SETTING THE SCENE

In this session, we focus on training children and adolescents. We start by discussing the habits and issues confronting today’s kids and the alarming statistic of 1 in 4 children being overweight or obese. We highlight the role that exercise and healthy eating play in preventing and correcting ‘fatness’ in children and adolescents.

We look at the developmental stages of children and adolescents and what the trainer needs to be aware of at specific ages and/or stages. We address what the trainer must do in pre-exercise screening and might do in fitness testing. Then we focus on the benefits of exercise and how to put together fun and specific exercise programs for various ages and conditions.

What has happened to our children?

Poor lifestyle habits and associated disease states like diabetes and obesity are on the rise. Such lifestyle habits begin in childhood, so we ask the question – what has happened to our children?

Do you remember when kids used to play outside from dawn to dusk – riding bikes, jumping gutters, throwing ball, playing hopscotch and elastics? This active lifestyle is no longer ‘the norm’ and today’s kids now have the legacy of being the most inactive generation to-date. This inactivity sets them up for a life of ill health, poor self-esteem and early diseases.

Living a sedentary life leads to weight gain, cardiovascular challenges, type II diabetes and other adverse physical and psychological effects. If children are not active in their young years they do not develop the habit patterns of regular activity throughout their lives. They may also miss out on developing social skills that cannot be taught by sitting in front of a screen!

Why have kids stopped moving?

There are several factors that have combined to reduce the amount of physical activity that today’s youth participate in.

These factors include:

- Technology – thanks to technology in the form of video games, DVDs, computers and the internet, our children play cricket, basketball, football, skate board and even snow board on their virtual reality games rather than outdoors in the fresh air and sunshine with their friends.
- Litigation – in today’s litigious society, many school and club activities no longer operate due to high insurance premiums and the fear of potential injury or harm that may put them on the receiving end of a civil action.
- Community – many view their local communities as no longer being ‘safe places’, thus children no longer play unsupervised in local parks, streets and other outdoor areas.
- Work – for many families, work commitments render parents too busy or too tired to go outdoors and get active with the kids. Likewise, they have neither the time nor the energy to prepare nutritious meals on a regular basis and succumb to the kids’ requests for convenience foods.
- High living costs – it’s expensive for many families to send children to exercise classes or to...
join sporting organisations.
What's Happening in Australia?

According to information drawn from the Australian Government’s 2004-05 National Health Survey, there are approximately 4 million children aged under 15 years in Australia, representing about one-fifth of the total population. Health gains brought about by better education, medical care, vaccination and living conditions suggest that this generation of children should be the healthiest ever; however, there appears to be increasing levels of obesity and type II diabetes plus other behavioural, developmental, mental health and social problems.

The Department of Health and Ageing - Australia’s Physical Activity recommendations for children suggests that children who do not get enough physical activity and spend significant amounts of time in sedentary states increase their likelihood of poor fitness, raised cholesterol and being overweight in adulthood. Related research has also shown that the incidence of obesity is highest among children who watch TV for long periods each day, compared with children who watch TV for a smaller amount of time each day.
Australian Physical Activity Guidelines

The Australian Physical Activity Guidelines for Children and Youth aged 5-18 years recommend that:

- Students spend at least an hour per day participating in moderate to vigorous physical activity
- Children should not spend more than two hours per day playing computer games, watching television or using the internet for entertainment

Some data – in the 12 months to April 2006:

- 64% of children aged 5-14 years participated in sport outside of school hours, which had been organised by a school, club or association – this was an increase of two percentage points in the rate of participation from 2003.
- Children aged 5-14 years who were involved in organised sport spent an average of six hours on sport per school fortnight – the most popular sport was swimming, with a participation rate of 17%, followed by outdoor soccer (13%).
- Children aged 5-14 years spent an average of 20 hours over a school fortnight watching television, videos or DVDs.
- Children aged 5-14 years also spent an average of 8 hours playing electronic or computer games over a school fortnight.

More recently

More recently, the Australian Government Department of Health and Ageing conducted the 2007 Australian National Children’s Nutrition and Physical Activity Survey\(^1\). This was a sample of children aged 2-16 years and found:

- Approximately 69% of children aged 9-16 accumulated at least 60 minutes of moderate to vigorous physical activity on most of the days surveyed.
- Only 33% of the children aged 9-16 years met the recommendations for screen time in the National Physical Activity guidelines (meaning most exceeded the recommendation of no more than two hours of non-educational screen time each day).

The NSW survey suggested that children aged 5-14 years spent two hours per day, over a school fortnight watching television, videos or DVDs, playing electronic or computer games, and hence met this recommendation. The 2007 survey suggests that 67% of the children surveyed participated in more than two hours screen-based activities per day.

In the Australian Curriculum for Schools (2012) there is no evidence of actual physical activity being compulsory in our schools. While there is the need to teach about physical activity and health, there is no getting outside or into the school gyms to put this into practice. This is left up to each individual school to implement. As more articles are released on the issue of childhood obesity and over-weightness, both professionals and parents mention that early education is the key to implementing strategies to combat the epidemic which is obesity.
OBESITY AND OVERWEIGHT CHILDREN

We know that Australian children are growing fatter at a rapid rate – so much so that the number of overweight children has more than doubled in the last twenty years. In the 2004 NSW Schools Physical Activity and Nutrition Survey (SPANS), it was reported that 26% of boys and 24% of girls in NSW aged approximately 5-16 years were overweight or obese. This is more than double the statistic of 11% of all young people aged 7-16 years in 1985.

More recently, the ABS National Health Survey 2007-2008 reported that 25% of all Australian children aged 5-17, were overweight or obese (around 600,000 children), up four percentage points from 1995. The obesity rate for children increased from 5% in 1995 to 8% in 2007-2008.

This is not just a problem in Australia. Estimations by the World Health Organisation in 2011 indicate that globally, 43 million children are overweight. Once considered a problem only in high-income countries, overweight and obesity are now dramatically on the rise in low- and middle-income countries, particularly in urban settings. WHO states that childhood obesity is associated with a higher chance of premature death and disability in adulthood.

The alarming fact is that a staggering majority of overweight children go on to become overweight adults.

In Australia, one quarter of all children and adolescents are either overweight or obese.

For more information on obesity and overweight, visit these websites:


http://raisingchildren.net.au/articles/childhood_obesity.html?highlight=obesity

Overweight children are at increased risk of:

- High blood pressure
- Type II Diabetes
- Poor tolerance to exercise
- Psychological problems
- Cardiomyopathy
- Pancreatitis
- Liver problems
- Orthopaedic disorders (problems with foot structure)
- Respiratory disorders such as upper airway obstruction and chest wall restriction, resulting in sleep apnoea
- Reflux, gallstones and other stomach conditions
- Eating disorders such as bulimia

In addition, obesity has a major impact on a child’s confidence and how they interact with others. Obese adolescents are more likely to have low self-esteem, which may impact on other aspects
of their lives, such as the development of friendships and competency at school.

Just like adults, children store fat when the energy consumed from food and drink is greater than the energy used as fuel for daily activities, exercise, digesting food and in resting metabolism (the energy balance scales are tipping the wrong way!). If these small imbalances are repeated over a long period of time, it can result in a child becoming overweight or obese.
What is Making our Kids Fat?

Most people would say that today’s children are not moving enough and eating too much energy-dense food. The increase in sedentary behaviour and a greater consumption of foods high in fat and sugar, together with a fall in physical activity, are considered responsible.

While children may not be moving as much as they did in past generations, interestingly, surveys found that there has been a recent increase in the proportion of children who fulfil the exercise requirements of the Australian Physical Activity Recommendations for Children and Young People. This requirement is one hour per day of moderate to vigorous physical activity. Nevertheless, the level of sedentary behaviour for children is still too high.

In addition, children’s consumption of energy-dense foods has risen greatly, in particular:

- Cakes and biscuits
- Soft drinks
- Confectionary and sugar products
- Fast foods

The 2007 Australian National Children’s Nutrition and Physical Activity Survey reported that sugar contributed to between 23–24% of total energy intake. The Dietary Guidelines recommend a diet moderate in sugar that should not contribute more than 20% of overall energy intake. The survey also found that saturated fat intake contributed to approximately 13–14% of the children’s energy intake. The Dietary Guidelines recommend that saturated fat should contribute less than 10% total energy intake.

While there was an over-consumption of sugar and saturated fat, there was a low level of fruit and vegetable consumption, with only 22% of 4-8 year old children and only 5% of 14-16 year olds meeting the dietary guidelines for vegetable intake. The proportion of children meeting the guidelines decreased with age, meaning that the diet was poorer as the children got older. Couple this with an increasing participation in screen-viewing activities with age and we could have the explanation for the fat teenager phenomenon.
Causes of Obesity

In addition to eating more kilojoules than are used, obesity may also be caused by the following factors:

- Genetics or an abnormal endocrine gland – it is thought that genes may play a role in 25-40% of cases
- Lack of physical activity
- Spending a lot of time on sedentary pursuits – Australian children watch, on average, around 2.5 hours of television a day as well as spending time using computers and other electronic games.

Changes in lifestyle has also contributed to fatness. Here are some examples:

- The overall cost of food has gone down (particularly with the emergence of cheap fast food)
- More food is eaten away from home
- Energy-dense foods and drinks are more readily available
- Portion sizes of meals have increased
- Marketing of energy-dense foods and drinks has increased, and has been directed at children
- The use of private transport has increased
- The role of physical education in the school curriculum has reduced
- The number of two-income families has increased
- The time spent in paid employment has increased

The last two of course relate to the parents which suggests that less time is available for recreation/sport/playing time and food preparation.

Interesting Research

According to Hesketh et al., 2005, children are bombarded with a never-ending amount of marketing everywhere. Some children are seeing this marketing and stating that because a product states that it is ‘diet’ or made from natural products, that these are better for them. The amount of physical activity that is needed to counteract these products is also highly underestimated. Some children believe that moving any part of your body constitutes for physical activity, including moving your fingers for videos games. Even more alarming is that some children even viewed that eating something healthy like fruit before junk food would counterbalance the effects of that junk food.

So what does this mean for the fitness professional?

If we are fortunate enough to be able to train kids, there are some guidelines and regulations we need to be aware of. In doing so we will ensure we set our young clients up for success rather than failure and motivate them to stay not only fit, but also healthy.

