



**BCU Long Term  
Paddler Development  
Pathway**

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Graham Ross                        Sport England, Senior Development Manager, Talent.

Brian Chapman                     Chairman, BCU Board  
David Gent                          Vice President, BCU  
Paul Owen                          Chief Executive, BCU

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Howard Blackman                  Paddlesport and Coaching Development Officer – East Midlands  
Gordon Burton                      Sports Science Coordinator, World Class Potential / Start  
Graham Campbell                  National Development Coach, Racing  
Doug Cooper                        Coaching Development Officer, Scotland  
Mike Devlin                         Director of Coaching  
Alan Edge                            National Development Coach, Canoe Slalom  
Rodger Hamilton                  Regional Coaching Organiser, Northern Ireland  
Sue Hornby                         Head of Youth Programme  
Dean Sinfield                        Coaching Development Officer, Wales  
Bill Taylor                          Manchester Metropolitan University  
Lara Tipper                         Long Term Paddler Development Project Officer  
Richard Ward                        English Coaching Development Manager,  
Long Term Paddler Development Project Leader

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And this is just the beginning.....

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Compiled by Lara Tipper  
Designed by OaD Design

British Canoe Union  
John Dudderidge House  
West Bridgford  
Nottingham NG2 5AS

Tel: 0115 982 1100  
Fax: 0115 982 1797  
Email: [coaching@bcu.org.uk](mailto:coaching@bcu.org.uk)

Web: [www.bcu.org.uk](http://www.bcu.org.uk)

## Preface

Through the Long Term Paddler Development pathway the BCU aims to create a working framework that provides paddlers at all stages of development, in all disciplines, the opportunity to be the best they can.

It provides a logical progression of development that supports paddlers from the day they first get in a boat, over a span of many years. It aims to give paddlers the necessary building blocks required to progress, ensuring the right opportunities are offered at the right time as part of a clear and agreed vision and strategy.

It does not matter if someone just wants to have fun on the water, become a hard-core river runner or an Olympic / World champion. Whatever their aspirations, Long Term Paddler Development is about giving them the chance to get the most out of paddlesport, being able to achieve their ambitions and realise their dreams.

In order for Long Term Paddler Development to make a difference we need you, whatever your involvement, to help us implement this programme. With time, the principles behind Long Term Paddler Development should underpin everyone's paddling experiences across all levels of our sport.

### Endorsed by:

John Anderson	National Performance Director
Dr Istvan Balyi	Advanced Training and Performance
Mike Devlin	BCU Director of Coaching
Sue Hornby	Head of BCU Young Peoples Programme
Paul Owen	BCU Chief Executive
Graham Ross	Sport England, Senior Development Manager
Albert Woods	BCU President



<b>Introduction to LTPD</b>	<b>Page 5</b>
Diagram	7
Tables	8
<b>Foundation Paddlesport</b>	<b>Page 13</b>
Introduction	13
Fundamentals	14
Paddlesport Start	16
Paddlesport Development	18
<b>Recreational Paddlesport</b>	<b>Page 20</b>
<b>Performance Paddlesport</b>	<b>Page 24</b>
Introduction	24
Train to Train	25
Train to Perform	28
Train to Excel	30
<b>Notes</b>	<b>Page 32</b>
<b>Appendices</b>	<b>Page 34</b>
1. Windows of Opportunity	34
2. The Adolescent Growth Spurt	38
3. Implementation	40
<b>Glossary of Terms</b>	<b>Page 41</b>
<b>Bibliography</b>	<b>Page 42</b>
<b>Notes</b>	<b>Page 46</b>

Thank you for taking the time to read this, we hope that it will give you some new ideas to play with or it may just confirm that what you are already doing is current best practice. Whether you are a paddler, parent, coach, administrator, sports teacher, club member or centre manager you should be able to take something away from reading this and help us to develop our sport.

The BCU Long Term Paddler Development (LTPD) framework has been established based on the principles behind human growth and development and maximises the opportunities this offers to the paddler. Dr Istvan Balyi, a Hungarian / Canadian coach, has drawn together a wealth of experience and research and developed 'Long Term Athlete Development' as a model upon which sports can base their athlete development strategies.

