and social and emotional development.

Video content is not available in this format.

Video 1



Think about the play you observed in the video and then decide how each statement below applies to the play you've watched:

- It applies to the play
- It partly applies to the play
- It does not apply to the play.

For some statements there is a clear answer, but others are more subjective. The purpose of the activity is to draw your attention to the many different aspects of learning and development that can be promoted through physical play.

1. The children are challenging themselves and testing their physical capabilities.

Interactive content is not available in this format.



Discussion

The children must use some force to roll the pipe and they comment that it is difficult. Yet, they manage well and so you could say there was some degree of challenge.

2. The children are using fine motor movement.

Interactive content is not available in this format.



Discussion

From what you can observe, the children are using gross motor movements here rather than manipulating resources with fine motor control.

3. The children are listening and responding to each other.

Interactive content is not available in this format.



Discussion

There is an example of children listening and responding to each other at the very beginning of the episode; child 1 comments, 'it's so hard isn't it' child 2 responds, 'yeah, we need loads of people'.

4. The children are persevering.

Interactive content is not available in this format.



Discussion

You might have noticed that after joining the play inside the pipe, one child returns for another attempt at pushing and rolling it. So, you could say some perseverance is observable in this play.

5. The children are waiting for direction or help.

Interactive content is not available in this format.



Discussion

No adult or single child controls the play. The children all participate equally, and the play evolves spontaneously as the children follow their own ideas.

6. The children are using locomotive movement (movement involving travel from one place to another)

Interactive content is not available in this format.



Discussion

The children are pushing the pipe, running and crawling, and so are using different sorts of locomotive movement.

7. The children are coordinating their movements with one another.

Interactive content is not available in this format.



Discussion

You might have noticed that one child changes direction and reverses back out of the pipe as another child comes through.

8. The children are developing proprioception (perceiving self in space).

Interactive content is not available in this format.



Discussion

In this play, the children experience two very different spaces 'inside' and 'outside' the pipe. They have to move differently in each space, and you can probably imagine that these two spaces have a very different 'feel'. Did you also notice how they explore the sound of their voices inside the pipe?

9. The children are using specific vocabulary.

Interactive content is not available in this format.



Discussion

Did you hear children use words related to speed and position? For example, 'get out quick', 'the other side'.

10. The children are taking turns, negotiating and cooperating with each other.

Interactive content is not available in this format.



Discussion

Without any verbal communication on the matter, the children all started going through the pipe the same way. They also worked together, pushing the pipe in the same direction.

11. The children are using gross motor movement.

Interactive content is not available in this format.



Discussion

There were many different types of gross motor movement in this play, for example pushing, running, crouching, crawling and a child sliding on his tummy.

12. The children are integrating information from all their senses.

Interactive content is not available in this format.



Discussion

In this play, the children were clearly integrating information from their senses of touch, hearing and vision. The different movements were also stimulating their vestibular system, developing their sense of balance and proprioception.

3.3 Summary of the role of play in children's development and learning

Early years practitioners and parents need to ensure children have a broad range of play opportunities. A good balance of child-initiated play and adult-directed activity can extend the movement that children experience. Through play, children can develop fundamental movement skills without any need to learn these skills in isolation.

Research emphasises the importance of communication, self-esteem and positive social relationships in children's mental health and wellbeing and in developing their capacity to become effective learners (Payler et al., 2017). There is little doubt that physical play is essential for young children, yet, in the next sections you will look at two types of physical play that can make parents and practitioners a little anxious.

4 Risky play

It is the role of adults to keep children safe and protect them from harm. Babies and young children should always be supervised, and adults must assess risk in relation to children's stage of development.

Yet, there are concerns that in the last generation we have become a 'risk-averse' society and this has limited children's opportunities to engage in physical and challenging play, especially in outdoor spaces. A survey by the National Trust in 2012 noted that more children are taken to hospital each year because they have fallen out of bed, than because they have fallen out of trees (Moss, 2012).

Supervising children whilst they engage in risky play can be an anxious time for parents or practitioners, who may tend to 'err on the side of caution'. Yet, it is important to build children's confidence, not their anxiety, and make sure we are not creating a culture of fear about physical play (Lindon, 2011).



Figure 6

The opportunity to take risks in physical play allows children to test their own limits and capabilities, although what is risky and challenging to one 3-year-old child, might be safe and easy for another. So, the factors that determine whether physical play is risky are very individual.

Risk and challenge go hand-in-hand in physical play. In Week 4, you looked at three definitions of 'risky play' that suggested risk involves some sort of hazard or perceived danger, for example, height, speed or uncertainty. Challenge refers to a situation in which a child can extend their own abilities or overcome fears (Solly, 2015).

All children need the opportunity to experience both risk and challenge in their play, many actively seek it out. They climb a little higher than before, jump off a higher step, go faster, try the slide backwards or ride a bike for the first time, for example. Some children may need the support of an adult when they first attempt one of these pursuits, and some children may occasionally need some very gentle and sensitive encouragement to attempt a challenging activity in which they perceive some risk.