Before we look at programming awesome and fun activity sessions for kids, we first need to understand their growth and development.
GROWTH AND DEVELOPMENT

Throughout life, people grow and develop through the following five stages:

<table>
<thead>
<tr>
<th>Stage</th>
<th>Stage Description</th>
<th>Age Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 1</td>
<td>Infancy</td>
<td>0-2 years</td>
</tr>
<tr>
<td>Stage 2</td>
<td>Early childhood</td>
<td>3-8 years</td>
</tr>
<tr>
<td>Stage 3</td>
<td>Late childhood</td>
<td>9-12 years</td>
</tr>
<tr>
<td>Stage 4</td>
<td>Adolescence</td>
<td>13-18 years</td>
</tr>
<tr>
<td>Stage 5</td>
<td>Adulthood</td>
<td>19 years +</td>
</tr>
</tbody>
</table>

We are going to focus on stages two to four, which encompass childhood and adolescence.

By definition:
- A child is aged between 0 and 12 years
- An adolescent is aged between 13 and 18 years

It is likely that a fitness instructor would train children and adolescents that are of school age. In Australia, primary and secondary school children typically range in age from 4 to 18. In terms of primary aged children, each child's development occurs differently from that of other children. Pay close attention to the physical development of children over the years, as it is this understanding that will form the platform for your programming.

Certain developmental milestones are achieved as children and adolescents grow and develop. Let's take a closer look at some of these now. These are known as the 'Stages of Development in Children'.
## 4 Years

<table>
<thead>
<tr>
<th>4 years</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical</strong></td>
<td>Can climb a ladder and walk up and down stairs with ease</td>
</tr>
<tr>
<td><strong>Behaviour</strong></td>
<td>Fully toilet trained, can almost dress and undress, can eat with fork and spoon, can wash and dry hands</td>
</tr>
<tr>
<td><strong>Language</strong></td>
<td>Engages in coherent conversation, gives name, age and address and understands time</td>
</tr>
<tr>
<td><strong>Personality</strong></td>
<td>Uses imagination to try out new things, increasingly self-sufficient, lively, can share</td>
</tr>
<tr>
<td><strong>Challenges</strong></td>
<td>Noisy and assertive, wilful, makes up stories, explores, wanders, shows off, swears</td>
</tr>
</tbody>
</table>
## 5 Years

<table>
<thead>
<tr>
<th><strong>5 years</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical</strong></td>
<td>Runs quite well, right or left handedness apparent</td>
</tr>
<tr>
<td><strong>Behaviour</strong></td>
<td>Dresses and undresses without help, washes and dries face and hands, plays constructively, draws recognisable humans and houses, elaborate make-believe group play</td>
</tr>
<tr>
<td><strong>Language</strong></td>
<td>Speaks fluently, counts objects up to about 20</td>
</tr>
<tr>
<td><strong>Personality</strong></td>
<td>Serious minded, practical, cooperative, learning to share, thrives on praise</td>
</tr>
<tr>
<td><strong>Challenges</strong></td>
<td>Tells fanciful tales using imagination, swears, may still suck thumb</td>
</tr>
<tr>
<td>6 years</td>
<td></td>
</tr>
<tr>
<td>---------</td>
<td></td>
</tr>
<tr>
<td><strong>Physical</strong></td>
<td>More skilful with hand, might ride a bike, starts to lose first teeth and acquire permanent teeth</td>
</tr>
<tr>
<td><strong>Behaviour</strong></td>
<td>Casual and careless in washing and dressing, draws pictures with some supporting detail, knows left hand from right hand</td>
</tr>
<tr>
<td><strong>Language</strong></td>
<td>Begins to read and prints letters and simple words, reads and writes numbers, adds and subtracts single digit numbers</td>
</tr>
<tr>
<td><strong>Personality</strong></td>
<td>Excitable, impulsive and changeable and may seem rude or aggressive</td>
</tr>
<tr>
<td><strong>Challenges</strong></td>
<td>Mild sex play, exhibitionism in toilet, fearful (sounds, ghosts, being lost), slow to follow instructions, wants to be first and to have the most, boasts</td>
</tr>
<tr>
<td>7 years</td>
<td></td>
</tr>
<tr>
<td>-------------------------</td>
<td>-----------------------------------------------------------------</td>
</tr>
<tr>
<td>Physical</td>
<td>Shows some elementary skill in bat and ball games, skipping</td>
</tr>
<tr>
<td></td>
<td>and hopscotch, can learn to swim or to play musical instrument</td>
</tr>
<tr>
<td>Behaviour</td>
<td>Shows increased awareness and understanding of the world around</td>
</tr>
<tr>
<td></td>
<td>them, polite and anxious to impress</td>
</tr>
<tr>
<td>Language</td>
<td>Reads simple words and sentences, prints large and small letters, adds within 20 and subtracts within 10</td>
</tr>
<tr>
<td>Personality</td>
<td>Quiet and thoughtful, shows sense of responsibility</td>
</tr>
<tr>
<td>Challenges</td>
<td>Forgets instructions, ‘Nobody loves me’, jealous of older siblings getting more privileges, sex play but occurring less often</td>
</tr>
</tbody>
</table>
# 8 Years

<table>
<thead>
<tr>
<th>8 years</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical</strong></td>
<td>Physical play very lively, sporting skills develop markedly</td>
</tr>
<tr>
<td><strong>Behaviour</strong></td>
<td>Bathes, dresses, sleeps and eats well, talks to strangers, takes part in team sports, drawings show some proportion and perspective</td>
</tr>
<tr>
<td><strong>Language</strong></td>
<td>Reads with understanding, learns running writing, starts to add and subtract two or three digit numbers and multiply and divide single digit numbers</td>
</tr>
<tr>
<td><strong>Personality</strong></td>
<td>Self reliant, sociable and outgoing, active, may be critical of others, popularity and success are very important outside the family, aware of own failures</td>
</tr>
<tr>
<td><strong>Challenges</strong></td>
<td>Failure hard to cope with, tempted to cheat, does not finish tasks and may cry if failure is mentioned</td>
</tr>
</tbody>
</table>
## 9 Years

<table>
<thead>
<tr>
<th>9 years</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical</td>
<td>Adept with hands and fingers, special skills such as in sport and music become evident</td>
</tr>
<tr>
<td>Behaviour</td>
<td>Well behaved, perseveres in work or play, self sufficient and may enjoy being alone</td>
</tr>
<tr>
<td>Language</td>
<td>Masters basic techniques of reading, writing, adding, subtracting, multiplying and dividing, reads stories and writes brief letters to relatives</td>
</tr>
<tr>
<td>Personality</td>
<td>Sensible, self-motivated, may be shy in social situations, may talk about sex information with friends, interested in body organs and functions, less afraid of dark, not afraid of water</td>
</tr>
<tr>
<td>Challenges</td>
<td>Worried and anxious, has physical complaints such as stomach aches and headaches when has to do disliked tasks, rebels against authority, sex swearing beginning, perseveres with tasks</td>
</tr>
<tr>
<td>10 years</td>
<td></td>
</tr>
<tr>
<td>---------------------------</td>
<td>-----------------------------------------------------------------</td>
</tr>
<tr>
<td>Physical</td>
<td>Has natural command of basic physical skills such as dressing,</td>
</tr>
<tr>
<td></td>
<td>feeding, ball games and bike riding</td>
</tr>
<tr>
<td>Behaviour</td>
<td>The 'little adult’ – is able to shop alone, go to school camps,</td>
</tr>
<tr>
<td></td>
<td>asks about social issues</td>
</tr>
<tr>
<td>Language</td>
<td>Reads well, does long multiplication and long division by one</td>
</tr>
<tr>
<td></td>
<td>digit numbers, writes stories up to about a page in length</td>
</tr>
<tr>
<td>Personality</td>
<td>Cool, calm and collected, generally a peaceful age, accepts</td>
</tr>
<tr>
<td></td>
<td>parent’s word as law</td>
</tr>
<tr>
<td>Challenges</td>
<td>Interest in smutty jokes, name calling and may physically fight</td>
</tr>
<tr>
<td></td>
<td>with siblings</td>
</tr>
</tbody>
</table>
## 11-12 years

<table>
<thead>
<tr>
<th>Physical</th>
<th>Early adolescence, rapid physical change with the development of pubic hair, breasts in girls, pimples and gawkiness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behaviour</td>
<td>Develops strong sexual feelings, concern with own identity and values, wants to be listened to and taken seriously, experiments and takes risks, questions parents’ values</td>
</tr>
<tr>
<td>Language</td>
<td>Continues developing language and numerical skills</td>
</tr>
<tr>
<td>Personality</td>
<td>Impulsive, strong emotions, large mood swings, self conscious, relates strongly to age mates, less dependent on family, wants more privacy</td>
</tr>
<tr>
<td>Challenges</td>
<td>Takes risks, rebellious, over-sensitive about appearance, over-optimistic, confident, unrealistic, preoccupation with sexual matters, doesn’t want to join in family activities</td>
</tr>
</tbody>
</table>
Normal Adolescent Development

Parents of adolescents (or teenagers) are often worried or confused by changes that occur in adolescents as they develop and age. Typically, all adolescents move through four phases of development during the years 13-18.

These phases can be referred to as:
- Movement towards independence
- Future interests and cognitive changes
- Sexuality
- Morals, values and self-direction

Each adolescent is an individual with a unique personality and their own special areas of interest. They each have their own likes and dislikes. Despite these differences, several developmental issues are experienced by all adolescents at some time during the adolescent years. These developmental issues are often ‘felt’ by this age group and exhibited in behaviours. Although each adolescent may vary slightly, the feelings and behaviours experienced at each phase are – in general – considered normal for each stage of adolescence.

