TOPIC 9
Parenting and prenatal and early childhood development

9.1 Overview

Key knowledge

• Considerations in becoming a parent such as responsibilities, and the availability of social and emotional support and resources
• The role of parents, carers and/or the family environment in determining the optimal development of children through understanding of:
  – fertilisation and the stages of prenatal development
  – risk and protective factors related to prenatal development, such as maternal diet and the effects of smoking and alcohol during pregnancy
  – physical, social, emotional and intellectual development in infancy and early childhood
  – the impact of early life experiences on future health and development
• The intergenerational nature of health and wellbeing

Key skills

• Analyse factors to be considered and resources required for the transition to parenthood
• Explain factors that influence development during the prenatal and early childhood stages of the lifespan
• Explain health and wellbeing as an intergenerational concept

FIGURE 9.1 The prenatal stage is the first stage of the lifespan and early life experiences can have an impact on future health and wellbeing and development.
### KEY TERMS

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Amniotic fluid</td>
<td>the fluid surrounding the embryo/foetus that protects the unborn baby</td>
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<tr>
<td>Antenatal</td>
<td>occurring before birth</td>
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<tr>
<td>Blastocyst</td>
<td>thin walled hollow structure consisting of a cluster of cells making up an outer cell mass that becomes the placenta, and an inner cell mass which becomes the embryo</td>
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<td>Cell differentiation</td>
<td>when cells take on specialised roles</td>
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<tr>
<td>Cephalocaudal development</td>
<td>development that occurs from the head downwards</td>
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<tr>
<td>Chromosomes</td>
<td>strands of DNA that contain genetic information</td>
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<tr>
<td>Emotional needs</td>
<td>the need to feel loved and wanted by caregivers</td>
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<td>Emotional support</td>
<td>the feeling that others understand your needs and will try to help you</td>
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<tr>
<td>Endometrium</td>
<td>the nutrient-rich lining of the uterine wall in which the ovum (blastocyst) embeds or that is expelled every month if pregnancy does not occur</td>
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<tr>
<td>Foetal alcohol spectrum disorder</td>
<td>describes a range of features seen in babies who have been exposed to alcohol while in the womb</td>
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<tr>
<td>Genes</td>
<td>the blueprint of the body that controls growth, development and how the body functions</td>
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<tr>
<td>Implantation</td>
<td>when a cluster of cells that will become an embryo attaches itself to the endometrium</td>
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<tr>
<td>Intellectual needs</td>
<td>knowledge, understanding, curiosity and search for meaning</td>
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<td>Intergenerational</td>
<td>the health and wellbeing of one generation affects the next</td>
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<td>Low birthweight</td>
<td>weighing less than 2500 grams at birth</td>
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<td>Neural tube defect</td>
<td>failure of the neural tube (which develops into the central nervous system) to close during the development of the embryo, resulting in conditions such as spina bifida</td>
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<td>Object permanence</td>
<td>an awareness that objects continue to exist even when they are out of sight</td>
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<tr>
<td>Organogenesis</td>
<td>the formation of organs</td>
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<tr>
<td>Parenting</td>
<td>the process of promoting the physical, emotional, social, and intellectual development and health and wellbeing of a child from birth to adulthood</td>
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<tr>
<td>Physical needs</td>
<td>the need for food, air, water, activity, rest and physical safety</td>
</tr>
<tr>
<td>Placenta</td>
<td>an organ that allows the transfer of nutrients, gases and wastes between mother and foetus</td>
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<tr>
<td>Proximodistal development</td>
<td>development that occurs from the core or centre of the body outwards towards the extremities</td>
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<tr>
<td>Regenerate</td>
<td>regrow to replace damaged, old or dead cells or tissue</td>
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<tr>
<td>Sanctions</td>
<td>rewards or punishments imposed to encourage appropriate behaviour</td>
</tr>
<tr>
<td>Social needs</td>
<td>the need for belonging, self-worth and the respect of others</td>
</tr>
<tr>
<td>Social support</td>
<td>informal, emotional or practical assistance from relatives, friends, neighbours or the community</td>
</tr>
<tr>
<td>Teratogen</td>
<td>anything in the environment of the embryo that can cause defects in development. Examples include tobacco smoke, alcohol, prescription medication and some diseases, such as measles.</td>
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### 9.2 Considerations when becoming a parent

#### KEY CONCEPT
Parents play a crucial role in promoting the health and wellbeing and development of their children. Parenting actually begins before birth in the prenatal stage, and affects the course of health and wellbeing of children through to adult life.

#### 9.2.1 The responsibilities of parenting

**Parenting** refers broadly to the activity of raising a child. Not just the biological relationship, it covers all people who carry out parenting responsibilities, including biological parents, step-parents, adoptive parents, foster parents and other carers. Parenting includes a set of behaviours that characterise how parents interact on a daily basis to meet the needs of their child, and the beliefs and attitudes about parenting that underpin these behaviours.
In the early years of life humans are wholly dependent on others to provide for their needs and uphold their rights. The UN Convention on the Rights of the Child lists the rights or things every child should have or be able to do. Some of these include the following:

- Children have the right to live a full life.
- Children have the right to good quality healthcare, clean water, nutritious food and a clean environment so that they will stay healthy.
- Children have the right to a standard of living that is good enough to meet their physical and mental needs.
- Children have the right to relax, play and to join in a wide range of leisure activities.
- Children have the right to reliable information from the media. Mass media should provide information that children can understand and should not promote materials that could harm children.

These rights dictate that children have the right to grow up in an environment in which they are enabled to reach their full potential in life. It is parents’ responsibility, with the support of other caregivers and family members, communities and governments, to ensure that the rights that relate to a child’s needs and an optimal environment for development are fulfilled.

Parents play the most important role in ensuring children’s rights and needs are met. Over the past 50 years changing social factors have led to changes and challenges in how parents carry out their job. Some of these include more flexible work hours, more women in the full-time workforce and people working from home, different income and education levels, higher divorce and remarriage rates, and single parenthood by choice. The responsibilities for the parenting of a child can therefore be carried out in different ways and under different circumstances.

Parents have to understand and respond appropriately to the needs and rights of a child from birth, which requires skills and knowledge. Parenting
knowledge can be limited by lack of exposure to parenting experiences. Smaller family units mean less opportunity to watch parents interacting with siblings or less contact with extended family networks, which can all reduce confidence in relation to parenting skills. Information may now be gained from parenting courses, online sources, social networking sites and the media rather than from family experiences alone.

Adults embarking on parenthood need to be able to answer following questions:
- Can a child’s needs be met?
- Can an environment that will promote optimal development be provided?
- Are the changes that parenting will bring acceptable?

### Can a child’s needs be met?

Parenting can be rewarding — and demanding. A child’s needs are constantly changing. The obligation, and challenging task, is to figure out what those needs are and how best to meet them.

Children have **physical needs** which are linked to basic survival. Parents or carers must provide an appropriate quantity and variety of nutritious food, conditions for adequate sleep, safety, adequate housing and access to healthcare in order to enable physical health and wellbeing and development. A baby or child who is cold, sick or hungry will not be very interested in socialising or learning. Babies must also feel safe from personal danger and threats. When a child is fearful, all concentration goes to calming the fear with no thought for any other task.

Children have **social needs**, which can be satisfied through interaction with others. This involves socialisation, which is the process by which an individual learns to live according to the expectations of a group or society. It means acquiring its beliefs, values, accepted behaviours through imitation, observation, family interaction and education systems. This requires parents to provide love, attention, confidence and opportunities for interaction, achievement and independence.

Children have **emotional needs**. Parents need to use positive parenting practices with warmth and praise to create emotional security and stability for children. Children’s emotional needs are supported when parents have good mental health and wellbeing and resilience. Human beings need relationships with others and to feel love and belonging. Through healthy relationships with parents and caregivers, children can learn self-respect and develop confidence, achievement, independence and freedom.

Children have **intellectual needs**, which include learning, communication and skill development. Intellectual needs can be met
by creating opportunities for problem solving, learning and understanding, which allows them to have control over their environment.

**Can an environment that will promote optimal development be provided?**

Potential parents need to consider the level of support available to them from family, friends and the community. They also need to consider what resources they have to provide for a child’s needs. Children should be given opportunities to develop physically, socially, emotionally and intellectually. A positive parent–child relationship allows children to develop socially through positive communication and parents encouraging desirable social behaviour through praise.

Parents teach skills and behaviours to children through direct instruction, sanctions, by acting as role models and interacting with them. For children to develop emotionally they need to learn to form appropriate feelings and reactions to situations. Parenting involves managing a child’s behaviour through establishing limits, providing instruction and enforcing appropriate consequences for problem behaviour. Physical and intellectual development in children involves using the senses and actions to learn and grow, from basic reflexes in newborns and to more complex motor skills and thought processes in later childhood. A family needs to provide opportunities for new experiences, age appropriate toys and experiences that allow motor and sensory stimulation.

**Are the changes that parenting will bring acceptable?**

With parenting, personal freedom gives way to responsibility. Parents-to-be should consider whether any changes in diet and lifestyle are needed in order to have a healthy pregnancy and healthy child. Parenting is an intense, 24 hour a day, 7 day a week job. New parents can find it difficult to do all the things they used to do while also caring for a newborn. They have to be prepared to let some things go for a while. New parents may find themselves faced with changes in their relationship, an increase or change in household duties, the possibility of becoming the sole provider or even a stay-at-home parent. Financial priorities also change, and a balance between career responsibilities and family will have to be found. Preparing for the increase in responsibility might mean building up savings, choosing one parent to stay home with the new baby full time or taking newborn education or parenting classes.