However, allowing young children to encounter some risk in a supervised play environment enables them to develop crucial experience and skills for perceiving, assessing and managing risk or danger themselves.

Activity 3

Watch Video 2 which features Rose from a day nursery. Whilst you watch, think about Rose's attitude and approach towards risky play in her setting.

Video content is not available in this format.

Video 2



Discussion

Rose talks about taking a balanced approach to risky play. Rather than removing risks to protect children, she talks about supervising and monitoring play to enable children to challenge themselves and learn to assess and manage risk. Having a trusted adult there to support risky play enables children to stretch themselves physically.

5 Rough and tumble play

Young babies enjoy being rocked, softly tickled and caressed by a familiar adult. As they grow, many toddlers and young children (but not all) enjoy the physical play often known as 'rough and tumble'.

This refers to the type of physical play that involves tickling, play wrestling, chasing, catching, falling on purpose and lifting and swinging each other or rolling on the ground, for example. Rough and tumble play involves high levels of physical exertion and opportunity to develop motor skills.



Figure 7

When familiar, sensitive adults engage in rough and tumble with children, they can usually 'read' their body language and adapt the play in response. Parents and practitioners are sometimes concerned that rough and tumble play between children resembles aggression, and consequently they may intervene to stop, or limit the play. However, when observing children's play, there are clear distinctions between what is play and what is aggression.

Table 1 Characteristics of 'rough and tumble' play and aggression

Characteristics of rough and tumble play	Characteristics of aggression
All participants are smiling and laughing	Signs of upset, distress or anger
All participants take part equally	One child attempts to dominate
Child chooses to stay in the play situation	Child tries to remove themselves from the play

In a research study of children's rough and tumble play, Jarvis (2007) found that despite the appearance of 'fighting', the play involved:

- peer support
- building social relationships
- negotiation of rules
- fair play and collaboration.

Of course, rough and tumble play between young children must be supervised by adults who promote overarching rules of respecting and taking care of each other. However, with clear boundaries in place, this type of play can support children's health, wellbeing and holistic development.

- Think about your own style of parenting or your approach to early years practice in relation to children's physical play. Where would you place yourself on the continuum below?



Figure 8 Risk continuum

It is important to think about your own responses and reactions to risk and the sorts of messages your words and actions convey to young children. If you constantly tell children to be careful, that they might fall or they might get hurt, you can create anxiety about physical play.

Where appropriate, you need to help children assess and manage risk, rather than stopping the play. Risky play and rough and tumble play can be viewed as opportunities to promote core values of respect, empathy and taking care of one another.

6 Building a movement rich environment

In this part of the course you will look at how parents and practitioners can create opportunities for physical play in both indoor and outdoor spaces. You will see how promoting children's holistic development through physical play does not need expensive classes or equipment.

The level of physical activity and the types of movement that a child experiences are dependent on the environments in which they spend most of their time. Whilst young children are pre-programmed to move, it is adults who tend to plan the environment, control what children can do and how they can move. Therefore, it is important that parents and practitioners understand the importance of movement and hold positive attitudes to physical activity.

First and foremost, physical activity needs to be thought of as an integral part of daily life. When planning your day, think about the opportunities available for different types of movement and physical activity. Where possible, young children need physically active role models. Young children like to imitate adults and increase their range of physical activity by being with physically active adults. However, most importantly, by experiencing their parents and carers being enthusiastic and enjoying exercise, they develop positive attitudes towards physical activity. In your everyday routines there are many opportunities to promote movement and physical activity.

6.1 Floor time

Car seats and bouncing chairs are convenient but can restrict babies' movements if they are there for too long. Spending time on the floor promotes movement, especially when their parent or carer is there too. Lying on their backs, babies lift their legs and grasp their feet, developing their proprioception and strengthening their abdominal muscles.



Figure 9

'Tummy time' strengthens muscles in the back, neck and arms. Placing a few toys close by encourages your baby to focus her/his vision and begin to reach. Not all babies like tummy time straight away and very young babies might feel safer lying on your chest (only do this whilst you're awake) before gradually moving to the floor.

It is important to give a baby some tummy time every day, you can start with a short time and build up gradually.

6.2 Different spaces to move

It stands to reason that children need space in which to move. Indoors this might be as simple as moving furniture to the edges of the room to enable unobstructed movement. Outdoors, big open spaces not only promote energetic and controlled movement, but also offer children a different perspective of their own body in relation to space.



Figure 10

It is also important that young children experience movement on a variety of surfaces, such as grass, sand, pebbles and woodchip as well as carpet, concrete and playground 'soft surfaces'. Different terrains, with uneven or unpredictable surfaces and gradients provide different 'sensory feedback' to develop balance, self-awareness and control (White, 2015).

This is further enhanced when children have the opportunity to go barefoot on grass or sand. Think about the garden/outdoor area at your setting, home or local park, and consider the different surfaces available for children to move on.

6.3 Music, rhythm, dance and movement

One simple way to encourage movement is to play some music. Children naturally tune-in to rhythm and respond with movement that corresponds to the beat.