In June 2003 the BCU and Sport England organised a workshop-based conference with Istvan Balyi. It was evident to all present that his ideas would benefit paddlesport and that the BCU should produce an integrated framework for Long Term Paddler Development. We are now one of 18 sports across the UK (at the time of writing) to receive funding from Sport England to implement this into our system. The concepts outlined by Dr. Istvan Balyi have been used to form the structure behind our model. However, in response to the feedback received from consultation across the various paddlesport disciplines, it has been fine-tuned to ensure it is appropriate to our sport.

The project is a key component in the delivery of the BCU development plan and in the development of the UK Coaching Certificate.

Through Long Term Paddler Development, we aim to achieve:

- Increasing enjoyment levels from the sport
- More paddlers realising their dreams
- More paddlers retained in the sport
- More outstanding performances i.e. first descents, open crossings, medals etc.
- Generally higher standards of Performance

The model aims to provide a base of paddlesport and movement skills that will give an individual the opportunity to enjoy our sport to whatever level they choose, whether recreationally or high performance. It also aims to help deliverers provide the right opportunities at the right time, ensuring that paddlers are enjoying paddlesport and progressing at an optimal level.

The Long Term Paddler Development model supports paddlers from the day they first get into a boat over a span of many years, providing a logical progression of programme planning and skill development from the young paddler to the experienced performer.

We are proposing three key areas in our Long Term Paddler Development framework:

## 1. Foundation Paddlesport

this is applicable to anyone starting out in paddlesport and is split into three stages:

- 1.1 **FUNdamentals stage**
- 1.2 **Paddlesport Start**
- 1.3 **Paddlesport Development**

This stage is based on having fun and developing skill. This foundation of skill development and enjoyment, gives paddlers a base to progress either down the recreational or performance route depending upon their aspirations.

Optimal development requires an early start, ideally paddlers should be passing through these stages between the ages of about 5 and 13 years old. However the principles can be applied and be as equally beneficial for anyone in their first few years of paddling, whatever discipline, and whenever they start.

## 2. Recreational Paddlesport

this aims to give paddlers opportunity and skills to maximise their enjoyment and satisfaction from the sport to whatever level they desire. This is applicable to paddlers who wish to achieve personal goals, i.e. Enjoy a surfing holiday, be able to paddle class 3, learn to cartwheel, be able to take the kids on a canoe camping trip, use paddling as a fitness session, or to enjoy regular trips on the local river. The Long Term Paddler Development model can be used as a goal setting and evaluation tool helping individuals and coaches to identify specific areas that need development in order to reach those personal goals.

## 3. Performance Paddlesport

This is applicable to anyone wishing to maximise their potential and equally applies to the competitive and non-competitive disciplines. It is split into three stages:

- 3.1 **Train to train**
- 3.2 **Train to perform**
- 3.3 **Train to excel**

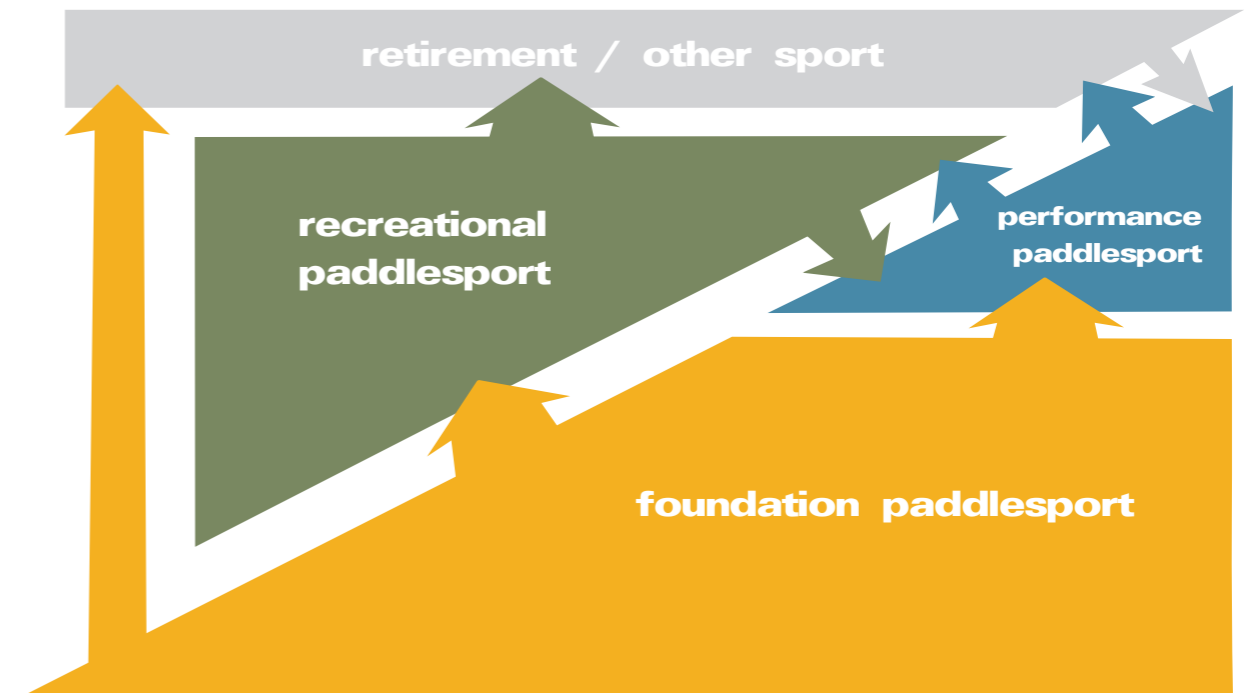
Paddlers who would come into this category would include for example those with high aspirations on the competitive strands of paddlesport, but equally those wishing to pursue a recreational discipline to the highest level. For example, a solo sea kayaking expedition or a first descent.

At each stage specific principles and guidelines for physical, psychological, technical, tactical and ancillary development are identified. Once competencies have been achieved at one level, they form the foundation for the next level. The model takes the paddler from basic to complex skills, from general to specific, and from beginner to expert. It considers what the paddler should be doing and when, providing the best possible programme to ensure individuals come into the sport, stay in the sport and achieve performances that reflect their potential / aspirations.

The document is split into the three sections as outlined above:

- 1. **Foundation Paddlesport**
- 2. **Recreational Paddlesport**
- 3. **Performance Paddlesport**

The pages for each section are colour coded, as above, for easy reference. This is then followed by relevant appendices, glossary and bibliography.