To help get them through this initial adjustment, parents should have a strong relationship and good communication skills. New parents need a supportive network of friends and family to lean on or talk to when things get tough. Expected parents should also prepare for a significant decrease in the social events they can attend, especially in the first few months. When the new baby arrives, the amount of time parents have to spend with their partners is significantly less than before the arrival of the baby, especially if one or both parents works. Spending less time together can sometimes lead to relationship friction and communication issues.
9.2.2 Social and emotional support for new parents

Once a person decides to become a parent or caregiver they will need social and emotional support, as parenting involves learning on the job, often without any previous experience of child rearing.

Social support

Social support for new parents could include money, babysitters, help with meal preparation, care of other children, sharing of information, assistance with transport and help in case of emergencies or with household tasks. Grandparents can be a great source of support to new parents through sharing their own experiences. Having family members, such as grandparents, available and prepared to babysit can mean parents are able to work which will increase financial resources. Greater financial resources will give parents greater capacity to provide adequate housing, clothing and food. Contact with extended family can also teach children about history and culture through the stories their grandparents tell.

Parents with higher levels of social support are better able to cope with stress and be more resilient. For example, women who receive strong social support from their families during pregnancy appear to be protected from sharp increases in a particular stress hormone, making them less likely to experience depression after giving birth. Good social support is also of benefit to the child. Having other people in the child’s life who show them affection, praise and warmth strengthens the child’s trust and emotional security. This increases the likelihood of them becoming competent and independent when interacting outside the family in later life.

Emotional support

The idea of parenting can bring a mix of emotions: both positive and negative. Fears about whether they will do good job can lead to doubts and negative thoughts, which can cause stress for adults considering parenthood. Once the baby arrives there may also be frustration and regret at losing a lifestyle that may have involved greater financial independence, career advancement and spontaneity related to time with a partner or friends.

The birth of a baby involves a period of adjustment. A survey, conducted by Healthdirect Australia revealed the biggest challenges facing new parents were lack of sleep for themselves and the baby, feeding, recovering from birth and juggling care for other children. Participants reported that their top concern during pregnancy was that something was ‘wrong’ with their baby. During the first week after birth, up to 80 per cent of mothers will experience the ‘baby blues’ which can involve feelings of anxiety, mood swings and irritability. These feelings tend to peak three to five days after the birth and are mainly caused by hormonal changes after childbirth.

Other people can offer new parents emotional support through encouragement, active listening and reassurance. People who are willing to share ideas and advice in a non-judgemental way can increase self-esteem and resilience for parents. This helps parents to see things in a more positive light and identify ways to cope.

Having adequate social and emotional support is important for parents and carers. Parents who are well supported are better able to provide for their child’s needs, feel less stressed, feel better able to relate to
their child, make good decisions and model appropriate behaviours. This is all positive for the child’s mental health and wellbeing. Research shows that the extent to which parents perceive themselves as competent, being as good as or better than other parents, is strongly linked to parent wellbeing and children’s health and wellbeing and development. Children whose needs are met and who have strong social and emotional skills are likely to become adults who find it easier to create and maintain a supportive social network. This increases the likelihood that they will be effective parents of their own children.

**FIGURE 9.9** Discussing parenting with others shapes a parents’ attitudes and beliefs about their own competence in the role.

**study on**

**Unit 2**  
**AOS 1**  
**Topic 4**  
**Concept 2**

**Social and emotional support** Summary screens and practice questions

### 9.2.3 Resources new parents need

Families must be able to access and use resources effectively to undertake their parenting responsibilities. As discussed in section 9.2.1, the amount of time a person can put into the role of parenting is a significant consideration in becoming a parent, and a major resource if the person decided to become a parent. Time has an impact on parents’ ability to use other resources required for effective parenting, including knowledge of health-promoting behaviours and parenting practices, material resources, such as income and food, and resources provided by all levels of government.

**Knowledge**

Parents’ level of education and knowledge is a resource that affects the developing baby in a number of ways. Knowledge of health and wellbeing behaviours (also known as ‘health literacy’) can increase the probability of parents caring for themselves in ways that promote the health and wellbeing and development of their unborn baby. Accessing healthcare, consuming nutritious food, not smoking, avoiding alcohol and drugs are more likely to occur in those who are educated about the benefits of maintaining optimal health and wellbeing during pregnancy. Parental education also increases employment opportunities and the ability to generate an adequate income, which can be used for resources such as adequate nutrition and healthcare.

**Material resources**

When a newborn child enters a household, income may decrease temporarily or permanently as carers withdraw from the workforce. Alternatively, household income may increase due to becoming eligible for family assistance. According to the Australian Institute of Family Studies, parents of first-born children report increased expenditure on groceries, health and wellbeing and children’s clothing, but reduced levels of spending on holidays. Money may be required for items to clothe, transport, bathe, and feed a baby as well as give it a safe place to sleep and explore.
In terms of financial resources, new parents need to consider who is going to be the primary caregiver and whether the primary caregiver is going to work after the birth. These considerations will be affected by family values and current financial commitments.

New associated costs during and after pregnancy may include:

- doctor and hospital bills, scans and special medical tests
- maternity clothes
- baby clothes and equipment
- childcare, whether it is provided by family members or childcare centres.

### 9.2.4 Federal government resources for new parents

Medicare is Australia’s universal health insurance scheme that provides free or subsidised treatment for all Australians through the public health system. Pregnant women can access a range of Medicare-funded health services throughout their pregnancy, including free treatment in public hospitals. By making healthcare more affordable, Medicare increases accessibility to antenatal care, which can assist with early detection of issues during pregnancy and medical intervention when required. Medicare also assists in providing professional health workers such as nurses, midwives, doctors and obstetricians to assist with the birthing procedure at no charge to the patient in a public hospital.

Dad and Partner Pay gives new dads or partners, including same-sex partners, up to two weeks of government-funded pay during the first year following birth or adoption of a child. The Australian Government’s Dad and Partner Pay can provide partners with a chance to take time off work to bond and connect with the baby, learn by doing, share experiences as a family and support a partner. Dad and Partner Pay gives up to two weeks of government-funded pay at the rate of the National Minimum Wage (currently $672.60 per week before tax). Other benefits for families include Paid Parental Leave and Family Tax Benefit.

The federal government provides a free phone and online service for pregnant women and new parents who have a baby up to 12 months of age. The Pregnancy, Birth and Baby helpline provides information and advice on topics such as maternal nutrition, breastfeeding, baby development and sleeping habits as well as direction to maternity-related services including specialist and support services. In addition, raisingchildren.net.au is the Australian government parenting website that aims to equip parents with the information they need to optimise the health and wellbeing of their child.

### 9.2.5 State government resources for new parents

**Maternal and Child Health Service**

The Maternal and Child Health Service is a primary health service, free for all Victorian families with children from birth to school age. The service is available 52 weeks of the year. The service provides...
appointments to check a child’s health and wellbeing, growth and development at ten key ages and stages from birth to three and a half years of age. These visits focus on parenting, health and wellbeing, growth, development, promotion of health, health and wellbeing and safety, social supports, referrals and links with local communities.

**My Health, Learning and Development Record**

The My Health, Learning and Development Record is given to parents in hospital when their baby is born. It is designed for them to record their child’s milestones, health and wellbeing, growth, development and immunisations. It also allows parents to add personal details about their child’s development, with space for photos and plastic sleeves for important documents.

My Health, Learning and Development Record provides:
- a paper-based record of a child’s health and wellbeing, growth and development
- a reminder for parents to attend maternal and child health visits and ask any health and wellbeing, growth and development questions
- important child health and wellbeing and development education
- a booklet for information to be recorded at each visit to a maternal and child health nurse
- a way of communicating between parents, healthcare professionals and other healthcare providers.

**Maternal and Child Health Line**

The Maternal and Child Health Line is a telephone service that is available 24 hours a day, seven days a week to families throughout Victoria with children from birth to school age. The Maternal and Child Health Line is staffed by qualified maternal and child health nurses who provide information, support and advice regarding child health and wellbeing, nutrition, breastfeeding, maternal and family health and wellbeing, and parenting. The Maternal and Child Health Line is able to link families with the Maternal and Child Health Service and to other community, health and wellbeing and support services.

**9.2.6 Local government resources for new parents**

Local governments implement a range of strategies and programs to promote the health and wellbeing and development of children, including:
- providing access to recreation facilities such as walking and cycling paths, parks, gardens and public swimming pools
- implementing community health and wellbeing plans that aim to address the needs of the local community and promote healthy lifestyles by encouraging healthy eating, exercise and social interaction
- implementing immunisation programs within the local community as part of the National Immunisation Program
- providing long daycare, which is a centre-based form of childcare service. Long daycare services provide all day or part-time care for children of working families and the general community. Local councils may run these services. Long daycare services may also provide care for school children before and after school and during school holidays.
- providing locally based maternal and child health services which give parents support, information and access to professional advice on a range of health and wellbeing-related concerns from child behaviour and nutrition to breastfeeding and family planning. The service is jointly funded by the Victorian Government and local councils and is usually operated by local councils.
- providing playgroups for infants, toddlers and preschoolers and their parents or caregivers. Adults stay with their children at playgroup, which gives them the chance to meet other people going through similar experiences while also learning about the community, health and wellbeing and support services available within the local community.
9.2 Activities

Test your knowledge
1. What is meant by the term ‘parenting’?
2. Outline the considerations that need to be made in the transition to parenthood about:
   (a) responsibilities
   (b) social and emotional support
   (c) resources.
3. Create a mind map to summarise the types of needs children have that parents and caregivers are responsible for satisfying. Make sure you provide examples of each type.
4. Why is social support important for a parent? What are the benefits for a child?
5. Why is emotional support important for a parent? What are the benefits for a child?
6. Describe how one family resource and one government resource support the parenting role.