Figure 11

Children's spontaneous dance moves express the feeling and emotion evoked by the music, and often involve repetitive action. Similarly, nursery rhymes and songs with actions, such as 'Incy Wincy Spider', 'One Finger, One Thumb, Keep Moving' or 'The Wheels on the Bus', encourage a broad range of gross motor and fine motor movements as well as language and communication and social and emotional development.

Musical games involving 'start/stop' such as 'musical statues' encourage young children to control their movement in response to sound. For toddlers and young children, stopping moving can take as much physical control as starting to move! These games also promote listening skills.

6.4 Pushing, pulling, lifting, steering

Young children often like to transport things. Sometimes there is a purpose for taking materials from one place to another, and at other times, transporting is just part of the play.

Providing a range of materials to transport, especially large heavy objects (wooden building blocks, pebbles or old tyres) with containers (buckets or baskets) provides opportunities for pushing, pulling and lifting. In an early years setting, this requires a flexible environment with lots of open-ended resources.



Figure 12

Wheeled vehicles offer further scope for children to transport objects, themselves and each other. Vehicles such as trikes, ride-on toys, dolls prams, push-along trolleys or wheelbarrows all require children to develop spatial awareness that extends past their own body, to coordinate their movement with that of the vehicle.

With opportunity for lots of different experiences, children come to understand how the vehicle moves differently on different surfaces and gradients, and how to adapt their own movement and the force required in response.

6.5 Sand, water, mud and malleable materials

The potential of play with sand, water, mud and malleable materials for children's holistic development cannot be overstated.

Large outdoor sandpits or digging plots with equipment such as buckets, spades, rakes and wheelbarrows provide a wealth of opportunity for gross motor movement. Especially when damp, sand and mud are heavy and add weight and resistance, requiring physical exertion.

Smaller indoor sand and water trays, with a variety of containers and bottles (upcycled materials will do fine), scoops, funnels, jugs, sieves and spoons promote fine motor control, hand-eye coordination and a multi-sensory play experience.



Figure 13

Activity with playdough includes squashing, squeezing, poking, kneading, flattening, pinching and rolling. These actions develop muscle control in the fingers, hands, wrists and arms that is required for holding and controlling a pen or other tools. The addition of plastic cutlery, scissors, rolling pins and shape cutters, for example, offers further opportunity for movement.

There is no right or wrong way to play with playdough. It is a very therapeutic sensory experience. It can also be a creative activity in which children can create sculptures or engage in imaginary roleplay, such as baking.

6.6 Mark-making

Long before children learn to write, they begin making marks and drawings. Sometimes children's marks are symbolic, that is, they are intended to represent something; what

might look like a scribble to us, can be a child's attempt at drawing their parent, for example.

At other times children like to draw just for the joy of the movement and seeing the resulting marks appear. Young children need large surfaces with chunky crayons, chalks or paint brushes.

Through lots of experiences of making marks with gross motor movements, they gradually develop the fine motor control needed to form recognisable shapes, letters or numbers. Vertical surfaces, such as painting easels or blackboards, encourage large whole-arm movement, incorporating up and down, side-to-side and circular actions.



Figure 14

In the warmer weather, you might give children large paint brushes or rollers with a bucket of water to paint on outside walls. Similarly, spray bottles with water are great fun and develop the muscles in the hand and wrist.

6.7 Summary of creating environments for physical play

The activities discussed in this section offer just a few examples of the abundant opportunities that parents and early childhood practitioners can provide to enhance children's physical and holistic development.

These activities do not require expensive or specialist equipment, but rather, they capitalise on the potential of resources that are already available in homes, early years settings and the local community.

7 This week's quiz

Now that you've completed Week 5, you can take a short quiz to help you to reflect on what you've learned.

Open the quiz in a new tab or window by holding down Ctrl (or Cmd on a Mac) when you click on the link. Return here when you have finished.

[Week 5 quiz](#).

8 Summary of Week 5

This week you have looked at play and its role in children's physical and holistic development. Different types of play involve different types of movement and providing a range of play opportunities enhances children's overall development.

You also considered how the prime areas of development (physical development, personal, social and emotional development and communication and language) are all interlinked and how physical play promotes all these areas of learning.

Exploring how some risky play and rough and tumble are necessary for children's learning and development, you should reflect on your own anxieties around these. Taking a sensible approach, you can help children to assess and manage risk and relationships.

Finally, you looked at some of the ways in which different environments, materials and resources can provide opportunities for physical play that can enhance children's development.

Top tips

- Provide children with a broad range of play opportunities and environments that enable you to promote physical development through play, rather than teaching movement skills.
- Be a physically active role model – children value physical activity if they see you enjoying it.
- Reflect upon your own attitudes to risk and where appropriate, help children to assess and manage risk themselves, rather than stopping the play.
- Make use of resources in your own environment and what you already have to hand – both inside and outside.

You can now go to [Week 6](#).

Further resources

You may find the following resources interesting and useful.

- Bob Hughes's '[Taxonomy of Play Types](#)' (Hughes, 2002)
- [Young children, the outdoors and nature OpenLearn course](#) – this free online course looks at the importance of babies and toddlers having opportunities to engage with rich outdoor environments.

