

Physical Growth and Maturation

Junior sport framework



A guide for sport and recreation clubs and associations in Western Australia.



Department of Sport and Recreation
Government of Western Australia



Australian Government
Australian Sports Commission

Overview

This booklet is part of a series which cover the nine guidelines outlined in the Junior Sport Framework (JSF) as developed by the Australian Sports Commission (ASC). The information in this booklet has been reproduced with permission from the Australian Sports Commission.

The guidelines cover topics to address the needs of young people in sport and include:

- 19 Long-term Involvement
- 20 Getting Young People Involved
- 21 Physical Growth and Maturation
- 22 Sport Pathways
- 23 Forming Links
- 24 People Making it Happen
- 25 Quality Coaching
- 26 Making Sport Safe
- 27 The Law and Sport

These booklets outline the main points of the guidelines to assist in the delivery of best practice in junior sport and to encourage young people to make a life-long commitment to sport.

A complete copy of the JSF is available in the Online Clubhouse section of the Department of Sport and Recreation (DSR) website.

Introduction

Physical activity is needed for normal growth and development, and for young people to reach their potential in muscle and bone development.

Sport is an ideal way to provide this necessary activity, as it also brings psychological and social benefits to young people.

For the best physical and skill development, consideration must be given to factors related to growth and maturation to help with decisions about grouping young people for participation, and readiness for:

- progressions in training and competition; and
- specialisation and intense training.

Developmental Process

The development of a child is driven by three distinct processes: growth, maturation, and adaptation. These have important implications for training and competition.

Growth is the increase in overall body size with changes in muscle, bone and fat and this affects motor skills. Growth is complicated because:

- different parts of the body grow at different rates; and
- periods of growth start and stop at different times.

Maturation is the genetically programmed series of changes leading to maturity.

These changes occur in the same sequence in everybody, but there are great individual differences in:

- when puberty starts;
- how long it takes (it can be 18 months to 5 years); and
- how much growth occurs in the adolescent growth spurt.

The growth spurt in height happens first and is followed by the growth spurt in weight and then the growth spurt in strength.

Adaptation occurs as a result of external rather than genetic factors (e.g. intensive training).

Implications for Sport

The uneven spread in growth and maturation in young people of the same age makes chronological age of limited value in determining the developmental status of a young person. This creates challenges related to opportunity, training and competition.

Opportunity

Opportunities (e.g. being selected to participate) may not be offered to some young people because of their current developmental status. Therefore sport providers must:

- be aware that late maturing young people may be disadvantaged when competitions are based on chronological age; and
- encourage young people despite their current body shape as this may be different later on.

Activities should be organised so young people have positive experiences regardless of their developmental status.

Young people and their parents/carers should focus on personal improvement, and not comparison with others of the same age.

The result is more young people having a chance to realise their potential, and expansion of the talent pool for future success in sport.

Training/Practice

For the most part, training and sport activity is beneficial for the best possible physical growth and development of young people.

However, it is important to remember that young people differ from adults in the quality of their tissues and are not able to take the same stresses.

Consequently training must be conducted differently for young people particularly if they are specialising and involved in a narrow range of activities.

Injuries do occur on occasions but are usually reversible. There are times during periods of growth when tissues are more vulnerable.

For example, it takes considerable time for a bone that has lengthened to become strong, and for the muscles, tendons and ligaments to grow to the new length of the bone.

The most common problem is soft tissue injuries (muscles, ligaments and tendons) due to trauma or overuse. Rare problems include the risk of:

- fractures particularly during the growth spurt when bones are lengthening and are relatively porous; and
- injuries to the growth plate of bones caused by high contact forces or repetitive loading in some sports.

One area of increasing concern is low bone density in adolescent girls in sports requiring leanness at the elite level (see also *26 Making Sport Safe* under Weight Control).

The high energy expenditure of intense training accompanied by restricted food intake can lead to menstrual dysfunction and precipitate bone loss.

This in turn increases the risk of:

- stress fractures in the short term; and
- osteoporosis in later life.