Apply your knowledge
8. Access the Raising children weblink and worksheet in the Resources tab in your eBookPLUS then complete the worksheet.
9. Through their Healthy Families website, beyondblue provides a range of resources for health professionals, women and their families to maintain mental health and wellbeing during pregnancy, after the baby is born all the way through to the teenage years. Access the Healthy families weblink and worksheet in the Resources tab in your eBookPLUS then complete the worksheet.
10. Debate the proverb ‘It takes a village to raise a child’.

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Resources Summary screens and practice questions

eBookplus

Explore more with this weblink: United Nations Convention on the Rights of the Child
Searchlight ID: doc-22639

Explore more with this weblink: Raising children
Complete this digital doc: Raising children worksheet
Searchlight ID: doc-22640

Explore more with this weblink: Healthy families
Complete this digital doc: Healthy families worksheet
Searchlight ID: doc-22642
9.3 Fertilisation and the stages of prenatal development

KEY CONCEPT The process of fertilisation and prenatal development

The start of human life is dependent upon the genetic material provided by each parent. In order to gain an understanding of the prenatal stage of development, we will first explore fertilisation and the cells required for this process to occur. Once fertilisation occurs, the prenatal stage of development commences. Even though the foundations of social, emotional and intellectual development start at this stage, the physical aspect of development is the most noticeable. Development during this stage is the most rapid of all lifespan stages. The prenatal stage is generally divided into three stages: the germinal, embryonic and foetal stages. This is a time of great opportunity in child development as well as being a time of high risk.

9.3.1 Sperm, ova and fertilisation

Most cells in the human body contain a ‘nucleus’, which is like the brain of the cell. It contains the genetic material or blueprints that allow human cells to keep reproducing throughout the lifespan, although some types of cells regenerate more than others. Sperm and ova (singular ovum, sometimes referred to as ‘egg’) are the names given to the male and female sex cells respectively. Sperm production in males starts during puberty, and sperm form in the testes at a rapid rate (over 12 billion per month). Ova form in the ovaries before the female is even born. Once born, the female already has all the ova that she will have for life. These ova will mature once puberty occurs.

Fertilisation (sometimes referred to as conception) occurs when a sperm penetrates an ovum and the genetic materials fuse together to make a single cell called a zygote. The zygote contains 23 chromosomes from the sperm and 23 chromosomes from the ova and these carry the genes that will determine the rate and timing of development, whether the child is male or female and its characteristics. The individual resulting from this single fertilised cell will therefore display some characteristics of each of their parents.

FIGURE 9.11 Original cells split in different ways each time a sperm or ovum is created, resulting in the vast variation typically seen among siblings.
During sexual intercourse, sperm are deposited in the vagina and swim towards the fallopian tubes. (figure 9.12) If an ovum is present, any sperm that reach it will compete to break through the ovum’s membrane. In order to do this, the sperm release an enzyme that breaks down the outer barrier of the ovum. Once a sperm has penetrated the membrane, other sperm are blocked from entering by changes to the outer surface of the ovum. If more than one sperm were to enter, the zygote would have an incorrect amount of genetic information and would not survive.

**FIGURE 9.12** Fertilisation takes place in one of the fallopian tubes and the complete cell moves into the uterus where it implants in the lining of the uterus.

![Fertilisation diagram](image)

9.3.2 Germinal stage (0–2 weeks)

The germinal stage starts at fertilisation and ends with implantation (figure 9.13). Implantation begins around day 5 and ends around days 10–12. When fertilised, the newly formed cell (zygote) travels down one of the fallopian tubes while constantly dividing. Around three to four days after fertilisation, when there are about 16 cells, the zygote takes on a spherical shape and is now known as a morula. At around five days after fertilisation, when it is made up of around 64 cells, the morula transforms to include an outer cell mass, an inner cell mass and a hollow, fluid-filled centre called the blastocyst cavity. At this stage, the morula is known as a blastocyst. The inner cell mass of the blastocyst will become the embryo and the outer cell mass will eventually become the placenta. When it reaches the uterus, the blastocyst implants itself in the endometrium and at this point it becomes known as an ‘embryo’. As soon as implantation occurs, the placenta begins to form.
9.3.3 Embryonic stage (3–8 weeks)

The embryonic stage starts at implantation and ends at the eighth week. This stage is characterised by cell differentiation. This is when the cells start taking on specialised roles such as heart cells, skin cells and bone cells. This stage is perhaps the most critical for development. While the embryo is only around 2 centimetres in length by the end of this stage, many of the internal organs and systems have begun to form in a process called organogenesis. These include the circulatory system, the stomach and kidneys, lungs, the nervous system and the digestive system. The brain and spinal cord are almost complete by the end of it (although they will grow in size and increase in complexity for years to come).

The blood and circulatory system, powered by the heart, is the first organ system to develop. The neural tube (brain, spinal cord and other neural tissue of the central nervous system) is also well formed at this stage. Bone starts to replace cartilage and limbs that start out as buds emerging from the torso and continue
to grow along with fingers and toes. By the eighth week, the embryo becomes distinctly human looking, although the head and neck still account for around half the embryo’s total length, and the brain makes up almost half of its body weight.

Because major organs and systems are formed during this time, the embryo is very sensitive to environmental influences. For coordinated body systems to develop, the specialised tissues that are forming require specific connections from the brain and spinal cord to the muscles and outer parts of the developing embryo to occur. Teratogens such as tobacco, alcohol and medication are particularly influential during this stage of development. They are thought to interfere with the formation of these connections.

At the eighth week, the embryo has begun to form every major organ and system, and many are close to completion. In fact, 90 per cent of the structures found in an adult human can be found in an eight-week-old embryo. The remainder of the prenatal stage is characterised by rapid growth and the maturing of these organs.

<table>
<thead>
<tr>
<th>TABLE 9.2 Characteristics of development that occur during the embryonic stage</th>
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<td><strong>Stage of prenatal development</strong></td>
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9.3.4 Foetal stage (9–38 weeks)

The foetal stage starts at the ninth week of pregnancy and continues until birth at around 38 weeks. During this stage the unborn baby is referred to as a 'foetus'. The foetus measures only a few centimetres in length at the beginning of this stage and about 50 centimetres by the end. Although this stage is characterised by rapid growth, many other developmental milestones occur as well.
All organs and systems formed in the embryonic stage — including the lungs, digestive system, liver and kidneys — mature and are functioning in the early stages of foetal development. By 14 weeks the placenta is fully developed and functioning. The placenta is a disc-shaped temporary organ, largely made up of blood vessels that facilitate the exchange of substances between mother and foetus. The placenta acts like a lung, digestive system and kidney for the foetus by supplying it with oxygen, nutrients and immune support, and removing wastes such as urine and carbon dioxide (see figure 9.14). The placenta also produces hormones, such as progesterone, that assist in maintaining the pregnancy by preventing ovulation of any more ova.

**FIGURE 9.14** The placenta connects the foetus to the uterine wall of the mother, providing the foetus with nutrients and oxygen and removing its waste products.

Sex organs start taking shape and, by around the 15th week a female foetus will have produced millions of ova, but this number will be reduced by the time she is born. The testes of a male foetus will be producing testosterone.

Movement occurs in almost all parts of the foetal body and becomes more noticeable as the foetus grows. Reflexes such as sucking and grasping are highly responsive and continue to develop throughout this stage. The foetus displays a breathing movement but its lungs are filled with amniotic fluid, not air.

Surfactant is a substance that reduces the surface tension in the lungs and keeps the small air sacs in the lungs from collapsing when the foetus exhales. In preparation for breathing, a foetus begins making surfactant around week 24. By end of the foetal stage the lungs are fully developed. Fat is also deposited under the skin during the later weeks of the foetal stage. This assists with temperature regulation after birth.
9.3 Activities

Test your knowledge
1. When does sperm production begin in males?
2. When are ova formed?
3. Use a flow chart to outline the process of fertilisation.
4. (a) Draw up a table with three columns, one for each stage of prenatal development. Provide examples that represent the key characteristics of physical development in each of the three stages of prenatal development.
   (b) Why is the embryonic stage critical in prenatal development?
5. Why is the placenta important for the developing embryo/foetus?

Apply your knowledge
6. One of the most common techniques used to assist with fertilisation is called in-vitro fertilisation. Access the In-vitro fertilisation weblink and worksheet in the Resources tab in your eBookPLUS to explain this process.
7. Access the Fertilisation weblink and worksheet in the Resources tab in your eBookPlus then complete the worksheet.
8. Using the Prenatal development weblink in the Resources tab in your eBookPLUS and the information in this subtopic, devise a timeline of prenatal development.
9.4 The role of parents in achieving optimal prenatal development

KEY CONCEPT Understanding factors that influence development during the prenatal stage

Understanding the risk and protective factors that influence the health and wellbeing and development of a foetus during the prenatal stage allows parents, carers and the community to use or provide resources to optimise the health and wellbeing and development of unborn babies and, in turn, put the children on a pathway to enhanced adult health and wellbeing.