Week 6: Health and physical development

Introduction

To begin this week, watch Video 1 in which you meet Jackie Musgrave, the author of this week's content. Jackie is in conversation with Josie Wilkinson, who is an early years practitioner, currently working as a teaching assistant. Josie is also a mother of two children who have health conditions, namely asthma. She describes the importance of parents having confidence in the practitioners who care for children with health conditions. Jackie also introduces Karen Nash and Nicola Farmer, practitioners who later in this week will be discussing how they support physical activity and development for young children and how they work with parents.

Video content is not available in this format.

Video 1



In this final week of the course, you will look at approaches to working with parents in sensitive ways to encourage them to promote physical development and activity.

By the end of this week, you will be able to:

- describe why it is important to work with parents to promote children's physical activity and development
- explain the ways that physical activity can be promoted in children who have health conditions
- identify ways of working with parents to promote children's physical activity and development
- present an audit of how your setting promotes physical activity and supports physical development.

1 Manageable and accessible daily physical activity for children

During the previous weeks of the course, you have learned many reasons why it is important to get children physically active, as well as some of the ways that children's physical growth and development can be promoted. In the following activity you will hear from two practitioners discussing the importance of children being physically active to promote children's physical health.

Activity 1

Watch Video 2 in which you will hear from Karen and Nicola. They work in a nursery in an area of high deprivation and explain some of the ways they encourage the children they work with to be physically active. As you watch the video, make a note of some of the ideas that Karen and Nicola highlight.

Video content is not available in this format.

Video 2



Provide your answer...

Discussion

Supporting children's physical development and being physically active is important not only for their physical health but also for their mental health.

However, as already discussed, each child is unique, therefore, it's important to take into consideration the individual child and their family situation. For example, in Week 3, it was pointed out that children with Down syndrome often experience delays in their milestones.

There are other factors that can impact how much physical activity children take and how they develop, some relating to health issues that you will look at later this week. Whatever the individual needs of the child are, ways to promote physical activity need to be realistic, so that it becomes part of an enjoyable daily routine for children and their families.

Through embedding manageable and accessible daily physical activity for children, opportunities to be active may become more sustainable. It is also important that practitioners are aware of barriers that may prevent children and their families from being physically active. It is vitally important to work with parents to achieve this goal.

2 Working with parents to promote physical development and activity

Working with parents is crucial in helping to get young children physically active. Watch the video in Activity 2 to find out more.

Activity 2

Watch Video 3 in which Karen and Nicola discuss how they work with parents to promote children's physical health.

They highlight the importance of forming and building positive relationships with parents and the families of the children, as well as keeping them informed about the children's development. They also give parents ideas for continuing physical activity at home through journals and home learning.

As you watch the film, make a note of some of the ideas that Karen and Nicola highlight.

- Try to **list five ways** they suggest have been helpful to them in developing how they work with parents to promote physical development in babies and young children
- Consider how you may be able to use some of their ideas in your own setting.

Video content is not available in this format.

Video 3



Provide your answer...

2.1 Developing positive relationships with parents

In Videos 2 and 3 in the previous sections, Karen and Nicola gave many examples of how they work with parents to encourage them to promote their children's physical development and activity.

From what they said in the two videos, you may have selected the following five ways:

1. Ensure you develop positive relationships with parents.
2. Increase your knowledge about the importance of physical development and growth.
3. Use this knowledge to educate children and parents about how to promote physical development and growth.
4. Identify activities that babies and young children enjoy at nursery that are aimed at promoting physical development, share them with parents and encourage parents to carry on doing them at home.
5. Be a positive role model for children by being active yourself.

You may have picked out other ideas from Karen and Nicola's video clips, and of course, you may also have other ideas of how to work with parents to promote children's physical growth and development.



Figure 1

This part of the course has highlighted the importance of working in respectful and positive ways with parents. However, some parents can be anxious about encouraging their child to take part in physical activity, especially if their child has a health condition or an additional need. The next section will look at how to plan physical activity for children with health conditions.

3 Children who have health conditions

Supporting children's physical development and being physically active is important for both mental and physical health. However, some children have a health condition or another factor that makes it less easy for them to take part in physical activity. Here are some of the conditions that can affect how much physical activity a child does:

- Chronic health conditions such as asthma, diabetes or sickle cell anaemia
- Special educational needs and disability
- Complex medical needs
- Obesity or being overweight
- Visual impairments.

Activity 3

Take the poll below, where you consider how confident you feel about planning physical activity for children with specific conditions.

1. How confident do you feel about planning physical activity for children with chronic health conditions such as asthma, diabetes and sickle cell anaemia?

Interactive content is not available in this format.



2. How confident do you feel about planning physical activity for children with special educational needs and disability?

Interactive content is not available in this format.



3. How confident do you feel about planning physical activity for children with complex medical needs?

Interactive content is not available in this format.



4. How confident do you feel about planning physical activity for children who are overweight or obese?

Interactive content is not available in this format.



4 Chronic health conditions

A chronic health condition is one that is ongoing, lasting for three months or more.