Healthy eating with sufficient energy for training is important to prevent a negative impact on growth and maturation.

For safety, young people in intense training should have qualified coaches who plan training and competition schedules according to individual needs. These should be:

- designed around the holistic needs of young people with consideration of their level of social, emotional and psychological maturation;
- planned taking into account all physical activities undertaken by a young person; and
- adjusted on an ongoing basis so loading is progressive and matched to their developmental stage.

3.1 Strategies for Accommodating Growth and Maturation – Training/Practice

- Plan and adjust training schedules based on individual growth and maturation.
- Monitor for changes indicating a growth spurt (e.g. faster increase in height, onset of menstrual cycle in girls and voice changes in boys, input from parents) and alter training and competition based on individual needs.
- Educate coaches and parents/ carers on issues related to growth and maturation of young people.
- When under-eating is suspected in young people who are training intensely, seek professional advice on healthy nutrition.

Competition

Competition is an important part of sport because it provides challenge in applying, testing and developing skills.

However, the great variation in children of the same age in physical aspects such as height, weight and strength results in the risk of injury and psychological distress when young people are unevenly matched.

It may be necessary to consider groupings based on criteria other than age to favour a positive environment for young people continuing in sport.

Handicapping is a way of allowing the participation in open competition of young people with disabilities, or who are smaller/ not as strong as others.

3.2 Strategies Accommodating Growth and Maturation – Competition

- Focus on personal improvement not comparison against others
- Consider the use varied criteria for groupings (e.g. skill level, experience, body weight rather than chronological age or gender).
- Use handicapping in competitions to reduce the effect of growth and maturation differences.
- Consider skills, physical maturation and psychological development and allow boys and girls to participate together when these are similar.

Talent Development

Some young people are started in hard training early (e.g. 5–8 years) in the belief this will increase the chances of developing an elite athlete.

Early success does not predict success later on. Many world class adult athletes were not outstanding as children.

Expert opinion is that children 12 years and under should be encouraged to participate in a wide range of activities requiring a variety of motor skills before beginning to specialise in a single sport, event or position.

In this way, the athleticism of young people is improved and late developers are encouraged to stay in sports long enough to derive benefit and satisfaction from their eventual maturity.

Some young people have the potential to become elite athletes, and so may wish to train seriously. Their progress is best catered for by:

- graduated talent development programs based on quality coaching and talent management;
- physical, mental and emotional preparation for the demands of high level competition; and
- education about the societal role of elite athletes and the potential impact of success and failure on their lives.

A well-rounded approach is needed so their educational and social needs are not compromised.

Consideration should be given to the difficulty of predicting at an early age the success or otherwise of the future adult athlete.

3.3 Strategies for Talent Development

- Focus on young people having fun so that their interest is maintained until they are at an age and stage to specialise.
- Leave talent identification and development as late as possible.
- Expose young people to as many different sporting experiences as possible (e.g. rotate positions and teams).

While achieving and responding to challenges, young people must also have fun. It is not in their best interest to have them concerned at an early age about whether they are going to make the elite ranks.

This concern could manifest in overdoing training and competition and be counter productive. Let them enjoy moving up the pathways to success.

Key Message

Young people grow and mature at different rates. Understanding the implications of this can make sports participation more rewarding and safer for young people if sports providers:

- adapt activities to their changing needs especially during periods of rapid growth;
- judge performance according to a young person's stage of development, and not by what others of the same age can do; and
- leave decisions about specialisation as late as possible so best choices are made for the young person.

Key Points — Growth and Maturation

- Growth and maturation vary greatly in young people making chronological age a poor indicator of developmental status.
- Young people should be encouraged to participate in a wide range of sporting activities.
- Late maturers and young people small for their age can be discouraged in sport and may not get a chance to develop their talent.
- During growth spurts training and competition need to be planned carefully to avoid injury.
- The risk of bone fracture, growth plate injuries, and soft tissue injuries increases during rapid growth.
- Girls who under-eat while training intensely run the risk of stress fractures and in later life, osteoporosis.
- Training and competition schedules need to be planned around the holistic needs of each individual athlete.
- Early specialisation reduces athleticism (competence in a broad range of motor skills) and can lead to early burnout.
- Taking care of young people with regard to practice and training schedules and when they specialise in their sport is important to:
 - keep young people in sport for the long term; and
 - make sure no potentially talented young people are lost to the sport.