Normal feelings and behaviours of secondary school students

The normal feelings and behaviours of secondary school students are as follows for each of the phases of development:

<table>
<thead>
<tr>
<th>Phase</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Movement towards independence</td>
<td>Struggle with sense of identity</td>
</tr>
<tr>
<td></td>
<td>Feeling awkward or strange about one’s self and one’s body</td>
</tr>
<tr>
<td></td>
<td>Focus on self, alternating between high expectations and poor self-concept</td>
</tr>
<tr>
<td></td>
<td>Interests and clothing style influenced by peer group</td>
</tr>
<tr>
<td></td>
<td>Moodiness</td>
</tr>
<tr>
<td></td>
<td>Improved ability to use speech to express one's self</td>
</tr>
<tr>
<td></td>
<td>Realisation that parents are not perfect; identification of their faults</td>
</tr>
<tr>
<td></td>
<td>Less overt affection shown to parents, with occasional rudeness</td>
</tr>
<tr>
<td></td>
<td>Complaints that parents interfere with independence</td>
</tr>
<tr>
<td></td>
<td>Tendency to return to childish behaviours, particularly when stressed</td>
</tr>
<tr>
<td></td>
<td>Tendency to rebel authority</td>
</tr>
<tr>
<td>Future interests and cognitive changes</td>
<td>Mostly interested in present, limited thoughts of future</td>
</tr>
<tr>
<td></td>
<td>Intellectual interests expand and gain in importance</td>
</tr>
<tr>
<td></td>
<td>Greater ability to do work (physical, mental, emotional)</td>
</tr>
<tr>
<td>Sexuality</td>
<td>Display shyness, blushing, and modesty</td>
</tr>
<tr>
<td></td>
<td>Girls develop physically sooner than boys</td>
</tr>
<tr>
<td></td>
<td>Increased interest in the opposite sex</td>
</tr>
<tr>
<td></td>
<td>Movement toward heterosexuality with fears of homosexuality</td>
</tr>
<tr>
<td></td>
<td>Concerns regarding physical and sexual attractiveness to others</td>
</tr>
<tr>
<td></td>
<td>Frequently changing relationships</td>
</tr>
<tr>
<td></td>
<td>Worries about being normal</td>
</tr>
<tr>
<td>Morals, values and self-direction</td>
<td></td>
</tr>
<tr>
<td>---------------------------------</td>
<td></td>
</tr>
<tr>
<td>Rule and limit testing</td>
<td></td>
</tr>
<tr>
<td>Capacity for abstract thought</td>
<td></td>
</tr>
<tr>
<td>Development of ideals and selection of role models</td>
<td></td>
</tr>
<tr>
<td>More consistent evidence of conscience</td>
<td></td>
</tr>
<tr>
<td>Experimentation with sex and drugs (cigarettes, alcohol and marijuana)</td>
<td></td>
</tr>
</tbody>
</table>
Growth Charts

The National Centre for Health Statistics (NCHS) in the United States (US) developed the 1977 growth charts as a clinical tool for health professionals to determine if the growth of a child is adequate. These charts were also adopted by the World Health Organization for international use. With more recent and comprehensive data available, along with improved statistical procedures, the 1977 growth charts were revised and updated to create the 2000 CDC growth charts – CDC refers to Centres for Disease Control and Prevention (CDC). While the data is based on the American population, the 2000 CDC growth charts are recommended for international use.

The growth charts consist of a series of percentile curves that illustrate the lines of likely growth in terms of height and weight. They are used by many health professionals such as pediatricians and nurses plus parents to track the growth of infants, children, and adolescents. They are not intended to be used as a sole diagnostic instrument and CDC have also released new BMI-for-age charts.

The growth charts for girls and boys can be useful because they:

- Provide a good prediction of a child’s future weight and height/stature
- Show the peak times of growth
- Provide a good prediction via percentiles of how a child compares with the average population

A copy of the 2000 CDC growth chart for **boys** aged 2-20 years can be found at http://www.cdc.gov/growthcharts/data/set1clinical/cj41l021.pdf

A copy of the 2000 CDC growth chart for **girls** aged 2-20 years can be found at http://www.cdc.gov/growthcharts/data/set1clinical/cj41l022.pdf
Quick Quiz

To complete this quiz, you will need to download (and preferably print) the growth charts for boys and girls.

A copy of the 2000 CDC growth chart for **boys** aged 2-20 years can be found at [http://www.cdc.gov/growthcharts/data/set1clinical/cj41l021.pdf](http://www.cdc.gov/growthcharts/data/set1clinical/cj41l021.pdf)

A copy of the 2000 CDC growth chart for **girls** aged 2-20 years can be found at [http://www.cdc.gov/growthcharts/data/set1clinical/cj41l022.pdf](http://www.cdc.gov/growthcharts/data/set1clinical/cj41l022.pdf)

Make sure you have viewed the video in the previous section.

For our first case study, we will guide you through the process.

**Case Study - Tommy**

Tommy is a 4-year-old boy who is 105cm tall (stature) and weighs 16kg. We wish to predict his height/stature and weight at 20 years of age.

Let's predict his weight first. Find ‘4 yrs’ on the horizontal axis at the bottom of the chart then find his weight of 16kg on the vertical axis and note where the two lines intersect. The follow the curved line until it intersects with 20 years and you can see he would be in the 50th percentile and his predicted weight would be 71kg at 20 years of age.

For predicting his height, find ‘4 yrs’ on the horizontal axis again and note where it intersects with the stature of 105cm on the vertical axis – the line at the intersection of his age and stature is his line of likely growth (3rd line down from the top). This line suggests he will be in the 75th percentile and between 180 and 185cm tall at 20 years of age.

**Case Study - Holly**

You're on your own this time. Holly is 12 years of age and is 151cm tall and weighs 42kg. Predict her weight and height at 18 years of age then check your answer.
Stages of Psychosocial Development

According to psychosocial development theory, there are eight stages of psychosocial development (Erik Erikson's 8 stages of psychosocial development – see table below). Each stage is characterised by a different conflict that must be resolved by a person in that age group or stage of development.

As we are challenged by our environment, the theory states that throughout these stages of development we are faced with conflicts that arise. By dealing with and resolving the conflict, the personality develops – we either cope with the conflict and grow and develop as a person or we don’t and are faced with an unresolved conflict in our life.

It is believed that if a person is unable to resolve a conflict at a particular stage, they will confront and struggle with it later in life.

The eight stages are as follows:

<table>
<thead>
<tr>
<th>Stage</th>
<th>Age</th>
<th>Conflict</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0-1.5 years</td>
<td>Trust vs. mistrust – must develop trusting relationship with caregiver or develop mistrust</td>
</tr>
<tr>
<td>2</td>
<td>1.5-3 years</td>
<td>Autonomy vs. shame/doubt – develops physical skills such as walking, grasping and sphincter control but may develop shame if not handled well</td>
</tr>
<tr>
<td>3</td>
<td>3-6 years</td>
<td>Initiative vs. guilt – becomes assertive and shows initiative but if too forceful may lead to guilt</td>
</tr>
<tr>
<td>4</td>
<td>6-12 years</td>
<td>Industry vs. inferiority – must face demands of learning new skills or risk feelings of failing and inferiority</td>
</tr>
<tr>
<td>5</td>
<td>12-18 years</td>
<td>Identity vs. role confusion – must achieve sense of identity in occupation, religion, gender roles and politics</td>
</tr>
<tr>
<td>6</td>
<td>18-40 years</td>
<td>Intimacy vs. isolation – must develop intimate relationships or suffer feelings of isolation</td>
</tr>
<tr>
<td>7</td>
<td>40-65 years</td>
<td>Generativity vs. stagnation – each adult must find some way to support the next generation</td>
</tr>
<tr>
<td>8</td>
<td>65+</td>
<td>Ego integrity vs. despair – feelings of being fulfilled</td>
</tr>
</tbody>
</table>

Erik Erikson’s Stages of Psychosocial Development

Having an understanding of these psychosocial stages of development as they relate to children and adolescents – stages one to four – allows us to have an appreciation for kids of this age.

This appreciation will assist us to train clients of different age groups, as we will be able to relate to their developmental stage and communicate and develop rapport with them accordingly.
PRE-EXERCISE SCREENING AND FITNESS TESTING

Parents or guardians of children and adolescents under the age of 16 years must complete a pre-exercise screening questionnaire on behalf of their child if they wish the child to participate in an exercise program.

This pre-exercise screening questionnaire must include the following:

- Emergency contact details
- Medical health history
- Physical activity history
- A parent or guardian signature giving authorisation and consent
- A countersignature by the trainer

Here is an example of an [Exercise Readiness Questionnaire for Children and Adolescents](#).

Adolescents 16 years of age and above can complete their own pre-exercise screening questionnaire, and this can be the same one used for adults.

Like adults, many children have medical conditions such as asthma, diabetes and obesity which will require modification and careful observation.

**Common conditions which may require medical clearance**

Other challenges such as difficulties with learning, vision, hearing, speech, motor skills and balance may require you to refer for guidance. Children also present with different pathological conditions as shown below which may also require medical clearance.

<table>
<thead>
<tr>
<th>Condition</th>
<th>What is it?</th>
<th>What happens?</th>
<th>Why does it happen?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Osgood-Schlatter Disease</td>
<td>Painful knee condition at tibial tuberosity</td>
<td>Swelling, tenderness, pain, bony lump on tibia</td>
<td>Overuse, growing body</td>
</tr>
<tr>
<td>Sinding-Larsen-Johansson Syndrome</td>
<td>Painful knee condition at the patella</td>
<td>Pain and tenderness at patella, limping, potential fracture</td>
<td>Overstraining, trauma</td>
</tr>
<tr>
<td>Sever’s Disease</td>
<td>Painful foot condition at the base of the Achilles tendon</td>
<td>Pain, tenderness and inflammation at base of Achilles</td>
<td>Overuse, growing body</td>
</tr>
</tbody>
</table>

**Consultative network**

When training children and adolescents, you may be required to consult with the following people to help make your exercise program as specific to the individual’s needs as possible:

- Parents
- Family doctor
- PE teacher
- Physiotherapist
- Chiropractor
- Sports coach
Fitness Testing

Just like for adults, it is important to conduct and record performance measures for children and adolescents to provide a baseline for participation in the exercise program. With overweight and obesity on the rise, some type of body composition test is recommended.

- Examples of tests include:
  - Resting heart rate
  - Body composition
  - Aerobic test
  - Muscular endurance test
  - Flexibility test

Parents or guardians must also give consent prior to any performance measures or fitness tests conducted on their child/adolescent.

The type of tests that you conduct will depend on the age of the child because factors such as skill and concentration will have a great influence. Adolescents may be able to perform tests designed for adults and are more likely to be interested. Children just want to have fun! Hence, design fun tests that mimic how they play – as long as these are measurable, valid and repeatable, you can use these as a baseline to assess improvements.

With young children, keep testing time to a minimum as they have short concentration spans and are likely to get bored – we want them to enjoy physical activity so make ‘fun’ your priority. Be careful with the results as children can become very upset if told they performed poorly. It is always a good idea to include a test that the child will do well at.
Measuring Resting Heart Rate

Children’s resting heart rates (RHR) are usually faster than those of adults and will decrease from infancy to adulthood. An infant's normal resting heart rate from age 0-3 months is usually between 100 to 150 beats per minute, which gradually decreases to normal adult values of 60-100 by age 12.

Here is a guide of RHRs through the stages; however, a normal RHR range for children between the ages of 1 to 10 is 60-140 bpm.

Toddler (~1-4 years) 80-130 bpm  
School-Age (5-12 years) 70-110 bpm  
Adolescent (12 years plus) 60-100 bpm

RHR varies depending on factors like age – observe the trend of reducing RHR through the stages and whether the child leads an active lifestyle or not. Like adults, a fitter child is more likely to have a lower RHR.
Measuring Body Composition

Body weight

This anthropometric test aims to measure body mass.

You will need the following equipment:

- A balance scale or a calibrated portable bathroom scale with accuracy to the nearest 100g.
- Make sure that the balance scale is registering zero before weighing. Scales should be situated on a concrete or solid floor (preferably not on carpet). Calibration masses can be purchased from divisions of weights and measures in all states.