An important part of parental responsibility during pregnancy is seeking antenatal care. The National Antenatal Care Guidelines recommend that the first antenatal visit occur within the first ten weeks of pregnancy and that first-time mothers with an uncomplicated pregnancy attend ten visits. Antenatal care is important in order to monitor the health and wellbeing of the mother and baby, provide health education and advice to the mother, promote protective factors, identify any risk factors for the mother and baby, and provide medical interventions if necessary.

9.4.1 Maternal diet

For women of child-bearing age, ensuring a healthy balanced diet prior to becoming pregnant is a protective factor, as the ongoing development of the foetus is dependent on the health and wellbeing of the embryo.
A woman’s nutritional status during pregnancy is dependent on the nutritional reserves that are built up in her body prior to conception. Women who have nutritional deficiencies prior to conceiving a child are likely to have these deficiencies during pregnancy, particularly as the body faces additional nutritional demands because of the growing baby. It is particularly important that women consume the required amount of folate, iodine and iron prior to and during pregnancy.

Upon implantation, the embryo divides into two types of cells — those that form the foetus and those that form the placenta. In undernourished women, a greater proportion of cells are likely to form the placenta rather than the foetus, which means the foetus will be relatively small when it begins its growth, and its development in the uterus will be restricted. There is also an increased risk that the baby will be low birthweight when born.

**Folate (folic acid)**

Folate is a B-group vitamin that is required for the formation of red blood cells, which transport oxygen around the body. It also assists with DNA synthesis, cell growth and the development of the nervous system of the foetus. Adequate folate consumption before and during pregnancy reduces the risk of **neural tube defects** in the baby. The neural tube is a cylindrical structure that will house the brain and spinal cord of the embryo. Before the tube is formed, the outer cells of the embryo lay flat to make a neural plate.

From around day 16 to 24 after fertilisation, the neural plate folds in on itself and the sides fuse together to form the neural tube. Neural tube defects involve damage to the brain and spine, and to the nerve tissue of the spinal cord. The vertebrae or skull may not close properly during development, which results in the spinal cord or brain being exposed and placed at risk of further damage. Spina bifida is the most common neural tube defect and occurs when the spinal nerves protrude through the gap in the unclosed vertebrae instead of growing down the middle of the spinal column.

Spina bifida may result in one or more of the following symptoms:

- walking difficulties, which may result in the inability to walk
- reduced sensation in the legs and feet
- increased risk of burns and pressure sores due to limited feeling
- urinary and faecal incontinence
- sexual dysfunction
- deformities of the spine, commonly referred to as scoliosis.

Good sources of folate include green leafy vegetables, poultry, eggs, cereals, citrus fruits and legumes. In Australia, the government has mandated that all wheat flour used in bread making must contain folic acid as a common and inexpensive source for pregnant women. Breakfast cereals and fruit juices sold in Australia may also have folic acid added.

**FIGURE 9.16** How the neural tube is formed.
Iodine

Iodine is a mineral that is required in greater amounts during pregnancy to promote optimal brain and nervous system development. If iodine is deficient during pregnancy, the consequences can be serious and include stunted growth and intellectual disability.

Countries that have a sufficient iodine concentration in the soil generally get enough iodine from crops grown on the land. In countries that do not have enough iodine in the soil (such as Australia), iodine is added to other food items. Due to the re-emergence of iodine deficiency in Australia, iodised salt is now added to all commercially sold bread in Australia. Australians are reducing their intake of salt as a result of the increasing rates of cardiovascular disease, so people are now at an increased risk of iodine deficiency and need to ensure their requirements are being met by other dietary sources, especially during pregnancy. Iodine is present in fish, seaweed, eggs, cow’s milk and strawberries.

Iron

Iron is a mineral that is required in greater amounts during pregnancy due to the increased demand for oxygen for the developing foetus as well as the increased energy needs of the mother. During pregnancy, there is an increase in blood volume to cater for the developing baby as well as the enlarging reproductive organs of the mother. Iron is needed for haemoglobin, a component of blood that carries oxygen around the body. Additionally, the developing foetus draws iron from the mother to last it through the first five or six months after birth for its high growth demands.

Good sources of iron include red meat, fortified cereals, egg yolks, legumes, nuts and green leafy vegetables. Vitamin C assists with the uptake of iron from the small intestine. High-fibre diets, alcohol and tannic acid in tea can interfere with iron absorption. Lack of iron can lead to iron-deficiency anaemia, resulting in the body not having enough iron to form haemoglobin. In pregnant women, iron-deficiency anaemia can increase the risk of a premature birth and a low birthweight baby.
Foods pregnant women should avoid

Maternal diet can be a risk factor for the developing foetus. Some foods contain the bacteria *Listeria monocytogenes*, which can cause listeria infection and increase the risk of miscarriage, stillbirth or premature labour. For this reason, pregnant women should avoid the following foods:

- soft-serve ice-cream
- unpasteurised foods and soft cheeses such as camembert, brie and ricotta unless cooked and served hot
- pre-cooked or prepared cold foods such as quiches, delicatessen meats, salad from buffets, paté
- raw seafood such as sashimi, oysters and smoked seafood such as salmon.

Foods that contain high levels of mercury can put the baby at risk of delayed development in the early years. The effects may not be noticed until the child fails to reach developmental milestones at the expected age. It may also result in difficulties with memory, language and attention span. Women need to be selective about the type of fish they consume during pregnancy as some fish have significantly higher levels of mercury than others. Shark, swordfish, barramundi, gemfish, orange roughy and southern bluefin tuna should all be avoided.

9.4.2 Parental smoking and tobacco smoke in the home

Smoking during pregnancy is a significant risk factor for a number of conditions for both the mother and her unborn baby. Tobacco smoke contains thousands of chemicals, and acts to reduce oxygen flow to the placenta and exposes the developing foetus to numerous toxins. Maternal smoking increases the risk of a range of health and wellbeing and developmental conditions of the unborn baby including:

- low birthweight
- spontaneous abortion
- prematurity
- complications of the placenta
- birth defects
- lung function abnormalities and respiratory conditions
- perinatal mortality.

According to the Australian Institute of Health and Welfare (2012), there is evidence that the more cigarettes a mother smokes, the higher the risk of poor birth outcomes.

Tobacco smoke in the home increases the risk of passive smoking among pregnant women. Passive smoking means breathing in other people’s tobacco smoke. Tobacco smoke cools quickly which prevents it from rising. As smoke is heavier than air, it tends to hang in mid-air rather than be dispersed into the atmosphere. This increases the amount of second-hand smoke people breathe as it is concentrated in the lower half of the room. For pregnant women who live with one or more smokers, the home can be a source of exposure to second-hand smoke. Exposure to environmental tobacco smoke can contribute to the same health and wellbeing and development effects as maternal smoking.
9.4.3 Alcohol use during pregnancy

Alcohol can cause problems for women even before pregnancy because it may interfere with fertility. Therefore, women who are trying to fall pregnant should limit their consumption of alcohol or stop it altogether. The consumption of alcohol during pregnancy can cause significant harm to the unborn child. When alcohol is consumed by a pregnant woman, it crosses the placenta from the mother’s blood to the baby’s blood. This can result in **foetal alcohol spectrum disorder** (figure 9.19).

A foetus that is severely affected by foetal alcohol spectrum disorder is at risk of dying before birth. The alcohol may harm the development of the nervous system of the foetus, including the brain. It may also narrow the blood vessels in the placenta and umbilical cord, thereby restricting blood supply to the foetus. The impact of foetal alcohol spectrum disorder on the health and wellbeing and development of the unborn child is described in table 9.4.

Heavy consumption of alcohol, particularly in the first trimester (first three months) of pregnancy, is considered to be particularly dangerous to the foetus. The World Health Organization recommends that pregnant women consider not consuming alcohol at all.

### TABLE 9.4 Impact of alcohol consumption on the health and wellbeing and development of the unborn child

<table>
<thead>
<tr>
<th>Impact of alcohol consumption on health and wellbeing</th>
<th>Impact of alcohol consumption on physical development</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Increased risk of premature birth</td>
<td>• Low birthweight</td>
</tr>
<tr>
<td>• Increased risk of stillbirth</td>
<td>• Smaller head circumference (microcephaly)</td>
</tr>
<tr>
<td>• Undernourishment of the growing baby due to alcohol blocking the absorption of nutrients</td>
<td>• Small eyes and epicanthal folds</td>
</tr>
<tr>
<td>• Reduction in the amount of oxygen available to the baby due to alcohol narrowing the blood vessels in the placenta and/or umbilical cord resulting in the restriction of blood supply</td>
<td>• Flattened face, including the bridge of the nose due to earlier than normal cell changes in the baby’s face during development</td>
</tr>
<tr>
<td></td>
<td>• Underdeveloped vertical ridges between the nose and upper lip</td>
</tr>
<tr>
<td></td>
<td>• Smaller lower jaw</td>
</tr>
<tr>
<td></td>
<td>• Heart defects</td>
</tr>
<tr>
<td></td>
<td>• Restriction of movement of elbow and knees due to tightening of ligaments, muscles, tendons and skin around the joints</td>
</tr>
</tbody>
</table>


### 9.4 Activities

**Test your knowledge**

1. Why is seeking antenatal care a responsibility of parenting?
2. Explain the difference between a risk factor and a protective factor.
3. How can the health and wellbeing of a baby be determined even before conception?
4. Create a concept map showing the risk and protective factors that influence prenatal development. Include in your concept map a brief description of the risk/protective factor and the effect on prenatal development.
5. Why does the government specifically choose bread as the food to fortify with folate?