Further reading

Briefing Paper

21 Physical Growth and Maturation

Case Study

Uncle Tobys GO Swim illustrates the use of ability rather than age to group young people for activities including competition.

Resources

American Academy of Pediatrics Policy Statement: Strength Training by Children and Adolescents www.aap.org

Uncle Tobys GO Swim

The Uncle Tobys GO Swim program is designed for young people aged 6 to 11 years to encourage them to become involved in the sport of swimming, once they have learnt to swim.

Aims are to:

- match young people according to their experience in the sport rather than age;
- emphasise fun and learning skills; and
- introduce young people to competition with the focus on participation rather than winning.

Special events form part of the Uncle Tobys GO Swim program and aim for all involved to have a positive experience. Included are technique races, where the GO Swimmers are judged on their technique rather than speed.

General clinics are also conducted where skills are practised and improved. Care is taken to group children with others of similar ability.

Uncle Tobys GO Swim is delivered by registered service providers who are qualified and experienced teachers/coaches. They work at a local level with swimming clubs to provide a pathway for the GO Swimmers once they move on from the program.

Major objectives are to:

- give GO Swimmers opportunities for fun in the sport; and
- provide pathways for further involvement in either competitive or recreational sport.

Other Resources

This resource is part of the Club Development Scheme, which provides assistance to Western Australian sport and recreation clubs and organisations to become better managed, more sustainable and to provide good quality services to members and participants.

Other resources in the series include:

Clubhouse CD-ROM

- 1 Step by Step... to starting a new club
- 2 Planning for Your Club – the future is in your hands
- 3 Taking the Lead! A guide for Club Presidents
- 4 The Key to Efficiency – the Club Secretary
- 5 Show Me the Money – a guide for the Treasurer
- 6 Take the 'In' out of Ineffective – ten steps to running successful meetings
- 7 Effective Club Meetings – a guide for the chairperson
- 8 Lighten the Load and Delegate – help for the overworked committee member
- 9 You Have the Answers – solving club problems
- 10 Marketing and Promoting your Club
- 11 Sponsorship – seeking and servicing a sponsor
- 12 Establishing Your Club Constitution and Becoming Incorporated
- 13 Risky Business – a club guide to risk management
- 14 Clubs' Guide to Volunteer Management
- 15 Member Protection for Clubs
- 16 How to be More Inclusive of People from Diverse Backgrounds
- 17 Passport into Schools – linking sports with schools
- 18 Youth Sport – junior sport policy
- 19 Long-term Involvement – junior sport policy
- 20 Getting Young People Involved – junior sport policy
- 21 Physical Growth and Maturation – junior sport policy
- 22 Sport Pathways – junior sport policy
- 23 Forming Links – junior sport policy
- 24 People Making it Happen – junior sport policy
- 25 Quality Coaching – junior sport policy
- 26 Making Sport Safe – junior sport policy
- 27 The Law and Sport – junior sport policy
- 28 Top 20 Tips for Officials
- 29 Top 20 Tips for Successful Coaching

Find a Club

Find a Club is where you can register or update your club's details in our Find a Club database. It is an exciting new initiative designed to increase participation in sport and recreation and help your club recruit more members and volunteers.

Located within the Department of Sport and Recreation's website, Find a Club will be a comprehensive database of sporting and recreational clubs within Western Australia.

Visitors to the website can search for clubs in their local area and are provided with activities, contact details, venue details and even a street map showing them how to get there.

By registering or updating your club details you receive:

- Free listing of your club contact details and activities.
- Up-to-date industry news and funding opportunities for your club.

To register as a new club

Visit www.dsr.wa.gov.au and click on Find a Club.

To update your club information

If your club has previously registered your contact details with DSR, your nominated contact person will receive a login and password to enter and update your club information.