What you need to do:

- The client should stand vertically on the platform of the scale. Shoes and excessive outdoor winter clothing should be removed.
- For a balance scale, move the mass on the scale so that the balance beam is horizontal to indicate the body mass of the client.
- Record the body mass in kilograms to the nearest 100g.
- Enter result in the data entry record.
- Re-test in 12-16 weeks after training.

Waist to height

Another measure for children is waist to height. If the waist measure is over half the child’s height, then this poses a significant health risk. This measure is particularly useful when a child is experiencing a large growth period where weight could be unstable due to structural and hormonal changes. With a growing child, the aim is to stabilise the weight rather than lose it (unless diagnosed as obese).
Body Mass Index (BMI)

Of particular concern in today’s society is the increasing trend of overweight and obese children hence *measuring fatness* has become an important focus. BMI is a commonly used approach to determine if adults are overweight or obese and is also recommended to determine if children are overweight. BMI should be used to screen for overweight children, ages two years and older and can also be used to identify underweight children as well.

BMI is calculated from weight and height measurements and is used to judge whether an individual's weight is appropriate for their height. We calculate BMI using weight measurements in kilograms and height measurements in metres. We divide the weight in kilograms by their height in metres squared (m²) as follows:

\[
BMI = \frac{weight\ in\ kilograms}{height\ in\ metres^2}
\]

(metre² = metre x metre)


BMI is an inexpensive and easy-to-perform method of screening for weight categories that may lead to health problems and is a reliable indicator of body fatness for most children and adolescents. The normal or healthy weight range for adults of a BMI of 18 to 25, is not a suitable measure for children. For adults who have stopped growing, an increase in BMI is usually caused by an increase in body fat. But as children grow, the amount of body fat changes and so will their BMI. For example, BMI usually decreases during the preschool years and then increases into adulthood. For children and adolescents, BMI is age-and sex-specific and must be compared against age and gender percentile charts.

The Centres for Disease Control and Prevention (CDC) developed the body mass index-for-age percentile charts for both girls and boys aged from two years to 18 years.

A copy of the 2000 CDC Body mass index-for-age percentiles for boys aged 2-20 years can be found at [http://www.cdc.gov/growthcharts/data/set1clinical/cj41l023.pdf](http://www.cdc.gov/growthcharts/data/set1clinical/cj41l023.pdf) and for girls, at [http://www.cdc.gov/growthcharts/data/set1clinical/cj41l024.pdf](http://www.cdc.gov/growthcharts/data/set1clinical/cj41l024.pdf)
Using the BMI Charts

After the BMI is calculated, the number is plotted on the CDC BMI-for-age growth charts (for either girls or boys) to obtain a percentile ranking. Percentiles are the most commonly used indicator to assess the size and growth patterns of individual children. The percentile indicates the relative position of the child's BMI number among children of the same sex and age. The growth charts show the weight status categories used with children and teens (underweight, healthy weight, overweight, and obese) and the corresponding percentiles are shown in the following table.

<table>
<thead>
<tr>
<th>Weight Status Category</th>
<th>Percentile Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underweight</td>
<td>Less than the 5th percentile</td>
</tr>
<tr>
<td>Healthy weight</td>
<td>5th percentile to less than the 85th percentile</td>
</tr>
<tr>
<td>Overweight</td>
<td>85th to less than the 95th percentile</td>
</tr>
<tr>
<td>Obese</td>
<td>Equal to or greater than the 95th percentile</td>
</tr>
</tbody>
</table>

For the reference and more information, visit: [http://www.cdc.gov/healthyweight/assessing/bmi/childrens_bmi/about_childrens_bmi.html](http://www.cdc.gov/healthyweight/assessing/bmi/childrens_bmi/about_childrens_bmi.html)

The CDC charts are used internationally and have also been adopted by the Victorian Government in the website below which also has a BMI calculator and automatically provides the category and plots the BMI into the CDC BMI-for-age growth charts[4]. [http://www.betterhealth.vic.gov.au/bhc2/bhsite.nsf/pages/bmi4child](http://www.betterhealth.vic.gov.au/bhc2/bhsite.nsf/pages/bmi4child)
BMI Norms for Overweight and Obese Children

The table below lists the BMI for girls and boys at certain ages that are considered overweight and obese. Below the 85th percentile is considered a healthy weight unless the child is less than the 5th percentile where s/he would be considered underweight.

<table>
<thead>
<tr>
<th></th>
<th>Girls</th>
<th></th>
<th>Boys</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>85th percentile overweight</td>
<td>95th percentile obese</td>
<td>85th percentile overweight</td>
<td>95th percentile obese</td>
</tr>
<tr>
<td>2 years</td>
<td>18.02</td>
<td>19.11</td>
<td>18.16</td>
<td>19.33</td>
</tr>
<tr>
<td>5 years</td>
<td>16.79</td>
<td>18.24</td>
<td>16.84</td>
<td>17.92</td>
</tr>
<tr>
<td>10 years</td>
<td>19.94</td>
<td>22.93</td>
<td>19.35</td>
<td>22.10</td>
</tr>
<tr>
<td>15 years</td>
<td>24.01</td>
<td>28.08</td>
<td>23.41</td>
<td>26.80</td>
</tr>
<tr>
<td>18 years</td>
<td>25.66</td>
<td>30.29</td>
<td>25.62</td>
<td>28.92</td>
</tr>
</tbody>
</table>

Data extrapolated from the CDC Body Mass Index for Age Tables, Children Ages 2-20 Years Selected Percentiles

Preventing or Addressing Obesity

Healthy eating and regular physical activity will help to prevent or correct obesity.

Children and adolescents should:

- Eat a healthy diet
- Be active each day – walk to school and participate in active out-of-school activities; limit television watching and playing on computers
- Have great role models – children learn from their parents who should eat healthy foods and be active regularly with their children
Measuring Aerobic Capacity

Most tests for aerobic or cardiovascular fitness involve many minutes of continuous activity such as the 9 or 12 minute run test described below. Many children will not want to do this type of test; not because they can’t, but because they don’t want to – it is not fun, particularly for younger children. So think of a game that is measurable, valid and repeatable that you could use instead. Here is an example:

**Hoops game/test**

Put two hoops A and B 20m apart with 15-20 bean bags in hoop B (or less bean bags for younger children). The goal is to transfer all bean bags, one at a time, from hoop B to hoop A in the quickest time possible. The child starts at hoop A, runs to hoop B and collects one bean bag, runs back to hoop A and drops the bean bag into hoop A – repeat until every bean bag has been transferred. Record how many bean bags you used and the time it took – about 5 minutes is manageable depending on the age of the child.

Here we have an aerobic game that is competitive against the clock and can be recreated plus it mimics how children play – start, stop, pick up, change direction, and lots of fun! This can also test many children at once.

**9 or 12 minute run test**

The 12 minute walk/run test is one of the most popular field tests of maximal aerobic capacity. The goal is for the client to cover as much distance as possible in 12 minutes. For children under 12 years of age, a shorter test of around 9 minutes or less may be used. This is more suitable and meaningful for children who play competitive sport.

It is a useful test because:

- It requires very little equipment
- Many clients can be tested at the same time
- The clients get a workout
- It is valid

Note: as the test demands a near maximum effort, it is essential that clients are properly screened so that those who are deemed ‘unfit’ to exercise do not participate in this form of testing.

- To conduct the test you will need the following equipment:
  - 200 to 400 metre athletic track or suitable firm, even running surface (preferably grass)
  - Measuring wheel to check lap length and intervals
  - Stopwatch
  - Whistle

*This is the procedure to follow:*

- After measuring out the area, allow the clients 10 minutes to warm-up and include stretching exercises
- When ready to commence, start the stopwatch on the command ‘GO’!
- Record completed laps as the clients run/walk the track
- Encourage them to do their best but also watch for signs of distress, when clients need to slow down and possibly walk for a while
Advise the elapsed time for each lap
When exactly 12 minutes has elapsed, blow whistle, instructing clients to walk to the nearest marker and to keep walking in the vicinity of the marker
Assistants report on the number of metres covered in the final lap
Clients continue to walk around the track for five minutes in order to aid recovery
Clients perform cool-down stretching exercises
Calculate total metres/kilometres completed
Enter result in the data entry record
Re-test in 12-16 weeks after training
Measuring Muscular Endurance and Strength

The number of push-ups or abdominal curls in 30 or 60 seconds could be used for an older child but again, if you can make it into a game, it will be more enjoyable.

Abdominal Strength Test

This is a 5-stage abdominal test that aims to assess the strength of the trunk and hip flexors plus it is an easy test you can do with large groups simultaneously. We have adapted this to use a 1 to 5 scale appropriate for children.

What you need to do:

- The client lies on their back, with knees at right angles and feet flat on the floor. Arm positions vary according to each stage
- Client then attempts to perform one complete sit-up for each level in the prescribed manner, starting with level 1 (see table below)
- Each level is achieved if a single sit-up is performed in the prescribed manner, without the feet coming off the floor
- As many attempts as necessary can be made

<table>
<thead>
<tr>
<th>Level</th>
<th>Rating</th>
<th>Description</th>
<th>Adaptation for children</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Very poor</td>
<td>Cannot perform level 1</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Poor</td>
<td>With arms extended, the client curls up so that the wrists reach the knees</td>
<td>Stage 1 – fingers to knees</td>
</tr>
<tr>
<td>2</td>
<td>Fair</td>
<td>With arms extended, the client curls up so that the elbows reach the knees</td>
<td>Stage 2 – elbows to knees</td>
</tr>
<tr>
<td>3</td>
<td>Average</td>
<td>With the arms held together across abdominals, the client curls up so that the chest touches the thighs</td>
<td>Stage 3 – arms on tummy, chest to legs</td>
</tr>
<tr>
<td>4</td>
<td>Good</td>
<td>With the arms held across chest, holding the opposite shoulders, the client curls up so that the forearms touch the thighs</td>
<td>Stage 4 – arms crossing chest, elbows to legs</td>
</tr>
<tr>
<td>5</td>
<td>Very good</td>
<td>With the hands held behind head, the client curls up so that the chest touches the thighs</td>
<td>Stage 4 – hands behind head, chest to legs</td>
</tr>
</tbody>
</table>

Reference: http://www.topendsports.com/testing/tests/abstrength.htm
Measuring Flexibility

Flexibility is important as it allows children to bend, stretch and reach. Again, you can make up games such as ‘who can touch their …?’ A well-known test is the Sit-and-Reach Test which is easy to perform and suitable for groups.

**Sit-and-Reach Test**

The client sits on the floor with the legs straight, arms reaching forward and hands parallel or overlapping. The client slowly leans forward with the aim to reach as far forward as possible with the fingertips.