Figure 2 shows some of the most common chronic conditions that affect children in high income countries such as the UK.



Figure 2 Common chronic conditions in children

The following sections explore some of the reasons why these three conditions can affect children's growth and development as well as impacting on their ability to take part in physical activity.

Very importantly, at the end of this week in the Further reading and resources section, there are links to information that will increase your knowledge about these conditions. Increasing your knowledge helps you to be confident in working with parents to support their children's physical activity.

4.1 Asthma

Asthma is a serious health condition and an asthma attack can be fatal. It is estimated that between 10–20% of children have asthma.

As Josie, the mum of a child with asthma, explained in the introductory video for this week, one of the triggers of an asthma attack can be physical activity. Therefore, it is understandable that all adults, both parents and practitioners may prevent children with asthma from running around and taking part in physical activity. However, there are precautions that can be taken to support children with asthma to take part in physical activities.



Figure 3

Activity 4

Read the case study about Nellie, a 3-year-old with asthma, and her key person at nursery, Eve. The case study highlights what can be done to work with parents to promote physical activity for children with asthma.

As you read about Nellie, make a list of the ways that Eve works with Nellie's mum to manage her asthma so that Nellie can take part in physical activity.

Case study of Nellie: a child with asthma

Nellie is 3 years 6 months and she has recently been diagnosed with asthma. Her general practitioner (GP) has prescribed an inhaler for her to use. The inhaler is described as a 'preventer inhaler' meaning that by taking it twice a day, the medication in the inhaler prevents the symptoms from being 'triggered'.

Eve is Nellie's key person at nursery. She has discussed Nellie's asthma with her parents. Nellie's mum gives her the inhaler twice a day, morning and night. Nellie has also been given a 'reliever' inhaler and the instruction from the GP is that she can be given two puffs of the inhaler if she becomes wheezy.

It is now winter and the weather is very cold, and Nellie has been wheezy when playing outside. Eve is concerned that the cold weather may trigger an asthma attack.

What do you think Eve could do?

Provide your answer...

Discussion

You may have considered that Eve should talk to Nellie's parents and discuss the options available. These could include:

- Ensure that Nellie wears a scarf over her mouth so that air is warmed before she breathes in; this is a simple way of preventing cold air from triggering wheezing.
- Discuss if it is appropriate to give Nellie some of her 'reliever' inhaler before going outside in the cold.
- Update Nellie's care plan to reflect the management of her asthma.

Having read about Nellie, are there any improvements you could make to help increase the level of physical activity of children with asthma in your setting?

Provide your answer...

4.2 Diabetes

Diabetes is a serious condition that is affecting an increasing number of children. Having diabetes means that the body does not produce enough insulin (a chemical messenger) which is necessary to regulate the level of sugar in the body.

This means that the body cannot keep the blood sugar level within the normal limits. Therefore, in some cases, children require an injection of insulin to help keep their blood sugar level within normal limits. The level of sugar in the blood is affected by the amount of sugar or carbohydrate that is eaten. The more sugar that is taken in, the more insulin is required to use up the excess sugar.

Another factor that can impact the balance between sugar and insulin intake, is the amount of physical activity undertaken. Sugar levels in the body can go down when physical activity is taken.

Therefore, in order to keep children with diabetes healthy and well, there needs to be a careful balance between the amount of carbohydrate that is eaten, the amount of insulin that is given and the amount of physical activity that is taken. As with all children, it is important that children with diabetes are encouraged to take part in physical activity.

Watch Video 4 in which Chris Pennell, a professional rugby player who developed type 1 diabetes as a teenager, talks about the importance of physical activity for children with type 1 diabetes.

Video content is not available in this format.

Video 4



It is especially important that practitioners and parents work together to plan how to support children with diabetes to take part in physical activity.

4.3 Sickle cell anaemia

Sickle cell anaemia is a serious, inherited condition where the red blood cells are an abnormal 'sickle' shape.



Figure 4

The abnormal shape of the blood cells means that as they travel around the body, instead of moving freely through the blood vessels, they can become 'stuck'. The accumulation of blood cells causes swelling and inflammation that causes pain.

5 Special educational needs and disability

Some children with special educational needs may require support to encourage them or enable them to take part in physical activity.

Such support may include adapting an activity to make it more inclusive.



Figure 5

In February 2022, for the first time, government guidance was published outlining the importance of providing physical activity opportunities for children with disabilities and special educational needs (Department of Health and Social Care, 2022).

Children with special educational needs may benefit from having adult support when taking part in physical activities to ensure safety and promote confidence. The following sections look at how you can support children with special educational needs and disabilities to still live a physically active life.

5.1 Autism and ADHD

Autistic children can benefit from physical activity because it can improve mood, coping skills and overall quality of life. However, it is often perceived that there are barriers to people taking part in physical activity. It is helpful for those leading on physical activities to consider how games and activities might be made more accessible to autistic children. For example, allowing for extra time for instructions to be processed may help an autistic child understand what their role is, and may help greater participation.