# Foundation Paddlesport Model

Stage	FUNdamental		Paddlesport Start		Paddlesport Development	
<b>Key Focus</b>	FUN! Learn to Move		FUN! Introduction to Paddlesport		FUN! Develop Paddlesport Skills	
	Applicable to all		Applicable to all new paddlers			
<b>Ideal Development Stage</b>						
<b>Age at Start of Phase*</b>	Boys 5 – 7 years Girls 4 – 6 years		Boys 8 - 10 years Girls 7 – 9 years			
<b>Age at End of Phase*</b>	Boys 8 - 10 years Girls 7 – 9 years		Boys 11 - 14 years Girls 10 - 13 years			
<b>Training Age</b>	First 3 Years of Sporting Activity		First Year of Paddling		2nd & 3rd Year of Paddling	
<b>Ideal Paddlesport Participation</b>	Introduced to a variety of 'wet environments' i.e. swimming, playing in water.		Approximately 4- 6 hours / month		Between 4 - 12 hours / month	
<b>Ideal Participation</b>	Physical activity 4-6 times per week including at least 1 water based session and occasional paddlesport. Regular participation in at least two other sports (i.e. Gymnastics, athletics, swimming)			Moving to 3 hours paddling and 3 hours of other sport per week. Exposed to a variety of venues and crafts within paddlesport		
<b>Balance</b>	1 wet session : 3 other Sport Sessions	1 Paddling Session : 4 other Sport Sessions	2 Paddling Sessions : 4 other Sport Sessions	3 Paddling Sessions : 3 other Sport Sessions		
<b>Delivery</b>	Clubs, Schools, Coaches & Centres					
<b>Technique</b>	Movement skills		Fundamental Paddlesport Skills. Moving water and/or flat water. Decision making skills developed.		Development of skills in varied environments. Decision making skills developed.	
<b>Strength</b>	Medicine ball, Swiss ball and own body weight exercises used in fun, games, paddling and other sports. Introduce hopping and bounding, once a base has been established.					
<b>Speed &amp; Anaerobic</b>	Agility, quickness and changes of direction. 5 second bursts (land based)			Ability to change speed and/or direction on the water Land based speed work 5-15 Seconds.		
<b>Aerobic</b>	Through fun, games, paddling and other sports, games and relays					
<b>Flexibility</b>	Through fun, games, paddling and other sports		Introduction to basic flexibility exercises			
<b>Functional Stability</b>	Generic shoulder, elbow, core, spine and ankle stability developed			Generic and Discipline specific stability progressed		
<b>Psychology</b>	Self-confidence, water confidence and movement confidence developed. Concentration skills developed. Achieve success and receive positive reinforcement			Introduction to mental preparation. Perseverance skills developed. Continuation of development from previous stages.		
<b>Tactical</b>	Introduction to simple rules and ethics of sport		Key rules understood			
<b>Attitude</b>	Positive attitude to sport and fair play		A responsible attitude towards own and others safety.		Take good care of equipment. Accept the need for discipline and structured sessions.	
<b>Ancillary Capacities</b>	Knowledge of basic sports equipment, footwear and clothing.		Learn how to train / practice. Be introduced to basics of warm-up/cool-down, stretching, hydration & nutrition, recovery, relaxation and focusing. Paddlepower Logbook or diary kept.			
<b>Corrective</b>			Address any gaps from FUNdamental stage.		Address any gaps from previous stages.	

Note: This model represents the ideal developmental pathway. If the age bands are not relevant to your needs have a look at page 13 to see how the model can be adjusted to suit older paddlers.

\*Age ranges are given to help accommodate early and late developers.

# Performance Paddlesport Model

Stage	Train to Train	Train to Perform	Train to Excel
<b>Key Focus</b>	Physiological and technical development	Optimising physiological and technical skills	Producing high level performances
<b>Ideal Development Stage</b>			
<b>Age at Start of Phase*</b>	Boys 11-14 years Girls 10-13 years	Males 14 -17 years Females 12 -15	Males 17 - 21 years Females 15 - 20
<b>Age at End of Phase*</b>	Boys 14-17 years Girls 12-15 years	Males 17 - 21 years Females 15 - 20	n/a
<b>Training Age</b>	First 3 Years of Sporting Activity	First Year of Paddling	2nd & 3rd Year of Paddling
<b>Ideal Paddlesport Participation</b>	From 3 - 8 paddling sessions / week	7-14 specific training sessions / week.	Individualised
<b>Ideal Participation</b>	Supplementary land training. Participation in other sport as appropriate.	Retain other paddlesport/land based activity as appropriate.	Individualised
<b>Delivery</b>	Clubs, Squads & Coaches		
<b>Periodisation</b>	Single or Double	Double or triple	Multiple as necessary