**Apply your knowledge**

6. You have been appointed as a maternal and child health nurse. What advice would you give a first-time mother about nutrition, tobacco, alcohol and drug use?
7. Devise a one-day eating plan for a pregnant woman, taking into account the foods that should be consumed in greater amounts and those that should be avoided.
Newborns are relatively helpless. They cannot feed, maintain body warmth, or stay clean or hydrated without the assistance of others. Infants need an adult with whom to form an attachment who can understand and respond to their signals. They need things to look at, touch, hear, smell, taste and opportunities to play and explore their world. Appropriate language stimulation and support in acquiring new motor, language and thinking skills is essential. Parents and carers also need to offer infants a chance to develop some independence and help in learning how to control their own behaviour. Infancy is marked by significant developmental milestones such as learning to walk, talk, and interact with others. Infancy is the first stage of the lifespan after birth and lasts until the second birthday.

9.5.1 Physical development

Physically, the infancy stage is the second fastest period of physical development in the lifespan, second only to the prenatal stage. Birthweight doubles by six months and triples by twelve months. Exclusive breastfeeding for the first six months, timely introduction of safe and nutritious foods at the age of six months and continued breastfeeding provide the child with optimal nutrition and health and wellbeing benefits. A baby needs good health and wellbeing and energy to learn and grow, and parents and carers can help by taking care of basic needs. Regular weight checks and keeping immunisations up to date will assist with protection against serious diseases.

During infancy body proportions also start to change, reflecting the cephalocaudal pattern of development where development that occurs from the head downwards. The system of nerves that transmit
messages to and from the brain and between brain cells becomes more complex and a fatty material called myelin allows messages to be transmitted more rapidly and efficiently. The senses continue to develop and, although vision is still largely blurry, the infant will soon begin to recognise familiar faces and sounds.

Sleep is very important for the developing infant; therefore, establishing a bedtime routine is important. During sleep, a baby’s brain cells lay down important connections and pathways that enable all learning, movement and thought. They are the keys to a baby’s understanding of everything they see, hear, taste, touch and smell as they explore the world.

Bones continue to ossify during the first year; they increase in size and weight and harden further to enable the child to support its own weight, stand and walk by around the age of one. Reflexes that are present at birth (e.g. the grasping reflex) are gradually replaced by controlled movements as motor skills develop. A newborn infant does not have much control over its body but will soon learn to lift its head and roll over. At around six months, infants start crawling.

Motor development follows the proximodistal pattern. An infant reaches for a toy by using shoulder and torso rotation in order to move the hand closer to the object. A pincer grasp — where the thumb and first finger are used — is developed. An infant can place objects into a container and take them out and begin to do more functional activities, such as hold a spoon or turn pages in a book. In childhood, the elbow and wrist will be responsible for the main movements. By the age of one, the infant can support its own weight and many infants can stand and walk. By age two, they can usually throw and kick a large ball.

**9.5.2 Social development**

The family is the most significant influence on social development at this stage of the lifespan. The infant is totally dependent on its parents or other caregivers, and will learn certain social skills by observing these people.

Breastfeeding promotes the social and emotional attachment between mother and child. The secretion of the maternal hormones prolactin and oxytocin encourages the development of a maternal bond with the child. Oxytocin plays a role in counteracting stress, which allows both mother and baby to feel comfortable and relaxed.

The infant begins to smile at around six weeks, and after around six months will begin to recognise the facial expressions of others, such as a smile or a frown. As infants develop and their motor skills improve, play forms an important part of interaction and social development. They enjoy games and become increasingly responsive to them.
9.5.3 Emotional development

Emotional development also revolves around the family at this stage of the lifespan. One of the first signs of emotional development is when the hurt or distressed infant can be comforted by its caregivers.

Emotional attachment is formed with the caregivers within months and this helps the infant to feel secure, safe and loved. It also helps to build trust. The emotional bond between caregivers and the infant may be so strong that the infant may become distressed when held by a stranger or when a caregiver leaves the room. Separation anxiety usually peaks between the ages of 9 and 18 months and fades before the second birthday. Stranger anxiety is a reaction of distress when an infant encounters a stranger. Fear may be shown when confronted by unfamiliar things such as a clown or a dog.

By eight months, the infant can express anger and happiness, and may become frustrated if interrupted in their activities (e.g. when playing games). This expression of frustration may result in tantrum-throwing in later months. By the age of 12 months the infant becomes sensitive to approval from parents or carers, and may become upset or distressed if approval is not given.

9.5.4 Intellectual development

From the time of birth, all senses are working (although they become more acute over time) and the baby is capable of learning. The senses are the means by which the baby understands the world around him or her. Many infants collect information around them by putting objects into their mouths. This is often where they learn about concepts such as hard, soft, bitter and sweet. This behaviour will often change as the infant develops and starts to use its other senses.

Within months, the infant will recognise its name and will respond when called. Over time, this word–object association progresses and the infant will begin to recognise the names of favourite people, toys, other objects and basic colours. They will use simple gestures, such as shaking their head for ‘no’ or waving for ‘bye-bye’.

Reading aloud is important to building a child’s vocabulary and boosting their imagination and language skills. When parents and other caregivers talk and interact with children in their first language, it helps them to develop the ability to think and express themselves. Children learn language quickly and easily through hearing and singing songs, having stories told or read to them, repeating rhymes and playing games.

For a child to learn about people, places, and things, they need to be exposed to them, as every new interaction gives them information about the world and their place in it. Early infancy also signifies an emerging understanding of cause and effect. Infants will begin to associate certain actions with particular outcomes. For example, if they cry, they get attention. If they reach for someone, that person may pick them up. If they kick their legs around, their caregivers might play with them.

The attention span of an infant is short and may last only a matter of seconds. The infant may give extra attention to games and objects that it finds interesting, but only for very short periods of time. At around six months of age, the infant can enjoy basic games such as peekaboo. At around six months of age, most infants have not grasped the concept of **object permanence**. In the mind of the infant, an object that is out of sight no longer exists. Therefore, a toy that is placed in a cupboard no longer exists. This contributes to the joy that most infants get out of playing peekaboo (figure 9.22). As the infant develops intellectually, it begins to understand that, although an object cannot be seen, it still exists.

All children need access to variety of simple play materials that are suitable for their stage of development and learning. Water, sand, cardboard boxes, wooden building blocks, and
Pots and lids are just as good for facilitating a child’s play and learning as toys bought from a shop. Sometimes it is helpful to give toys and activities that are beyond a baby’s abilities in order to encourage their development. When an activity doesn’t come easily to a baby they have to work out a new way to accomplish it, which develops their problem-solving ability.

As language develops (intellectual development), infants can interact better with those around them. Language development is rapid during infancy. A three-month-old will make speech-like sounds (‘goo’ and ‘gaa’), and will be able to say a couple of basic words by the first birthday (‘dada’ or ‘mumma’). The development of language occurs very quickly after this point. This allows parents and carers to more easily guide the social development of their infant. By the end of infancy, the individual can say around 150–300 words, although there is still confusion in context and pronunciation. By 18 months, the infant can imitate and pretend in play activities. By observing others, the infant learns a lot about the world around it. Infants may imitate talking on a phone or having a dinner party.

**9.5 Activities**

**Test your knowledge**
1. When does the infancy stage of the lifespan begin and end?
2. Describe the pattern of growth during infancy.
3. List three characteristics for each type of development during the infancy stage.

**Apply your knowledge**
4. Using the concept of object permanence as the basis of your answer, discuss why infants may particularly enjoy a game of peekaboo.
5. Use the Parenting counts weblink in the Resources tab in your eBookPLUS to create a timeline or infographic of child development.

**9.6 Development in early childhood**

**KEY CONCEPT** Development in early childhood

Early childhood lasts from the second birthday until six years of age, typically the preschool years. Although not long in years, significant development occurs during early childhood. Preschool-aged children need opportunities to develop fine motor skills as well as activities that will develop a sense of mastery and encourage creativity. Encouragement of language through talking, being read to, singing and experimentation with pre-writing and pre-reading skills can be promoted. Parents and carers need to facilitate opportunities to learn cooperation, helping, sharing and making choices as well as encouragement to develop self-control, cooperation, persistence and self-worth.

**9.6.1 Physical development**

Early childhood is characterised by slow and steady growth. Although the rate of growth is variable, height increases by around 6 centimetres per year and weight by around 2.5 kilograms per year. Bones continue to lengthen and ossify during early childhood, resulting in the increases in height experienced. Body proportions change during early childhood, and the limbs and torso become more proportionate to
the head. Body-fat levels also decrease, giving the child a leaner body. Brain growth slows down in the second year and reaches 75 per cent of adult size at age three and 90 per cent of adult size by age five. The first set of teeth is complete by the third year. Children may begin to lose baby teeth as the permanent teeth begin to develop.

In the preschool years, the large muscles develop extensively, particularly leg and arm muscles, and motor skill development continues at a rapid rate. Gross motor skills increase and the walking style becomes more fluid and refined. The child can climb stairs but will still need to place both feet on each step until towards the end of early childhood. Kicking, catching and throwing skills also develop, and the child might also learn how to skip. Coordination improves, allowing the child to pedal and steer a tricycle (figure 9.23). Fine motor skills progress, and the child can learn to manipulate zippers on clothing, hold crayons, use scissors and even tie shoelaces. As a result of these activities, left- or right-handedness starts to appear in certain activities.