The National Autistic Society (Webster, 2016) has published guidance aimed at providing practical strategies to increase awareness and participation in physical activity for autistic children, please see the link to this guidance in the further resources section at the end of this week.

Children with Attention Deficit Hyperactivity Disorder (ADHD) also benefit from exercise. The NHS guidance offers the following guidance to parents of children with ADHD:

‘Make sure your child gets lots of physical activity during the day. Walking, skipping and playing sport can help your child wear themselves out and improve their quality of sleep’.

(NHS, 2021)

5.1 Complex medical needs

Children can have complex medical needs caused by a range of different factors. They may have experienced trauma, either during birth or afterwards, that may have caused a brain injury resulting in the child having cerebral palsy. Or, they may have been born with a genetic condition.

Whatever the reason that a child has complex medical needs, it is often the case that the condition has affected their physical growth and development. Their physical mobility is

frequently affected, and they may even need a wheelchair to move around. All of this can make taking part in physical activity challenging.



Figure 6

An inquiry by the charity Sense in 2015, found that a child who has complex medical needs has less opportunities to take part in play activities in early years settings. The findings revealed that the child's additional needs were often perceived as a barrier to them being included in play activities.

5.2 Partially sighted or visually impaired children

Children who are partially sighted or visually impaired often experience limited opportunities to develop their overall strength and muscle tone. This is partly because they cannot move fast enough to explore their limits and fully engage in physical risks and challenges. They may also have problems with balance and spatial awareness.

To develop their balancing ability and to support the vestibular system, children who are partially sighted or visually impaired need lots of opportunities to enjoy movements that will do this. Their spatial awareness and proprioceptive system will also need to be carefully nurtured through a range of movement opportunities.

It can often be difficult for them to join in with group games and activities and they may be over-protected by parents/carers who are understandably anxious about their safety.

Activity 5

Read the following case study and then answer the questions that follow to consider how you would best support a partially sighted child such as Jack.

Case study of Jack: a partially sighted child

Jack is 5 years old and is partially sighted. He has worn glasses since he was a baby and attends a mainstream school. His general health is good and he is a popular member of his class. He experiences difficulties with balance and spatial awareness and sometimes gets frustrated when he can't join in vigorous physical activities with his friends.

What suggestions could you make to Jack's teacher to best support his physical development?

How could you support his friends to include him more in their play?

Provide your answer...

.....
Discussion

Ways to encourage Jack's spatial awareness and proprioceptive sense:

- Digging and being very vigorous with different sized tools in sand or soil
- Lifting and carrying heavy resources such as books, tyres, buckets of sand or water
- Pushing and pulling a box full of soil or another child sitting in a cart or on a bike
- Smashing and banging appropriate resources
- Crawling through a short tunnel
- Sweeping away puddles or brushing up leaves.

Ways to support Jack's balancing and vestibular system:

- Sliding down a slide
- Crawling through a big box or between chairs; getting into small spaces, for example, a suitcase
- Rolling over objects such as a camping mattress, a cushion or duvet
- Sitting on a swing with them and slowly moving back and forth
- Jumping on a trampoline with support
- Using a balancing bike
- Holding on to a pillar with one arm and moving around at speed.

It is often difficult for children like Jack to develop these skills. They tend to dislike the usual swinging, swaying and twirling activities as they don't feel safe, so have to find other ways!

Ways to support Jack's friends to include him more in their play:

- Use apparatus or resources that may be shared with friends
- Small group activities using a single piece of apparatus like a large sheet or parachute where they can all play together as they hold onto the sheet and move it up and down
- Big boxes or bags that the children can fill with items and move around together are also useful.

6 Obese or overweight children

According to the World Health Organization 'overweight and obesity are defined as abnormal or excessive fat accumulation that may impair health' (2018).

Many children are an unhealthy weight and childhood obesity is a major health concern globally (World Health Organization, 2018). In England, obesity prevalence among four and five-year-olds in reception classes rose from 9.9% in 2019–20 to 14.4% in 2020–21 (NHS Digital, 2021). The increase in this number means that it is likely that many preschool settings have children who are overweight or obese.

Activity 6

Read the case study of Gideon, a 4-year-old boy who is very overweight. The case study is included here to help develop understanding about why children become overweight as well as identifying ways of supporting the child and family. After you have read the case study answer the questions that follow.

Case study: Gideon – a child who is overweight

Gideon is 4 and you have noticed that he is wearing clothes that are made for an 8-year-old, the jogger bottoms are rolled up because they are too long for him. You have also noticed that he is finding it difficult to get up off the floor and he becomes out of breath very quickly.

Gideon is finding it difficult to keep up with his friends' level of physical activity. He has started to spend his time with the adults in the outdoor area and is not playing with the other children.

Gideon and his family live in an area of deprivation and living in poverty is a negative influence on children's health (RCPCH, 2017). Gideon is part of a big, loving family; he lives with his four older sisters and his parents. Both of his parents come to pick him up from nursery and after giving him a hug, they put him in a buggy and give him a bag of sweets.

The nursery is located on a large housing estate in an area of high deprivation with few shops and limited public transport. Most families on the estate live in poverty in low-quality housing, often with inadequate cooking facilities. There are three fast food chain outlets that all offer cheap children's meals.