Check the child’s injury history very carefully – any child with recent or chronic back pain, recent injury, or surgery to the shoulders, hips, knees or ankles must be excluded from this test.

You will need the following:

A sit and reach box with a metric ruler or alternatively, use stages as follows which is more fun for kids:

- Stage 1 – fingers to knees
- Stage 2 – fingers to mid-shin
- Stage 3 – fingers to toes (acceptable)
- Stage 4 – fingers past toes (ideal)

This is the procedure to follow:

- Seat the client, barefooted with the soles of both feet flat against the front of the box (box optional)
- Ensure that the client keeps the legs straight and the backs of the knees are flat on the floor; one hand is above the other so that the fingertips are level
- Looking up, slowly reach forward as far as possible without jerking
- Take the measurement quickly – do not hold the position longer than 2-3 seconds
- Perform no more than two trials (the best result should be recorded) and bend the knees and look up between measures (this reduces neural tension)
BENEFITS OF EXERCISE

The World Health Organisation states that regular practice of physical activity helps children and young people to build and maintain healthy bones, muscles and joints, helps control body weight, helps reduce fat and develop efficient function of the heart and lungs.

- Active children and adolescents will:
- Have stronger muscles and bones
- Have a leaner body because exercise helps control body fat
- Be less likely to become overweight
- Have less risk of developing type II diabetes
- Exhibit lower blood pressure and blood cholesterol levels
- Have a better outlook on life
- Sleep well
- Be able to handle the physical and emotional challenges that a typical day presents

Primary goals:

- Avoid inactivity
- Develop lifelong behaviour
- Psychological benefits
- ENJOYMENT!
- Learn about the body
- Develop motor coordination

Secondary goals:

- Physical benefits associated with activity

Depending on the type of activity, developing social skills such as teamwork, interpersonal communication, self-esteem and confidence are also important. While the gym environment can assist with many of these benefits, it is recommended that a range of activities/sports and environments is best.
The Three "S"s of Fitness

Have you ever watched children at play in the playground at school or in the park?

If you have, then you've probably seen the three ‘S’s of fitness in action in children – stamina, strength and suppleness.

Here’s an example of how children rely on the three components of fitness everyday:

- They run away from the kid that is ‘it’ when playing chasey (this is stamina!)
- They swing across the monkey bars (this is strength!)
- They bend down to tie up their shoelaces (this is flexibility!)

Children and adolescents should be encouraged to participate in a variety of activities on a daily basis to develop all three components of fitness.

Developing Stamina in Children and Adolescents

As we know, stamina can be developed through regular and continuous aerobic activity.

For children and adolescents – very simply – aerobic activity will strengthen their heart and improve their body’s ability to deliver oxygen to all of its cells.

Aerobic activity can be done alone, with peer or organised groups, or with family.

Aerobic activity is fun for both adults and children.

Here are some examples of aerobic activities that children and adolescents may enjoy:

- Basketball
- Netball
- Baseball
- Softball
- Volleyball
- Hockey
- Lacrosse
- Orienteering
- Bushwalking
- Bike riding
- Roller skating
- Ice skating
- In-line skating
- Football – rugby, Australian rules, soccer
- Swimming
- Life saving
- Tennis
- Walking
- Jogging
- Running

Stamina programming:

- Frequency: most days of the week if possible
- Intensity: moderate to vigorous, should be intermittent
- Time: 60 mins per day which can be broken up into bouts of 15 mins
- Type: combination of strength, stamina and suppleness.
Developing Strength in Children and Adolescents

As we know, strength can be developed through regular strength activities. For children and adolescents – very simply – strength activities will tone and strengthen their muscles, making it easier for them to lift, move and throw things.

Improving strength doesn’t have to mean lifting weights, and most fitness centres at present are not ‘kid’ friendly; although some children benefit from lifting weights. Personal trainers can work one-on-one with kids – especially adolescents – who may wish to use strength training to develop their body shape and improve their self-concept. Keep in mind that weight training for children and adolescents should always be conducted under the supervision of an adult.

So what if you do not want to use weights?

Most kids won’t need a formal weight training program to be strong. Exercises that can be fun and challenging that develop strength include push-ups, abdominal crunches, chin-ups or lat pulldown, dips, squats and other body weight exercises. Children also incorporate strength activities in their play when they climb, do a handstand or wrestle with their siblings!

The ACSM advises:

- Supervision is important
- Emphasis on technique development
- Focus should be on developing motor skills and coordination
- Avoid overly intense or maximal resistances
- Gradual progression to ensure safety
- Consider equipment, machines may not fit all
- Rep ranges 8-15
- Only go below 8 reps when mature

It is also advised that children complete three weight sessions in a row before the weight is increased. When increasing the weight, only do so by 1-2kg increments. Remember the goal is high repetitions.

Because children are generally flexible and mobile in their joints, we have to take particular care with ROM. Consider reducing the ROM; for example, do a bench press on the ground.

We know the danger of heavy weights and the trainer needs to be mindful of loading the vertebrae which can happen when putting barbells on the shoulders. Ideally choose exercises which are fun and functional.
Developing Suppleness in Children and Adolescents

As we know, suppleness can be developed through regular stretching activity. For children and adolescents – very simply – stretching activities will make them more flexible, allowing their muscles and joints to bend and move easily through their full range of motion. Because children are more lax prior to puberty, it’s important to take care not to overstretch and to maintain correct alignment as this can have effects later in life.

As for any workout, the major muscles used during the session should be stretched at the end. With children and adolescents, use the stretch time as their regular ‘talk time’ – in which they can choose a topic to discuss or elect to share their feelings or thoughts on any item of their choosing.
How Much Exercise is Enough?

The Australian Physical Activity Guidelines for Children and Youth aged 5-18 years recommend that students spend at least an hour participating in moderate to vigorous physical activity every day\(^1\).

This is also supported by the 2005 dietary guidelines from the US Department of Agriculture (USDA) and the Department of Health and Human Services (HHS) which recommend that all children aged two years and older should get 60 minutes of moderate to vigorous exercise on most, and preferably all days of the week.

Refer to the ‘Guidelines for running physical activity programs for young people in fitness and leisure centres in NSW’ for further information.


With all training programs, the goal is to play games rather than do a workout! We want to emphasise fun as much as possible and because children have short attention spans, make sure you have a variety of activities and games to play. If the children are enjoying the activity, keep doing it. If not or they show signs of boredom, change the activity straight away.

Other programming considerations:

- Competition and reward (avoid food)
- Music and balls
- Be a great role model
- Social aspect – encourage groups
- Inclusion
- Play, have fun!

For a comprehensive educational website with separate sections for parents, kids and teens, visit: http://kidshealth.org/parent/nutrition_fit/index.html
Training an Overweight or Obese Child

Children who are overweight or obese will find it easier to achieve a healthy weight if the whole family makes healthy lifestyle changes.

In fact, research by Hesketh et. al., (2005) found parents noted that healthy lifestyle education for children needs to start before they begin school and that ‘the role of the school was considered secondary to that of the family; the main responsibility for engendering healthy lifestyle was seen to lie with parents’. This shows that the education of the parents, and them acting as role models, is paramount in the fight against obesity.

Families and individuals need to have a healthy balance in regards to nutrition and physical activity and at an individual level can start implementing it themselves.

*The WHO has put down the following simple strategies from their report in 2011*:

- Limit the energy intake in diet from fats
- Increase fruit and vegetables in the diet
- Limit sugar intake
- Participate in regular physical activity
- Have a healthy energy in, energy out, relationship

*Services that can be adopted by the fitness instructor to carry out these strategies include:*

- Providing good nutritional advice to the whole family
- Providing healthy snack solutions
- Increasing activity – children should be encouraged to choose more physical activities; families can walk together; ‘huffy puffy’ activity should also be encouraged to improve fitness and hasten fat loss
- Recommending active pastimes rather than passive ones, i.e., reduce television viewing and computer games to a total of less than two hours per day (combined)

*Here are some healthy eating and exercise tips you can provide to parents:*

- Don't buy soft drink or cordial and limit fruit juice to one glass a day
- Encourage children to drink water and switch to low fat milk
- Give children a choice of nutritious snacks, such as fruit, yoghurt and sandwiches
- Ensure children have a nutritious breakfast and switch to a low fat, low sugar, whole wheat or oat breakfast cereal
- Reduce the number of takeaway meals – try cooking a dish the night before so that the meal is ready when you come home from work or cook large quantities and freeze meals for use later
- Avoid using high fat or high sugar foods such as lollies, as rewards for good behaviour
- Be wary of foods marketed as 'low fat' as these are usually high in sugar and still high in kilojoules
- Encourage caregivers and grandparents not to feed children with energy-dense, nutrient-poor foods
- Find ways to incorporate physical activities into your family's routines
- Offer fruit as a snack after school
- Spend time together as a family doing things like taking the dog for a walk, kicking a ball at the park or going swimming
- Be supportive and offer praise to the child

© Australian Institute of Fitness
- Prepare healthy meals together
- Don't set weight targets

More Resources for you to use:

Visit the Fitness and Kids website for additional information on how to help overweight and obese children and for information on exercise for kids as well. [http://www.fitnessandkids.com/articles_kids.html](http://www.fitnessandkids.com/articles_kids.html)

- Looking for more ideas and programs? Check out a book called "Move your kids butts", by Australian author, Sharon Beer-Korver. Features of her book include: Fun and active programs based around school terms
- Program runs once a week after school for one class of school students
- Each child signs commitment certificate and decides on how to reward themselves (with assistance of parents/teacher) after the program (increased skills and fitness)
- Pre- and post- fitness tests to measure improvements
- Pre-designed programs for each week focusing on different skills and areas of fitness. Easy-to-follow instructions including equipment lists, photos of exercises, benefits, purpose, set-up and safety
- Each child completes a weekly planner including daily designated tasks (e.g., eat 2 pieces of fruit, complete 20 push ups) which a parent signs off.
PRACTICAL TRAINING IDEAS

Now that we understand the underpinning knowledge and skills required to train children and adolescents, let’s go through some great practical activities that relate to programming for children and adolescents!

Points to consider when training kids:

- Training children should focus on movement, skill development and having fun!
- Programs must be safe and suitable and follow guidelines for the age group
- Aim to develop activities and games that combine all elements of fitness (stamina, strength, suppleness, skill, balance, co-ordination)
- The goal for children is to move and have fun without realising that they are exercising
- Remember that children have shorter attention spans than adults hence several games could make up the session
- While some competitive games can be incorporated, it is important to appreciate that not all kids like competition, so ensure children can ‘win’ in other ways, such as having a game that focuses on problem solving – we need to make sure that success is not just about how fast or strong a child is.