During early childhood children’s proportions change — from 3–5 years all children become less toddler-like and less top heavy as growth takes place in the trunk and legs. Being physically active is very important for young children. Movement develops their motor skills, helps them think and gives them an opportunity to explore their world. A child needs plenty of opportunities for active play, both inside and outside.

During early childhood children’s proportions change — from 3–5 years all children become less toddler-like and less top heavy as growth takes place in the trunk and legs. Being physically active is very important for young children. Movement develops their motor skills, helps them think and gives them an opportunity to explore their world. A child needs plenty of opportunities for active play, both inside and outside.

9.6.2 Social development

The family remains the primary social contact during early childhood and is responsible for many achievements a child makes in social development. The child begins participating in a wider range of family routines such as attending social functions, eating at the table and helping with the shopping. Communication skills and acceptable social behaviours increase as a result of these experiences.

As young children grow they need opportunities to learn and socialise with other children. The child may attend a playgroup, kindergarten or a childcare centre, and this provides many opportunities to further develop social skills such as sharing and taking turns. As the child becomes accustomed to spending short periods of time away from the family, independence starts to develop. The child may start wanting to do things for themselves, such as dressing or washing, although they may not be completely successful.

Many social skills are learnt about sharing and taking turns through play. This may occur with siblings and parents at home, and also with other children at childcare or playgroup. Through experiences such as playing with others, children learn to value the input of others and are more likely to seek interaction in a supportive environment.
as these, the infant also begins to learn culturally acceptable behaviours such as listening to parents and other caregivers and not hitting others. Social roles are also imitated such as pushing a pram with a doll in it.

Behaviours such as eating with a knife and fork are established during early childhood but they will be refined over time. Children at this age like to be accepted by others and may behave in a way that brings attention to them. This can include showing off or performing for family and friends.

Play is still an important aspect of social development, although it is more advanced than in infancy (figure 9.24). Children may have a friend they particularly like to play with and some will create an imaginary friend. Make-believe play also assists the child in learning roles and expected behaviours.

**FIGURE 9.24** Play takes many forms, and is a great way of increasing social development.

9.6.3 Emotional development

Emotional development continues to occur at a fast pace during early childhood. The emotional development of a two-year-old is quite different from that of a six-year-old. A child will begin to develop a sense of empathy and may care for people who are crying or upset. Yet their way of dealing with emotions is still in its early stages, and children may use physical violence to express their frustration. This is particularly common with other children or siblings. Play often gives children a way of expressing their feelings.

Children take pride in their achievements and may want to show them off to everyone. As a result of enjoying positive feedback from others, they may become jealous when another child receives attention.

Children begin to develop an identity that will continue to form for years to come. They learn to see themselves as being separate from others, and begin to associate certain things with themselves such as ownership of a toy.

Children’s moods can change quickly during this stage, as they often do not have the skills required to control their feelings. As a result, they can switch from being happy to being upset and then happy again in a very short period.

9.6.4 Intellectual development

Learning new words and how to use language occurs fairly rapidly during this stage and is a key part of the child’s intellectual development. By the age of five, a child knows approximately 1500–2500 words.
As interest in the world around them increases, children begin to question many aspects of their environment. They ask parents or caregivers ‘why?’ and like to share their knowledge with others about colours, objects and animals. As their attention span lengthens and knowledge of language increases, children can remember and follow basic instructions such as getting a toy from the bedroom, bringing it back to the lounge room and sitting in a designated place with it.

In the first years of early childhood, the child can classify objects based on one aspect such as colour. For example, they can separate orange blocks from green blocks, but find it more difficult to classify items according to multiple aspects such as colour and size. These more complex skills develop over time.

Children in this lifespan stage may learn to write basic letters and read basic books. They can also learn to count to 10 or 20, although this is often memorised without really understanding the formation of numbers. Abstract thought and prediction of the outcome of events is still difficult, and children are more comfortable thinking about objects they have already encountered.

### 9.6 Activities

**Test your knowledge**

1. When does the early childhood stage of the lifespan begin and end?
2. Describe the pattern of growth during the early childhood stage.
3. List three characteristics for each of the following types of development during the early childhood stage:
   - (a) physical
   - (b) social
   - (c) emotional
   - (d) intellectual.

**Apply your knowledge**

4. Carolyn is four years old and lives in rural Victoria with her mother, father and three older brothers. Her father runs their farm and her mother is a stay-at-home mother. Her brothers all go to school so, for most of the day, it is just Carolyn and her mother at home. Carolyn’s physical development has been very slow and her mother is worried because Carolyn is significantly smaller than other children her age. In order to assist with her social development, Carolyn’s mother takes her to a local playgroup once a week.

   (a) Describe the physical development that Carolyn would be experiencing at this stage of her life.
   (b) (i) What is the average growth during this stage of the lifespan?
   (ii) Explain why it is important to use these figures as averages only.
   (c) Identify the factors that may affect Carolyn’s social development.
   (d) Explain ways that Carolyn’s slow physical development might affect other dimensions of her development both in the short and long term.

5. Access the ABC parenting weblink and worksheet in the Resources tab in your eBookPLUS then complete the worksheet.
9.7 Early life experiences and the intergenerational nature of health and wellbeing

**KEY CONCEPT** Intergenerational health and wellbeing

Health and wellbeing are considered to have an **intergenerational** impact. This means that the health and wellbeing and development of one generation influences the health and wellbeing and development of the next. For example, educated parents are more likely to place importance on the education of their own children, which promotes their health and wellbeing and intellectual development.

It also means that early life experiences are linked to health and wellbeing and development in the adult stage. For example, risk factors such as low birthweight or stress experienced in early life can have effects that accumulate over time to create adult chronic disease. The prenatal stage, infancy and childhood can set us on a path towards or away from good health and wellbeing and optimal development. Recognising that experiences in early life have an impact on later health and wellbeing and development can guide parents to make positive decisions about their children’s upbringing.

### 9.7.1 Body weight

**Low birthweight**

Adequate birthweight generally indicates that the body’s systems have developed optimally in the prenatal stage, leading to good adaptation and decreased risk of health and wellbeing issues after birth. Low birthweight, on the other hand, may indicate that the body’s systems are underdeveloped and the risk of a range of health and wellbeing and development problems increases.

Babies are classified as ‘low birthweight’ if they weigh less than 2500 grams at birth. Low birthweight babies

<table>
<thead>
<tr>
<th>TABLE 9.5</th>
<th>The impact on health and wellbeing and development of very low or extremely low birthweight</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Impact of very low or extremely low birthweight:</strong></td>
<td><strong>on health and wellbeing</strong></td>
</tr>
<tr>
<td>Reduced lung function</td>
<td>Increased risk of bronchiolitis (an inflammation of the small airways in the lungs)</td>
</tr>
<tr>
<td>Increased risk of bronchiolitis (an inflammation of the small airways in the lungs)</td>
<td>Decreased exercise capacity</td>
</tr>
<tr>
<td>Decreased exercise capacity</td>
<td>Feeding difficulties leading to lack of nutritional intake</td>
</tr>
<tr>
<td>Feeding difficulties leading to lack of nutritional intake</td>
<td>Increased risk of bradycardia (a slowing of the heart rate)</td>
</tr>
<tr>
<td>Increased risk of bradycardia (a slowing of the heart rate)</td>
<td>Apnoea (a short-term suspension of breathing)</td>
</tr>
<tr>
<td>Apnoea (a short-term suspension of breathing)</td>
<td>Jaundice (yellowing of the skin due to the immature liver being unable to process the compound bilirubin, which is found in the blood)</td>
</tr>
<tr>
<td>Jaundice (yellowing of the skin due to the immature liver being unable to process the compound bilirubin, which is found in the blood)</td>
<td>Increased probability of a lengthy hospital stay following birth</td>
</tr>
<tr>
<td>Increased probability of a lengthy hospital stay following birth</td>
<td>Increased risk of asthma during childhood</td>
</tr>
</tbody>
</table>
can be further classified as ‘very low birthweight’ if they weigh 1000–1500 grams, and as ‘extremely low birthweight’ if they are below 1000 grams. Babies can be born with low birthweight because they are born prematurely, or have experienced some disruption to their growth within the uterus due to parental smoking or poor nutrition.

Babies born with low birthweight may have a harder time feeding, gaining weight and fighting infection. Because they have so little body fat, low birthweight babies often have difficulty staying warm in normal temperatures. They may be more likely than normal weight babies to have certain health conditions later in life (see table 9.5). In 2014, around 1 in 15 Victorian babies was low birthweight. Babies of Indigenous mothers were significantly more likely to experience low birthweight; however, this trend is reversing.

Nutrition

Early childhood is characterised by a slowdown in the growth rate, which may result in a less reliable appetite. Children have small stomachs, so it is difficult for them to achieve their daily nutritional requirements with only three meals per day. Grazing and snacks might therefore be necessary.

Eating patterns in early childhood should ensure consumption of foods from all five core food groups and a variety of foods from within each group. The emphasis should be on healthy family foods and an environment around eating that encourages healthy food behaviours.