Consider the reasons why you think Gideon is overweight.

What are your suggestions to address Gideon's situation and work with his family?

Provide your answer...

The following section looks at some of the reasons why children can become overweight or obese using the case study of Gideon as an example.

6.1 Why children can become overweight and obese

Using the case study of Gideon which you looked at in Activity 6, you will now look at some of the reasons why children may be overweight or obese and some of the ways to address the issue. You will then look at how you may approach and work with Gideon's parents.

The child's environment

The really important point to take away from the case study of Gideon is that he is part of a loving family so his emotional environment will make a positive contribution to his wellbeing. From the physical environment point of view, where a child lives can have an impact on the amount and type of physical activity that child can take part in. Living in a community where there is a high level of poverty can mean that there are fewer spaces for children to be active outdoors.

Diet and nutrition

Living in poverty is associated with poor housing and can mean that cooking facilities are limited. Low income can mean there is limited money to spend on gas or electricity and that can make cooking unaffordable.

Accessing nutritious food that's affordable is challenging because of the lack of supermarkets that sell high quality food at prices that families who live in poverty can afford. In relation to Gideon, it may be that by giving him sweets, his parents are demonstrating their love for him in a way that is affordable within their limited means.

Low quality, high fat/sugar, highly processed foods are cheaper per calorie than higher quality, healthier foods – which often take more time and effort to prepare.

Leaving the estate to get to a discount supermarket is also a challenge for many families. Public transport is scarce, and the bus timetable doesn't fit easily with dropping off and collecting children from school and nursery.

There aren't any easy solutions to addressing the many reasons why children can become overweight. Increasing the level of physical activity isn't necessarily the answer to reducing a child's weight, but for all the reasons discussed during this course, it is very important that all children are physically active. However, children who are carrying extra weight can find it challenging to take part in physical activity. The reasons why this is the case is because carrying excess weight is hard work and it can be uncomfortable to move quickly; moving with excess weight can cause shortness of breath. To illustrate this point, imagine that you are running for a bus at the same time as carrying a bag of potatoes that weighs 5 pounds!

Addressing a child's weight is a highly sensitive subject and many parents are unaware that their child is overweight (Public Health England, 2019). It is likely that they may feel shocked, angry, upset and guilty. Below are some suggestions on how to approach and work with Gideon's parents.

Approaching Gideon's parents

Ask to speak to Gideon's parents and take them somewhere private to do so:

- Ask his parents if they have concerns about his weight
- Use sensitive language to explain concerns about Gideon's weight

- Explain that the aim for managing young children who are overweight is not to necessarily lose weight but not to gain any more, that is 'to grow into their weight'
- Discuss ways of practitioners working with all members of the family to support Gideon to increase his level of physical activity.

Working with Gideon's parents

It is important to identify ways of incorporating physical activity into the normal daily routine rather than it being a special effort:

- Suggest that Gideon is encouraged to walk some of the route to nursery
- Think of ways to create opportunities and suggestions aimed at increasing the level of all children's physical activity so that Gideon's parents don't feel singled out
- Invite parents into the nursery to join in activities with their children.

7 Working with parents to encourage physical activity in children

Watch Video 5 in which practitioners, Karen and Nicola, explain how they plan physical activity for children with asthma and a child with complex medical needs. They also share some of their experience of how they work with parents of children who have a health consideration and additional needs. They emphasise again the importance of working with parents of such children in order to gain their trust and describe how they work with other professionals so that they can give the best support and care possible.

As you watch the video, think about the ways that your practice and policies can help to support physical growth and development of children with additional needs.

Video content is not available in this format.

Video 5

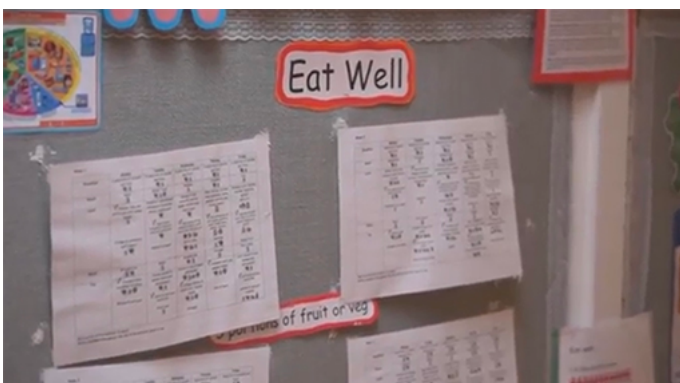


Practical ways of working with parents

In Video 6, Karen and Nicola discuss how their policies that support physical development and staff engagement with parents are important in making a welcoming setting that can develop positive relationships with parents.

Video content is not available in this format.

Video 6



It is important to ensure activities are inclusive and are aimed at all children and parents, so nobody feels as if they have been picked out for special consideration.

It is also important that when making suggestions and developing activities aimed at supporting physical development and activity that they are realistic and can be part of their everyday routine. Being aware of lifestyle factors and cultural differences are examples of how to be sensitive to parents.