There are numerous websites where you can find great ideas as well. http://www.jumpbunch.com/parentshosts.html

For an explanation of games, click on http://www.jumpbunch.com/kidsfitnessgames.html

Let’s now look at some of our favourite games.
Games that Rock for all Children and Adolescents

Dancing, freeze play

Great for the organisation of medium to large mixed groups. Upon start of music, get the group to
dance around to the music, when the music stops, a number like ‘5’ is called out by the
supervising instructor. Once called, the group must organise themselves into groups of five. The
music is played again allowing the group to run/dance/hop around until again the music is
stopped and a number is called.

Body alphabet

Arrange participants into groups of four on the ground. Their challenge is to use their bodies to
spell out four-letter words like ‘cave’, ‘home’, ‘sack’. This is first done lying on the ground, then for
added challenge ask groups to repeat the words, this time at kneeling and standing heights. A
reward system can be developed for the fastest and most creative groups.

Fit ball relays

Great for small to large groups; the fit balls are used to roll, pass, and bounce along the floor to
team mates, in a relay fashion. This is a great versatile activity and can be used to develop
cardiovascular health, balance, and stability for children.

Teepees and Indians

Arrange the group into partners. Appoint partner 1 and partner 2 within each pair. Partner 1’s job
is to form a circle and sit on the ground with their legs crossed, with partner 2’s forming another
circle around them standing up with their legs apart. The people in the inside circle are Indians
and those in the outside circle are teepees. If the instructor yells out Indians, the Indians have to
crawl through their partner’s legs and run anti-clockwise around the circle till they get back to
their partners, crawl back through their legs and sit down. If the teepees are called they must run
anti-clockwise and the Indians jump up and become the teepees, the running teepees then crawl
through their partners legs and become the Indians.

This game can be done with a few non-elimination and then elimination rounds: the last pair to
have a person though their partner’s legs is out.
More Games that Rock for all Children and Adolescents

Catchy

This provides one-on-one or group training using a suitable ball for the age group such as a volley ball or beach ball. Throw the ball to the child in different directions: up, down or to either side, mixing it up to train core strength, stability and motor skills.

Imaginary stories

This is a great idea for small groups: using the creativity of the instructor, an exciting fictional story is developed, e.g., Amelia the magical fairy princess goes on a wonderful journey to fairy princess castle. Throughout her travels Amelia comes across many obstacles and challenges. These challenges are creative training ideas which you would like the child to do. Examples: jumping from hoop to hoop is jumping on lily pads, or walking across a beam is crossing a log over the river, or jumping over a wriggling skipping rope is jumping over snakes etc. Use all different modes of training, e.g., balance, motor and ball skills, cardio, and strength. For an extra challenge, the group can be partnered up and asked to prepare a story for another group to complete.

The opposites game

Ideal for medium to large groups: the challenge in this game is for the children to do the opposite of what the instructor asks them to do, e.g., if the instructor says ‘run to the right’ the group must run to the left, if the instructor says ‘dance’ then the group must stand still etc.

Tunnel relays

Split the group into two even lines. A range of activities can be used such as:

- Regular tunnel ball
- Over and under where you pass a ball over head and then under/in between the legs
- Human tunnel ball where the person at the head of each group gets down on their stomach and crawls through the tunnel their team has created

The games continue until everyone has had a turn of throwing/passing/crawling until it gets all the way back to the first person. The quickest team wins. (This is for strength and stability).
Ideas for Early Childhood (3-8 years of age) - What's the time Mr Wolf?

This is a great activity for groups of three or more. Using the length of a room or outdoor area, one child is appointed Mr Wolf and stands facing away from the group who are standing approx 10m+ away at the opposite end of the room. The group calls out “What’s the time Mr Wolf?” The wolf must then answer by calling out a time of their choice, e.g., “4 o’clock”. The group would then take four steps forward towards the wolf. The game continues until the wolf feels the group is close enough for him/her to catch a member of the group; at this point when asked “What’s the time Mr Wolf?” the wolf will answer “Dinner time” which allows him/her to turn around and chase after a member of the group as they run away back towards the opposite end of the room. If a member of the group is captured they then become the wolf.

Benefits:

- Counting practice
- Reaction time
- Agility
- Speed
- Coordination
Ideas for Early Childhood (3-8 years of age) - Duck-Duck Goose

Appropriate for groups of five or more. Have the children sit in a tight circle facing the middle. One child is appointed ‘in’; their job is to walk around the circle gently tapping each of his/her team mates on the top of their head and calling out Duck as he taps. Whilst he is moving around the circle he needs to choose a team member who he will name as ‘Goose’. Once he gets to their spot in the circle, he taps them on the head and calls out ‘Goose’. The goose then needs to try and catch him by jumping up and chasing him around. Once the child who is being chased by the goose reaches his sitting position in the circle he can sit down and is called safe. If caught, the child must sit in the middle of the circle, only to be released when another child is caught by the goose.

Benefits:

- Reaction time
- Speed
- Concentration
- Decision making skills
Ideas for Early Childhood (3-8 years of age) - Body-Colours

Appropriate for small to large groups in outdoor or indoor spaces. A supervising adult is in charge, and needs to decide on a colour and body parts. For example, the colour ‘green’ is chosen from the surrounding environment; then a body part is chosen, say the, ‘elbow’. They are combined and called out as an action - “Paint your elbow green”. With this instruction the group must find something green and place their elbow on it. This is a great game to gain the group’s attention for further instruction.

Benefits

- Attention to detail
- Follow instructions
- Speed
- Agility
- Decision making
- Coordination
Ideas for Early Childhood (3-8 years of age) - Fruit Salad

Appropriate for even groups of six or more. Two lines are formed, facing each other. Sit down, legs straight out, feet just touching. Each pair is given the name of a fruit. When a name or number is called, the two people jump up, run over the legs of the other pairs in one direction, then run outside until they get to the opposite end of the line and then continue to run over the legs of the other pairs until they get back to their original place in line. The first person back to their original position gets a point for their team.
Ideas for Late Childhood (9-12 years of age)

Crab Walk Soccer

Two teams sit on lines a short distance apart. Team members are numbered. A soccer ball sits in the centre. The official calls a number and the member of that number from each team crab walks and attempts to get the ball over the opponent’s goal line. When a point is scored, the ball is returned to the centre and another number is called. Team members may help but not score.

- Benefits:
  - Reaction time
  - Agility
  - Coordination
  - Strength
  - Team building
  - Aerobic fitness

Fly

Appropriate for groups of three of more. Equipment: 10 x sticks or beanbags.

The sticks are placed in a line ‘ladder style’ with approximately a 30cm gap between each one. The group lines up behind the first stick and takes turns to run over each stick, landing in each space between sticks as fast as they can. Once all members have run through the course the supervisor needs to choose one stick to remove from the ladder. The group continues to run through the course with a stick removed each time the entire group completes the course. Eventually the missing sticks will create large gaps, and challenge the participants to leap into each gap. Gradually, participants who don’t successfully complete the course are eliminated. This will continue until a final participant is standing.

Benefits:

- Agility
- Power
- Speed
- Anaerobic fitness

Wheel Barrow Games

Appropriate for every group of two or more. Wheel barrow games are versatile and can be applied to suit a number of different situations and environments.

- Races
- Relay races
- Obstacle course
- Push ups

Benefits:

- Core strength
- Upper body strength
- Aerobic fitness
- Coordination
Muscular endurance

**Stuck in the Mud**

Great for groups with large space available. One person from the group is selected to be ‘it’; the rest of the group runs away trying not to be tagged. If tagged the person must stand still as if ‘stuck in the mud’ until a member of the group releases them by tagging or crawling through their legs. This game can be modified to challenge the group by altering the position they must hold whilst stuck in the mud, e.g., hold a static squat, stand on one leg etc.

- Benefits
- Speed
- Agility
- Team work
- Reaction speed
Ideas for Adolescence (13-18 years of age) - Dodge Ball

Divide the group evenly into two teams. Team A forms a circle around team B. Team A is given a large rubber ball. At the signal, team A players throw ball at team B, attempting to hit them below the waist. Team B players may avoid being hit by moving or running aside or ducking. A player must leave the circle when hit OR a player who is hit may join team A. The leader may time the eliminating process to determine which team eliminated its opponents fastest.

- Benefits
- Power
- Reaction time
- Agility
- Precision throwing
- Team work
- Hand-eye coordination
- Aerobic fitness
Ideas for Adolescence (13-18 years of age) - Footloose

The object of this game is to transport everyone from one end of the playground to the other. To heighten the challenge and make the game more fun, suggest that players are fleeing a dreaded disease and can only escape if they are carried by other players. The players may be carried by as many players as necessary. When the carried player is delivered to the other side of the playground the others must go back and carry each other. This continues until the last player is carried by a single person. The last player, who was not carried gets carried back triumphantly on the shoulders of the entire group.

Benefits

- Strength
- Aerobic fitness
- Team work
- Strategic planning
Ideas for Adolescence (13-18 years of age) - Ultimate Frisbee/Rugby/Soccer

Split a group into even teams. Set a definite start and finish point, with smaller targets between the two points. On ‘GO’ each team is to get their ball/Frisbee from the start to finish as fast as possible whilst passing each target on the way. The team must kick/pass/throw their ball from target to target; however, the person with the ball cannot run forward to the next target. They must pass the ball to another player who is allowed to run ahead to the next target. If the ball/Frisbee is dropped, a team penalty is incurred (e.g., go back to start, lose 10m, do 10 push ups etc.)

Benefits

- Team work
- Hand eye coordination
- Endurance
- Aerobic fitness
- Ball skills
Strength Training for Older Children

Strength training is important for all children; however, instructors must ensure that sessions are planned according to the age and level of development for the group or individual. Throughout the stages of development, growth is occurring in the long bones and creates slight levels of instability within the joints and awkward movement patterns, therefore caution must be taken when introducing new exercises and/or adding additional weight to the exercise.

Guidelines:

- It is recommended that the child perform 3 sets of 15 reps before the weight is increased
- Weight increases should be no more than 1kg
- Focus on quality not quantity
- Exercises should be fun
- Avoid maximal loads

Large compound movements such as body weight squats, lunges, and light weight training are suitable exercises for children, as long as careful attention is paid to technique in particular the ROM during the exercise.