Overweight

Childhood obesity rates have increased significantly over the past two decades. A child is more likely to make healthy food choices and be active if they see caregivers eating healthily and being active. A dietary intake consisting of a large proportion of saturated fats and simple carbohydrates, or the overconsumption of carbohydrates, fats and protein, increased screen time, busy family lifestyles and lack of outdoor space all make it easy for young children to overeat and harder for them to be active.

Obesity during childhood is a strong predictor of adult obesity and the chronic diseases of diabetes and cardiovascular disease. About 80 per cent of obese youth will become obese adults. The earlier an individual is exposed to obesity, the earlier they may see the onset of complications, including type 2 diabetes, cardiovascular disease, metabolic syndrome and cancer. Research from The Netherlands indicates that being overweight during childhood triples the risk of developing depression in later life. Table 9.6 outlines the short- and long-term consequences of childhood obesity to health and wellbeing and development.

**TABLE 9.6 Consequences of childhood obesity on health and wellbeing and development**

<table>
<thead>
<tr>
<th>Short-term consequences on health and wellbeing</th>
<th>Long-term consequences on health and wellbeing</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Physical discomfort</td>
<td>• Twice the risk of developing cardiovascular disease (high blood pressure, angina, heart attack) in adulthood</td>
</tr>
<tr>
<td>• Bone and joint problems</td>
<td>• Three times the risk of developing type 2 diabetes in adulthood</td>
</tr>
<tr>
<td>• Asthma or shortness of breath during exercise</td>
<td>• Increased risk of premature death</td>
</tr>
<tr>
<td>• Heat intolerance</td>
<td>• Poor self-esteem can lead to an increased tendency to smoke and drink alcohol, resulting in health and wellbeing conditions such as lung cancer, cardiovascular disease and cirrhosis of the liver</td>
</tr>
<tr>
<td>• Tiredness/lethargy</td>
<td></td>
</tr>
<tr>
<td>• High blood pressure</td>
<td></td>
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<tr>
<td>• Abnormal cholesterol levels</td>
<td></td>
</tr>
<tr>
<td>• Interrupted sleep due to breathing difficulties (obstructive sleep apnoea)</td>
<td></td>
</tr>
<tr>
<td>• Social and psychological distress as obese children often experience discrimination, bullying and teasing by their peers</td>
<td></td>
</tr>
<tr>
<td>• Low self-esteem</td>
<td></td>
</tr>
<tr>
<td>• Poor peer relationships</td>
<td></td>
</tr>
</tbody>
</table>
9.7.2 Early relationships

Attachment is a strong, long lasting bond between a baby and his or her caregiver. A secure attachment develops in response to consistent and empathetic love and care in the first months of a baby’s life. It builds a foundation for a sense of security, safety and good coping skills.

Attachments formed in infancy can support social, emotional and mental health and wellbeing throughout the lifespan and influence:
- the success or failure of future intimate relationships
- the ability to maintain emotional balance
- the ability to enjoy being ourselves and to find satisfaction in being with others
- the ability to rebound from disappointment and misfortune.

Stress during pregnancy releases cortisol. In the first days of pregnancy, cortisol suppresses the mother’s immune system, preventing the mother’s body from attacking the foetus, and helps regulate blood flow between the placenta and the foetus. A pregnant woman with high stress, and therefore cortisol levels consistently higher than normal, has greater risk of premature birth and having a baby who displays a much higher sensitivity to stress. Research indicates that as these babies grow from infancy to early childhood, they may exhibit heightened levels of anxiety compared with other children, such as being scared of going to school.

When a young child is protected by supportive relationships with adults, they learn to cope with everyday challenges such as encountering new people or new situations or the frustration and pain of a minor fall. With loving care their stress response system returns to normal after a difficult event. Even with more serious difficulties, such as a frightening injury or parental divorce, a child surrounded by caring adults who help them to adapt is protected against the potentially damaging effects of abnormal levels of stress hormones. However, when frequent or prolonged adverse experiences, such as extreme poverty, maternal depression or family violence is experienced without adequate adult support excessive cortisol disrupts the development of the brain. Problems created by stressful environments in childhood include poor school readiness, poor literacy and communication, and social health and wellbeing issues. Problems created in adulthood include mental health problems, aggression and antisocial behaviour, poor literacy and the effects of substance abuse.

Parenting practices refer to the way in which the parents or carers interact on a daily basis with their child and how they model behaviour. It incorporates the type of discipline that is used and the way in which the parent/carer responds to the child in different situations. Some children may live in situations where the parents/carers use abuse as a part of their parenting practices. Children who are abused by their parents/carers are at greater risk of emotional and behavioural problems when compared with other children.

Short-term effects of abuse include the child:
- having sleeping difficulties
- regressing to earlier stages of development, such as bedwetting and thumb sucking
- being anxious or fearful
- displaying aggressive or antisocial behaviour or isolating themselves
- not attending social or school events
- becoming a victim or perpetrator of bullying or being cruel to animals
• suffering from stress-related illnesses such as headaches and stomach cramps
• displaying speech problems such as stuttering.

The long-term effects of exposure to abuse may result in the child growing up to be an abusive person from learning to solve problems through the use of violence. From witnessing the violent behaviours of their adult role models, children may grow up to behave in destructive ways in their own adult relationships.

Parents or carers with positive mental and emotional health and wellbeing are better able to foster a healthy parent–child relationship than those with poor mental health and wellbeing. For example, parental warmth means interactions between the parent and child are characterised by affectionate behaviours, interest and involvement in the child’s activities, responsiveness to the child’s moods and feelings, and positive expressions of approval and support. This supports better social health and wellbeing through successful interpersonal relationships with peers at school, at work and with friends and partners.

9.7.3 Early environment and learning opportunities

The human brain begins forming just three weeks after conception, but in many ways brain development is a lifelong journey. At birth, babies have approximately the same number of neurons as an adult but approximately ten times fewer connections. From birth to age three the number of connections multiplies by 20. A process of ‘pruning’ selectively eliminates connections that are not used. This process of pruning helps to structure the brain’s architecture into organised efficient networks, resulting in every child’s brain being unique depending on individual experiences. Repeated use and stimulation strengthens connections and contributes to the connectivity and efficiency of the networks that support learning, memory, and other cognitive abilities.

Parents or carers who are preoccupied with a daily struggle to ensure that their children have enough to eat and are safe from harm may not have the material resources, information or time they need to provide the stimulating experiences that foster optimal brain development. Infants and children who are rarely spoken to, who are exposed to few toys, and who have little opportunity to explore and experiment with their environment may fail to fully develop the neural connections and pathways that facilitate later learning.

An aspect of the parenting role is to provide adequate play space and an assortment of play materials. Play has benefits for emotional, social, intellectual and physical development. The emotional benefits of play in childhood include a reduction in fear, anxiety, stress and irritability. Play can create joy, self-esteem and mastery. The social benefits of play in childhood include increased empathy and sharing. It improves relationships and attachment. The physical benefits of play include increased efficiency of immune, endocrine, and cardiovascular systems and increased agility, coordination, balance, and fine and gross motor skills. Intellectual benefits include creativity, problem solving and language skills.

If a child has their safety needs met, they can focus their attention on play and exploring, allowing their brain to take in all the experiences around them. If, however, their needs are not met consistently and pleas for comfort are usually ignored or met with harsh words, the infant will continue to focus their energies on ensuring that their needs are met. They will have more and more difficulty interacting with people and objects in the environment, and their brain is more likely to shut out the stimulation it needs to develop optimal intellectual and social skills.
When there is no routine for eating and sleeping, and comforting occurs unpredictably, sleep–wake patterns and ability to settle do not develop well. This means there is less likelihood that the baby will form healthy routines and the ability to self-regulate. Secure, stable housing with quiet, predictable sleeping areas for babies are important for promoting optimal development in childhood and through to adulthood. Research suggests that inadequate amounts of sleep lead to disruptive behaviour patterns, diminished intellectual performance and a greater risk of obesity in childhood and adulthood.

9.7 Activities

Test your knowledge
1. Explain health and wellbeing as an intergenerational concept.
2. Briefly explain why low birthweight babies are more likely to experience ill-health than those of normal body weight.
3. Discuss four ways obesity in early childhood could affect health and wellbeing later in life.
4. Discuss three ways that early life experiences can affect health and wellbeing and/or development later in life.

Apply your knowledge
5. Access the Healthy Mothers, Healthy Babies weblink and worksheet in the Resources tab in your eBookPLUS then complete the worksheet.
6. Explain how any two of the following actions parents can take could put their child on the path to good adult health and wellbeing:
   - not smoking during pregnancy
   - consuming an optimal diet during pregnancy
   - promoting a healthy diet in infancy
   - engaging in positive and responsive parenting behaviours
   - joining a playgroup
   - breastfeeding
   - selecting good quality childcare.
7. UK research indicates rising numbers of infants lack the motor skills needed to play with building blocks because of an ‘addiction’ to tablet computers and smartphones. Many children aged just three or four can ‘swipe a screen’ but have little or no dexterity in their fingers after spending hours glued to iPads, it was claimed. Complete a presentation on the influence of the media or technology on child development. Include consideration of the impact on parent–child relationships.
9.8 Topic 9 review

9.8.1 Key skills

**KEY SKILL** Analyse factors to be considered and resources required for the transition to parenthood

In order to demonstrate this skill, it is essential to show an understanding of the role parents play in meeting the needs of children. You also need to be able to examine in detail, and explain the importance of, social and emotional support and resources in assisting parents with this role.