Devising ways of educating parents about the importance of physical development and activity can be helpful. For example, one practical idea is to have a display board that includes information such as the Chief Medical Officer's physical activity infographics (see Figure 2 in Week 3) and posters for parents and children to look at as they arrive and leave the setting.

Use the most effective way of communicating with parents to pass on information such as in newsletters or via an electronic communications system.

Encourage the local leisure centres and sport clubs to advertise family friendly activities in the setting.

8 How do you and your setting support physical activity and development?

As you approach the final part of the course, this is a good time to reflect on what you do in your setting that supports the physical growth, development and activity of babies and young children. As has been highlighted throughout the course, a practitioner can have a powerful influence on parents' and children's views about physical development. One way of exerting this influence is for practitioners to role model positive approaches to physical activity, showing enjoyment to children. Develop policies in collaboration with all practitioners that embed opportunities for physical activity and make best use of the environment both inside and out all year round to help promote physical activity and make it part of the everyday routine.



Figure 7

Of course, all settings are different, and each child is unique, so there isn't a one size fits all approach to how you can support children's physical activity. It is important to think about how you can consider each baby or child and their family's needs, and how you can make the best of the environment that is available to you. To help you do this, in Activity 7 you will complete an audit that will get you to think about the factors that can impact children's physical growth, development and levels of activity.

Activity 7

Complete the audit at the link below. Whilst completing the audit, think of anything that you can change or improve in your practice, as well as any potential barriers to doing so and possible solutions.

There isn't one single approach to how you can support children's physical activity because settings and children are different:

- Think about how you can consider each baby or child and their family's needs
- Think how you can make the best of the environment that is available to you
- Think of anything that you can change or improve in your practice
- Think about potential barriers
- Think about possible solutions.

[Audit form \(word file\)](#)

[Audit form \(pdf\)](#)

Hopefully completing the audit of how you support the physical growth, development and activity of babies and young children has given you some food for thought and, hopefully, helped you to think about simple ways to do this. Perhaps you could consider completing the audit with your colleagues so that you can develop a shared vision of how you can support children to be active and help them to maximise their potential.

9 This week's quiz

Now that you've completed Week 6, you can take the end-of course quiz to test your understanding of the whole course.

Open the quiz in a new tab or window by holding down Ctrl (or Cmd on a Mac) when you click on the links. Return here when you have finished.

[End-of-course quiz](#).

10 Summary of Week 6

You have now reached the end of the course. We hope that you have enjoyed it and learned something new. As Viv Bennett, the Chief Nurse and Director for Maternity in Early Years at Public Health England, said in the introductory video, our most precious asset is our children, and their physical development in the early years of life is so important to their health throughout life.

Top tips

- Think about how you can work with parents in sensitive and realistic ways to support them to encourage their children to be physically active.
- Be prepared to learn about how to support children with additional needs to be physically active.
- Develop activities to encourage physical development that include all children and avoid making children feel any more different than they may already feel.
- Work with colleagues to develop policies that embed and promote physical activity.
- Complete the 'how you support the physical growth, development and activity of babies and young children audit' and discuss it with your colleagues to identify ways to change your practice.

The authors of this course would like to learn more of the views of the learners. To help them do this, there is a [post-course survey](#) (press Ctrl + click on the link to open it in a new window) for you to complete. The information you provide will give the authors an insight into how helpful, interesting, and relevant the content of the course is to you. Thank you in advance for completing this post-course survey.

Interested in taking your learning further? You might find it helpful to explore the Open University's [Early Years courses and qualifications](#).

Further reading and resources

Further reading

Here is a list of further reading that you may find interesting and useful.

- Conkbayir, M. (2017) *Early Childhood and Neuroscience: Theory, Research and Implications for Practice*, London: Bloomsbury academic.
- Connell, G. and McCarthy, C. (2014) *A Moving Child is a Learning Child: How the Body teaches the Brain to Think*, Minneapolis, MN: Free Spirit Publishing.
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['Autism, sport & physical activity: Practical strategies to implement in your delivery of sport and physical activity when working with autistic people'](#), National Autistic Society.

Further resources

Here is a list of further resources that you may find interesting and useful.

- [Making play inclusive: a toolkit for play settings](#) (© used with the permission of Sense)
- www.activematters.org

- www.babycentre.co.uk
- www.forestschoools.com
- www.henry.org.uk
- www.londonplay.org.uk
- www.movingsmart.co.nz
- www.outdoor-learning.org
- www.pikler.co.uk
- www.raepica.com
- www.sportnz.org.nz
- www.theplaydoctors.co.uk
- [Asthma + Lung UK](#) – 10 simple steps to ease your worries about your child exercising.
- [Education for Health](#) has a free online course aimed at educators – Supporting children and young people's health: improving asthma care together.
- [Diabetes UK – Physical activity and your child](#) shares information about managing diabetes in young children so that they can safely be encouraged to be physically active.
- [Sickle Cell and Thalassaemia: A Guide to School Policy](#) shares information about managing sickle cell in young children so that they can safely be encouraged to be physically active.

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