Suggestions for strength exercises:

- Body weight squats
- Body weight lunges
- Dips
- Modified push ups
- Theraband exercises: seated row, squat, shoulder press etc
- Medicine ball activities
## Equipment and Activity Summary

Below are examples of equipment that can be used with children and young adolescents:

<table>
<thead>
<tr>
<th>Equipment</th>
<th>How to use</th>
</tr>
</thead>
</table>
| Hoppy (big ball that you sit on with handles) | - Bounce on spot  
- Relays  
- Bounce high and low  
- Bounce fast and slow  
- Bounce side to side  
- Weave around markers  
- Balance on hoppy |
| Ladder                     | - Fast feet  
- Hop through one leg  
- Jump through  
- Jump over beanbags  
- Side step in and out in forward motion  
- Hop Scotch (hop, jump, hop, jump) |
| Skipping ropes              | - Normal  
- Peppers (Fast)  
- 1 leg  
- 2 leg  
- Backwards  
- Cross overs |
| Aerobic Step                | - Step up (1 leg/2 leg)  
- Jump on/off or side-to-side  
- Push-ups  
- Dips  
- Ezywalk |
| Hula Hoops                  | - Normal twirl  
- Jump in and out  
- Use as skipping rope  
- Bean bag relay – use to hold bags  
- Set up in a row to jump in and out |
| Balls + Tennis balls        | - Soccer  
- Bounce 1 hand/2 hand  
- Throw and catch (partner)  
- Kick ball against a wall – control  
- Bounce around body (figure 8) or twist around body |
<table>
<thead>
<tr>
<th><strong>Bean Bags</strong></th>
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</thead>
<tbody>
<tr>
<td>- Bounce fast/slow – High/low</td>
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<tr>
<td>- Bounce on air flow bats</td>
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<tr>
<td>- Balance</td>
<td></td>
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<tr>
<td>- Run and replace (relay with hula hoops)</td>
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</tr>
<tr>
<td>- Balance on head relay</td>
<td></td>
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<tr>
<td>- Throw and catch (partner)</td>
<td></td>
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<tr>
<td>- Use to balance on head while doing any activity in circuit (challenge)</td>
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<thead>
<tr>
<th><strong>Mini Tramp</strong></th>
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<tbody>
<tr>
<td>- Jump</td>
<td></td>
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<tr>
<td>- Hop on one leg/alternate</td>
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<tr>
<td>- Bounce high/low, fast/slow</td>
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<tr>
<td>- Run/jog on tramp</td>
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<thead>
<tr>
<th><strong>Markers (Dome &amp; Hats)</strong></th>
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<tr>
<td>- Station markers for circuit activities</td>
<td></td>
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<tr>
<td>- Straight line – weave/jump over</td>
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<tr>
<td>- Use for group games to mark out areas</td>
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<tr>
<td>- Relay set up</td>
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<tr>
<td>- Kick ball to markers/between markers</td>
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<tr>
<td>- Set up formations – square, triangle, circle</td>
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<tr>
<td>- Games set up</td>
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<table>
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<tr>
<th><strong>Spike Balls</strong></th>
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<tr>
<td>- Co-ordination – unusual bouncing patterns</td>
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<tr>
<td>- Throw and catch (feels strange)</td>
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<tr>
<td>- Bounce 1 and / 2 hand</td>
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<tr>
<td>- Roll or kicking against wall</td>
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<table>
<thead>
<tr>
<th><strong>Own Body</strong></th>
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<tbody>
<tr>
<td>- Jumping Jacks</td>
<td></td>
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<tr>
<td>- Tuck jumps</td>
<td></td>
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<tr>
<td>- Push-ups</td>
<td></td>
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<tr>
<td>- Sit-ups</td>
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<tr>
<td>- Tricep dips</td>
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<tr>
<td>- Squats</td>
<td></td>
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<tr>
<td>- Running/jogging on the spot</td>
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<tr>
<td>- Skipping</td>
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<tr>
<td>- Jumping</td>
<td></td>
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<tr>
<td>- Hopping</td>
<td></td>
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<tr>
<td>- Walking</td>
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<tr>
<th><strong>Cricket Bats</strong></th>
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<tbody>
<tr>
<td>- Cricket</td>
<td></td>
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<tr>
<td>- Bounce ball on bat (skill)</td>
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<tr>
<td>- Batting practice – bowl tennis balls to batters</td>
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<tr>
<th><strong>Air Flow Bats</strong></th>
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<tbody>
<tr>
<td>- Tennis</td>
<td></td>
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</tbody>
</table>
- Balance ball/bean bag on bat
- Bounce ball on ground or on bat
Training Program Examples

Below are examples of non-circuit training session ideas for children and adolescents one-on-one with you as a trainer;

Duration: 45min

Format:
Warm-up 5min Major muscle group activity, starting slow then increasing in intensity
Conditioning 30min Training specific activities to individual goals
Cool-down 5min Slow cool-down activities and stretch
Relaxation 5min To unwind

Warm-up ideas: 5 min duration

<table>
<thead>
<tr>
<th>Child 3-5</th>
<th>Child 5-9</th>
<th>Adolescent 9-14 and 15+</th>
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</thead>
<tbody>
<tr>
<td><strong>Stop/Go</strong> – run around until you say STOP, then GO to run again&lt;br&gt;Big muscle group activities – jumping, skipping, hopping&lt;br&gt;Dancing – to music&lt;br&gt;Animal Game – Pretending to be a rabbit, horse, crocodile, monkey, dog etc&lt;br&gt;Hula hoop jump – jump in and out of randomly placed hula hoops</td>
<td><strong>Soccer</strong> – passing the ball as you jog together&lt;br&gt;Stop/Go&lt;br&gt;Jogging – jog for 2 min to warm up then sprint for 10sec, jog 30sec, sprint 10sec, jog 30sec, sprint 10sec etc….&lt;br&gt;<strong>Skipping rope</strong> – a few minutes of skipping is a great way to warm up, especially towards the end of the warm-up session&lt;br&gt;<strong>Jumps</strong> – jumping jacks, tuck jumps, running on the spot, jumping side to side, high and low…..</td>
<td><strong>Jogging</strong> – constant pace&lt;br&gt;Soccer – passing the ball as you jog together&lt;br&gt;<strong>Netball/Football</strong> – pass the ball as you jog together&lt;br&gt;<strong>Aerobics</strong> – warm up with aerobics moves&lt;br&gt;<strong>Jog Sprint</strong> – jog 30 sec, sprint 10 sec&lt;br&gt;If you have access to a gym is available do a supervised warm-up on:</td>
</tr>
<tr>
<td>Exercise bike&lt;br&gt;Treadmill&lt;br&gt;Spin bike&lt;br&gt;Elliptical trainer&lt;br&gt;Recumbent bike&lt;br&gt;Rower</td>
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Conditioning Ideas: 30min duration

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<tr>
<th>Child 3-5</th>
<th>Child 5-9</th>
<th>Adolescent 9-14 and 15+</th>
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</thead>
<tbody>
<tr>
<td><strong>Goal</strong> – ‘parents want child to have fun while exercising’&lt;br&gt;Children 3-5 love fun and simple games. Try bursts of activities like:&lt;br&gt;  ❖ Skipping&lt;br&gt;  ❖ Frog jumping&lt;br&gt;  ❖ Commando crawling&lt;br&gt;  ❖ Kicking balls&lt;br&gt;  ❖ Catching balls</td>
<td><strong>Goal</strong> – ‘improve soccer skills’&lt;br&gt;Start by setting up some fitness drills. For example: set out 3 cones in a row 5m apart. Total distance = 15m&lt;br&gt;  ❖ Sprint to the first, jog back&lt;br&gt;  ❖ Sprint to the second, jog back</td>
<td><strong>Goal</strong> – ‘to get fit’&lt;br&gt;If you have access to a gym you can perform aerobic and interval training on equipment such as:&lt;br&gt;  ❖ Exercise bike&lt;br&gt;  ❖ Treadmill&lt;br&gt;  ❖ Spin bike</td>
</tr>
<tr>
<td>Jumping through hoops</td>
<td>Sprint to the third, and jog back. Rest for 1 min then repeat. Rest for 2 min then repeat.</td>
<td>Elliptical trainer, Recumbent bike, Rower</td>
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<tr>
<td>Hula Hooping</td>
<td>For example: put 3 tennis balls 5m apart. Child runs to each ball separately, bringing 1 ball to you each time. 1&lt;sup&gt;st&lt;/sup&gt; ball = 5m run, 2&lt;sup&gt;nd&lt;/sup&gt; ball = 10m run, 3&lt;sup&gt;rd&lt;/sup&gt; ball = 15m run.</td>
<td>Try to use as many pieces of equipment as possible to keep the session interesting. You can do different forms of training on each piece of equipment. E.g., exercise bike – steady 1 min, sprint 30 sec, recover 30 sec, sprint 40 sec, and recover 40 sec etc. Treadmill – warm up walking, increase speed to light jog, increase speed to jog – jog at a steady pace for 5 min Spin bike – hill climbing on harder resistance, sprinting on lower resistance and recovery on middle resistance Elliptical trainer – consistent pace for 5 min Recumbent bike – steady pace for 5 min Rower – concentrate on strokes per minute – try and increase for 1 min then recover. Repeat for 5 min.</td>
</tr>
<tr>
<td>Bean bag balancing</td>
<td>Set out 3 cones in a triangle approx. 2m apart. Each cone will be a different activity for 30sec. Child must run to next cone when activity is finished. Cone 1: Sit-ups Cone 2: Push-ups Cone 3: Tuck jumps</td>
<td></td>
</tr>
<tr>
<td>Short relay drills</td>
<td>Set out a line of witches hats 1m apart. The child will weave in and out of the hats in different ways; Running Crab crawling Backwards Crawling on knees Jumping Skipping</td>
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<tr>
<td>Put out a line of witches hats 1m apart. The child will weave in and out of the hats in different ways;</td>
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<td>Sprint the third, and jog back. Rest for 1 min then repeat. Rest for 2 min then repeat.</td>
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</tr>
<tr>
<td>Short relay drills</td>
<td>Set out hula hoops randomly around. The child can run around until you say STOP – then they must jump into the nearest hula hoop and do what you say – for example; Star jump Run on the spot Pretend to be a kangaroo Dance Jump from side to side…..</td>
<td>If you don’t have access to a gym try focusing each session on a different activity or muscle group: Boxing Push-ups Sit-ups Drills Bike riding</td>
</tr>
<tr>
<td>Put out a line of witches hats 1m apart. The child will weave in and out of the hats in different ways;</td>
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<td>不</td>
<td>Set up a drill situation of different soccer skills. For example: Passing the ball Heading the ball Weaving the ball through markers Reflexes – kicking the ball against a wall close up without stopping</td>
<td>Organise circuits for specific sports, e.g., tennis, soccer, basketball, netball, football</td>
</tr>
<tr>
<td>Goal setting</td>
<td>Ball dribbling: run up and down the field dribbling the ball and passing it to each other. Try and speed up the pace every 2 min.</td>
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<tr>
<td>Jumping jacks – set jump goals. For example: 10 jumps 15 jumps</td>
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<tr>
<td>Goal setting</td>
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<tr>
<td>Goal setting</td>
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<tr>
<td>20 jumps</td>
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<tr>
<td>10 super fast jumps</td>
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<tr>
<td>15 super fast jumps...</td>
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<tr>
<td>Keep dribbling and take a shot at goal each end – set up some markers as goals.</td>
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<table>
<thead>
<tr>
<th>Running;</th>
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<tbody>
<tr>
<td>Run 10m as fast as you can</td>
</tr>
<tr>
<td>Run 20m as fast as you can</td>
</tr>
<tr>
<td>Run 50m as fast as you can</td>
</tr>
<tr>
<td>Goal shooting; you act as the goal keeper while the child takes a shot at the goal – try and keep this flowing so the child does not stop – just keeps kicking at the goal as soon as you return the shot.</td>
</tr>
</tbody>
</table>
## Cool-Down Ideas: 5 min Duration