The ability to use relevant examples to demonstrate this understanding is expected. When outlining the parental responsibilities and the availability of social and emotional support and resources, it is important to remember the various needs of a child. Consider the following example, which is a discussion of considerations required for the transition to the parenting role.

Parenting is the process of promoting the development and health and wellbeing of a child from infancy to adulthood. When individuals are thinking about parenthood they have to consider whether they can meet a child’s needs. These include physical (food, safety and shelter), emotional (security, stability), social (love, attention and achievement) and intellectual needs (mental stimulation and learning opportunities). They also need to consider whether they are ready to make any needed changes in their diet and lifestyle in order to have a healthy pregnancy and healthy child. Being prepared to eat a healthy diet, avoid smoking and alcohol are some of the changes that may need to be made when considering the parenting role.

A further consideration relates to their level of support from family and friends and whether they are ready to accept responsibility for promoting an optimal environment for the development of their child. To undertake the parenting role social support is required. This refers to the informal, emotional or practical help that parents receive from relatives, friends, co-workers or neighbours. Parents with higher levels of social support are better able to cope with stress and be resilient. Parents also require emotional support. This is the feeling that others understand your needs and will try to help you. Having people who are willing to share ideas and advice and talk things over, particularly those who are in the same position, increases the ability to cope with problems related to parenting.

When considering the parenting role, individuals should be aware of their level of family resources, such as time, income, knowledge and housing as well as access to government and community resources such as antenatal care.

**Practise the key skill**

1. Lois is eight weeks pregnant. Briefly describe the role she will play in her child’s development.
2. Outline the social and emotional support that will enhance Lois’s ability to be a parent.
3. What resources would be beneficial to Lois as a parent in the first month after the birth of her child?

**KEY SKILL** Explain factors that influence development during the prenatal and early childhood stages of the lifespan

In order to demonstrate this skill, a thorough understanding of the factors that influence the development that occurs during the prenatal and early childhood stages of the lifespan is essential. The ability to use relevant examples to demonstrate this understanding is expected. Examples include maternal diet, the effects of smoking and alcohol during pregnancy, and early life experiences.
When explaining how factors influence development during these stages, it is important to remember the following:

- To clearly demonstrate an understanding of the influence of a selected factor on development, it is important to be able to explain what the factor is.
- When explaining the influence of the selected factor, explain the way in which it influences development during the prenatal and childhood stages.

It is important to read the question carefully to determine which lifespan stage is the focus and if there are any limitations on the factors that can be discussed.

Consider the following example in which the influence of low birthweight is explained with regards to development during the early childhood stage of the lifespan.

Babies are classified as ‘low birthweight’ if they weigh less than 2500 grams at birth.5

Low birthweight indicates that the body’s systems are underdeveloped; this can have significant impacts on the development of the child, including:

- reduced coordination,6 which relates to physical development
- greater likelihood of impaired learning capabilities,8 which can reduce the ability to retain knowledge, which in turn relates to intellectual development.9

**Practise the key skill**

4. Explain how maternal diet can influence development during the prenatal stage of the lifespan.

5. Outline two aspects relating to early life experiences and explain how each can influence children’s development.

**KEY SKILL** Explain health and wellbeing as an intergenerational concept

In order to demonstrate this key skill an understanding of the meaning of intergenerational health and wellbeing is required. This will be important in explaining why it is important for parents to provide an environment for optimal prenatal development. The ability to use relevant examples to demonstrate this is expected.

The factors that shape prenatal development also shape health and wellbeing and development between generations and over the lifespan. This means that parents’ health and wellbeing influences the health and wellbeing of children and conditions in prenatal development are linked to health and wellbeing outcomes later in life.10

Risk factors can be independent but they can accumulate and interact over time. Conditions such as stress that parents encounter or tobacco smoking during pregnancy affect prenatal development by leading to low birthweight. Low birthweight is linked to later development of adult chronic diseases such as diabetes, heart disease, high blood pressure and obesity.11

The decisions that parents make and the resources that they have access to are important to creating an optimal prenatal environment. A pregnant woman who makes use of social support such as advice or childminding help from grandparents and friends, can reduce stress levels, and therefore have less risk of a premature birth and a baby who displays a much lower sensitivity to stress. As the baby grows from infancy to toddlerhood, they will be less likely to exhibit high levels of anxiety when faced with new experiences such as going to school.12

5 An explanation of the factor is provided.
6 A specific link is made between the factor and development during early childhood.
7 The area of development influenced is identified.
8 A second link is made between the factor and development during early childhood.
9 The second area of development is identified.
10 The concept of intergenerational health and wellbeing is described.
11 An example of a factor in the mother during the prenatal stage affecting the child at birth is provided and a link made to the adult stage.
12 An understanding of how the health and wellbeing of one generation influences the health and wellbeing of the next generation is shown.
Practise the key skill

The authoritarian parenting style is when parents/carers use an overemphasis on discipline and little or no opportunity for the child to make decisions. Authoritarian parents/carers can be intimidating, with an expectation of obedience and respect. Expectations are not explained but simply demanded of the child, and the parent/carer will become angry and forceful if the expectations are not met.
6. Discuss the impact that this parenting style may have on the health and wellbeing and development of an infant.
7. What are the possible implications of this parenting behaviour for development later in life?

9.8.2 Topic summary

- Parenting is the process of promoting and supporting the physical, social, emotional and intellectual development of a child from infancy to adulthood.
- It is the responsibility of parents, other caregivers and family members, communities and governments to ensure that the rights that relate to a child’s needs and an optimal environment for development are fulfilled.
- Children have physical, social, emotional and intellectual needs.
- Social support refers to the informal, emotional or practical assistance that parents and carers receive from relatives, friends, neighbours or the community.
- Emotional support refers to the feeling that others understand your needs and will try to help you.
- Parents/carers with higher levels of social and emotional support are better able to cope with stress and be resilient.
- Children whose needs are met and who have strong social and emotional skills are likely to become adults who find it easier to create and maintain a supportive social network. This increases the likelihood that they will engage in effective parenting with their own children.
- Resources available to parents/carers include time, energy, knowledge, Medicare, the Pregnancy, Birth and Baby Helpline, and Maternal and Child Health Services.
- Fertilisation is the process whereby the genetic material of the sperm and ovum fuse together to make a complete cell called a zygote. This process usually occurs in the fallopian tube.
- Fertilisation marks the beginning of the prenatal stage of the lifespan.
- The prenatal stage can be divided into the germinal, embryonic and foetal stages.
- Growth during the prenatal stage is the fastest of all lifespan stages.
- The germinal stage is characterised by rapid cell division.
- The embryonic stage is characterised by organ development, called organogenesis.
- Teratogens can have a large impact on the developing baby.
- The foetal stage is characterised by rapid growth.
- The placenta is an organ that facilitates the transfer of nutrients, liquids and gases from mother to baby.
- A neural tube defect is a condition that is sometimes diagnosed during pregnancy.
- Antenatal care is essential to monitor the health and wellbeing of the mother and baby.
- A range of risk and protective factors have an impact on both pregnant women and their unborn babies during the prenatal stage of the lifespan.
- Adequate nutrition is important in ensuring that the nutrients required for optimal health and wellbeing and development of the unborn baby are present. Deficiencies in specific nutrients such as folate and iodine can contribute to health concerns, such as spina bifida and intellectual disability.
- Parental smoking causes toxic substances to cross the placenta. This increases the risk of birth defects and perinatal mortality.
- Alcohol use during pregnancy can lead to foetal alcohol spectrum disorder. Foetal alcohol spectrum disorder increases the risk of premature birth, heart defects, behavioural problems and a range of physical characteristics.
• Infancy is a rapid period of growth. All areas of development occur quickly during this stage and the family is a significant influence on health and wellbeing and development.
• Physical development during early childhood is described as being slow and steady.
• Gradual increases in height and weight are accompanied by increases in bone strength.
• As the child grows and gains strength, their motor development progresses and they become capable of more complex motor skills.
• Social development is facilitated by play and interaction with family members. Children often imitate the actions of older people as a way of learning social skills and roles.
• By the end of early childhood, the child is usually toilet-trained and can use a knife and fork.
• The child gains an increasing sense of self during the childhood years and may become self-conscious in certain circumstances.
• Intellectual development continues to progress and as the child ages language skills become increasingly complex.
• Health and wellbeing over the lifespan and over generations can be shaped through exposure to risks early in life that have effects that are independent, cumulative and interact over time.
• Early life experiences that include birthweight, presence or absence of stress, relationships and environments for learning will contribute to health and wellbeing and development in infancy and childhood and can determine the pathway to adult health and wellbeing.

9.8.3 Exam preparation

Question 1

Julian and Christie have been thinking about having a child. They both work full time and have an active social life that includes going to music venues, bars and restaurants with friends. Julian’s parents live in France and Christie’s parents live in the same city as Julian and Christie.

(a) Outline three things Julian and Christie will need to consider before becoming pregnant. (3 marks)

(b) Describe two risk factors and two protective factors that they need to consider in order to promote the health and wellbeing of their child. (4 marks)

(c) Explain two of their newborn’s needs they will have to meet. (2 marks)

(d) Describe two examples of social support and two examples of emotional support that will assist them in their parenting. (4 marks)

(e) Discuss two resources that Julian and Christie can use in their parenting role. (4 marks)

(f) Discuss two examples that demonstrate why the early life experiences Julian and Christie provide for their child will be important to the child’s adult health and wellbeing. (4 marks)