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Activities</th>
<th>Heat Rate Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child 3-5</td>
<td>Similar activities to the warm-up games are great. The main focus is to slow the activity down to decrease the child’s heart rate. Go for a slow jog/walk. Start with a jog and then slow it down to a walk. Animal game – pretending to be a rabbit, horse, crocodile, monkey, dog etc.</td>
<td></td>
</tr>
<tr>
<td>Child 5-9</td>
<td>The main focus here is to slow the activity down to decrease the child’s heart rate. Go for a slow jog/walk. Start with a jog and then slow it down to a walk.</td>
<td></td>
</tr>
<tr>
<td>Adolescent 9-14 and 15+</td>
<td>The main focus here is to slow the activity down to decrease the adolescents’ heart rate. If access to a gym is available, do a supervised cool-down on: Exercise bike, Treadmill, Spin Bike, Elliptical trainer, Recumbent bike, Rower. Make sure you slow the pace right down to bring the HR down.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Stretching – Make sure you spend plenty of time stretching each muscle group to prevent injury and soreness. Encourage hydration at this time.</td>
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<td></td>
</tr>
</tbody>
</table>
Circuit Training Example

Here is a 30-minute (approx.) circuit appropriate for 5-9 year olds designed with general fitness and skills in mind.

Warm-up and interspersed activity ideas:

- Run around the circuit area – and onto the next station
- Jump on the spot for 30 sec
- Hop on one leg – change sides
- Little jumps
- Dance on the spot to the music

Circuit - 10 stations

Station 1            Skipping rope – skip as fast as you can
Station 2            Stepper – dips (triceps)
Station 3            Mini tramp – bounce on the spot as fast as you can for 30 sec
Station 4            Bean bags – balance on your head and walk from marker to marker (5m distance)
Station 5            Star jumps – as many as you can for 30 sec
Station 6            Hula Hoop – hop in and out on one leg – switch legs
Station 7            Hoppy – bounce on the spot as high as you can go
Station 8            Ball/Tennis Ball – bounce on the spot with one hand or two depending on co-ordination level
Station 9            Stepper – step on and off the stepper as fast as you can
Station 10           Bean bags and Hula hoops – run and replace. Put all the bean bags in one hula hoop – set up another hoop 5m away. Kids have to take one bag at a time from the hoop, run 5m and put it in the other hoop.

Reward Game 10-15 min

After the circuit is finished it is a good idea to reward the group as a whole with a group game. You can play a sporting game like soccer or cricket or use one of the ‘starting’ games shown earlier.

Remember that it is a reward game so the emphasis is on ‘fun’!

Cool-down / Relaxation (approx 5-10 min)

At the end of the Reward Game encourage the children to have a drink break then take them through a few simple stretches of all the major muscle groups, like – quads, hamstrings, calf, ankles, bicep, triceps, wrist, neck, back and shoulders.

- Explain each stretch slowly and visually
- Hold each stretch for at least 20 seconds
- It is a good idea to name the muscle you are stretching so the children can start to learn the different muscles in the body.

This is also a good time to add in the relaxation session, calming their minds and relaxing their bodies before the end of the class. You might like to include some yoga movements here.

At the end of the class get the kids to give themselves a big clap and ask them to help clear away the equipment.
REMEMBER to once again encourage hydration after the class has finished.
SPECIAL CONSIDERATIONS FOR TRAINING KIDS

If you are going to work with this age group, there a number of professional responsibilities you need to take care of before planning and delivering exercise for children and young adolescents.

The main consideration is a duty of care to the child (and the parent/guardian/carer). Essentially this is no different to the duty of care when training adults. Duty of care would include consideration of the following (this is not a definitive list):

- Location
- Activity type
- Number of children in the session
- Medical considerations for each child
- Environmental conditions such as heat and humidity

Another aspect of duty of care involves the use of equipment. Most common pieces of resistance training equipment are designed for adult use. As children are smaller, the lever systems of these machines do not always suit the children. Even when adjustable, they often cannot adjust to accommodate children. You should avoid using equipment that is not suitably adjustable to meet the size and shape of the child or adolescent. If you choose to use free weights with children, then ensure that correct technique is maintained to avoid injury.

Visit these websites to check out a wide range of exercise equipment for kids:

http://www.fitnessandkids.com/articles_kids.html


Access To Gyms

There are accepted standards in the fitness industry in relation to minimum ages to access facilities.

Industry recommends that the minimum age of entry for non-weights based fitness classes and usage of cardio equipment be 14 years of age.

Industry recommends that the minimum age of entry for weights-based fitness classes and for membership of a gym be 16 years of age.

Insurance

When working with children and adolescents, trainers will need to ensure their cover encompasses this specific population group.
Pre-Exercise Screening and Consent Procedures

Another important consideration is the pre-exercise screening of the child. This involves including the parent/guardian/carer in any and all assessment of the child’s current and previous health status, both medical history and fitness level. Parents or guardians of children and adolescents under the age of 16 years must complete a pre-exercise screening questionnaire on behalf of their child if they wish to participate in a program you are running.

This pre-exercise screening questionnaire must include the following:

- Emergency contact details
- Physical activity history
- A parent or guardian signature giving authorisation and consent
- A countersignature by you

You must remember that it is your responsibility as a professional to use this information under the relevant state and territory Acts. An important Act to familiarise yourself with is the Privacy Act. The Act for each state and territory is different and each can be found at


This is an informative website which has all the relevant documents for your state or territory.

The National Privacy Act provides 10 privacy principles regarding the collection, handling and storage of health information. It also provides a general right of access of individuals to their own health records, and requires health service providers to clearly set out their policies on management of personal information to the client/individual. The website also provides a document for you with 10 helpful steps to protecting information.

Risks/Safety Elements

The recommended Staff/Child Ratios for structured or supervised programs in centres according to the Fitness Australia/Children’s Hospital at Westmead ‘Kids in Gyms’ document (2003) are:

- **1:25** - 1 instructor for every 25 children when conducting supervised or structured group fitness classes. This includes weights and non-weights fitness classes and circuit weight training classes. (This ratio may be exceeded on the proviso that for each increment between 1 and 25 children over the initial class size of 25 students, there must be one additional class instructor present).
- **1:8** – 1 instructor for every 8 children when conducting supervised or structured resistance training sessions.
- For school groups a teacher must be present at all times in addition to the instructor.
Legislative Requirements

Before you begin training children or adolescents you will need to complete and satisfy the requirements of a Working with Children Check – this may be processed by your employer or you may be required to undertake the check yourself. A Working with Children Check is a background check investigating your criminal history to ensure you are suitable to work with children.

You will also need to understand the Child Protection legislation in your state or territory in relation to working with children and young adolescents. Child protection legislation principles reflect the service goals to which governments aspire. They also provide the legal framework pursuant to which governments can intervene to protect children. The legislation in each state and territory differs.

The Australian Government website has many helpful documents and links. The legislation comes under the National Child Protection Clearinghouse. You may find the following links helpful to find the relevant legislations in your state or territory:


It is important for you to be clear about how all these legislative requirements impact on your role and responsibilities.
Referring to other Professionals

This section requires you to become familiar with specialists who provide advice in certain fields of expertise. The following list may help you in compiling your own personal consultative network when working with children and adolescents:

- **Health Professionals**
  - General Practitioner
  - Medical Specialist
  - Paediatrician
- **Allied Health Professionals such as:**
  - Accredited Exercise Physiologist
  - Accredited Practising Dietician or Nutritionist
  - Counsellor
  - Psychologist
  - Physiotherapist
  - Osteopath
  - Chiropractor
  - Podiatrist

You may need to refer a child or young adolescent to one or more of these professionals either during their initial consultation with you, or at any time during the course of the physical activity program.

You might also need to consult one or more of these professionals with any questions you might come across during your work delivering fitness programs to children and young adolescents.

The following web sites may be of assistance:

- Dieticians: [www.daa.asn.au](http://www.daa.asn.au)
- Counsellors: [www.theaca.net.au](http://www.theaca.net.au)
- Psychologists: [www.psychology.org.au](http://www.psychology.org.au)
- Physiotherapists: [www.physiotherapy.org.au](http://www.physiotherapy.org.au)
- Chiropractors: [www.chiropractors.asn.au](http://www.chiropractors.asn.au)
Summary Checklist

Before you begin training children or young adolescents – make sure you tick all the following boxes:

- Hold appropriate qualifications
- Hold a current Senior First Aid/CPR Certificate
- Have had a Working with Children Check
- Hold Professional Indemnity and Public Liability Insurance
- Have read and understood relevant child protection legislation pertinent to your state/territory
- Have read and understood privacy of information legislation relevant to your state/territory
- Have read and understood any Duty of Care policies related to your workplace
- Hold appropriate Fitness Industry Professional Registration according to state and territory Codes of Practice
- Be able to evaluate and apply a pre-exercise screening tool in relation to the provision of physical activities for children and adolescents
- Gain a basic understanding of a range of common special needs of children and young adolescents.
- Be able to select and apply fitness and assessment protocols
- Understand the physical, social and psychological benefits and effects of exercise for children and young adolescents
- Understand the stages of growth and development
- Understand the differences between training adults and children
- Understand a range of strategies for minimising the risk of injury in children and young adolescents
- Able to develop and deliver a physical activity session to children and young adolescents
- Use a variety of equipment
- Know how to structure, develop and deliver a physical activity session
For this Your Turn, the ideal scenario would be to consult with a volunteer parent and child and complete screening and programming for the child in question. If this is not possible, the Your Turn Diary has some case studies for you to simulate. This Your Turn will help prepare you for assessment.

You will need to print the Exercise Readiness Questionnaire for Children and Adolescents.
ROUND UP

There is a lot to know about training kids. You should now have an understanding of:

- Obesity and overweight issues
- Growth and development
- Pre-exercise screening for children and adolescents
- Benefits of exercise
- Practical training ideas
- Special considerations for training kids
REFERENCES

The following references were used in the compilation of this session:


Here are some other references if you would like further information:


For a more comprehensive look at the health of Australian children, visit these websites.