<b>Technique</b>	Generic moving water / flat-water skills. Discipline specific skills. Decision making skills developed.	Discipline specific and individualised. Aiming for consistency in performance. Decision making skills developed.	Individualised
<b>Strength</b>	Learning basics of Strength training before Window of opportunity. Olympic lifts during window.	Maximum Strength and Power Development. Free weights and Olympic Lifts.	Individualised
<b>Anaerobic</b>	Second Speed Window – 10 – 20 sec. sprints	Land and water based anaerobic training 10 sec – 2 min	Individualised
<b>Aerobic</b>	Before PHV learn how to do aerobic training. From onset of PHV specific aerobic capacity training.	Maintenance. Aerobic Power training.	Individualised
<b>Flexibility</b>	Dynamic mobility and static stretching	Part of regular training routine.	Individualised
<b>Functional Stability</b>	Generic and Discipline specific stability progressed		Individualised
<b>Psychology</b>	Effective goal setting introduced. Relaxation techniques developed.	Preparation for performance. Long-term goal setting. Focus and control, effective imagery,	Individualised
<b>Tactical</b>	Sport specific tactics used & understood.	Individual, event, position and environmental tactics used effectively.	Individualised
<b>Attitude</b>	Sportsmanship / moral development. Develop patience, control and communication skills.		Individualised
<b>Ancillary Capacities</b>	Effective time management. Training diary kept. A disciplined approach to practice. Knowledge of training principles.	Plan for career/education. Balance of work : training : social addressed.	Individualised
<b>Corrective</b>	Address any gaps in technical, psychological, tactical or physiological development	Address any gaps in technical, psychological, tactical or physiological development	Individualised

\*Age ranges are given to help accommodate early and late developers.

## Recreational Paddlesport Model

Stage	Increasing Paddlesport Commitment	Maintaining Paddlesport Commitment	Declining Paddlesport Commitment
<b>Key Focus</b>	Paddlers able to identify their needs / goals. Paddlers able to recognise the role paddlesport has in their life		
<b>Ideal Participation</b>	Managed to suit the needs of the individual		
<b>Delivery</b>	Individuals, Clubs, Event organisers, Individual coaches, Outdoor Centres		
<b>Lifestyle</b>	Work : social : health : paddling balanced to suit the needs of the individual		
<b>Technical</b>	Developed / maintained to a level that supports injury free participation to the level required Developed / maintained to a level that supports aspirations of paddler		
<b>Physiological</b>	Developed / maintained to a level that supports injury free participation to the level required Developed / maintained to a level that supports aspirations of paddler		
<b>Psychology</b>	Paddlers able to identify their needs / goals. Developed / maintained to a level that supports aspirations of paddler		
<b>Tactical</b>	Developed / maintained to a level that supports aspirations of paddler		
<b>Corrective</b>	Address any gaps in technical, psychological, tactical or physiological development		

## Foundation Paddlesport

The Foundation stages are designed for anyone starting out in paddlesport.

- 1. FUNdamentals stage** - FUN and learning to move
- 2. Paddlesport Start** - A FUN introduction to paddlesport
- 3. Paddlesport Development** - FUN and developing paddlesport skills

Fun and skill development are the key factors throughout the stages and aim to give paddlers the building blocks to progress into whichever aspect of the sport they desire.

Co-ordinated Control and Competence	Lifelong Participation and Health	Skilled Performance
Foundation Paddlesport Stages		

You will notice as you read through the stages that specific age ranges are attached to each stage. Optimal development requires an early start, ideally paddlers should be passing through these stages between the ages of about 5 and 14 years old. However, the principles can be applied and be as equally beneficial for anyone in their first few years of paddling, whatever discipline, whatever age.

Check through the outcomes at the end of each stage (FUNdamentals, Paddlesport Start and Development) and identify any areas of weakness. This will help establish where you need to focus, and help plan and set goals.

The key to the whole BCU LTPD pathway lies in the foundation stages; FUNdamental, Paddlesport Start and Development. The whole of the BCU should be working to the same goal – giving paddlers the best opportunity to progress in paddlesport, in whichever discipline they prefer and to whatever level they desire.

### Example:

A group of paddlers in Scotland all started paddling together in the late 70's. They were fortunate enough to have opportunities similar to those outlined in the foundation stages of the LTPD model. They paddled together until they were in their teens and then went their separate ways. Today one is a successful, now retired, GB team slalom paddler and Scottish Polo team player, and now enjoys a career coaching canoe slalom. Another, runs a successful rafting company in Nepal, with a number of first descents under his belt and the third lives in Australia with his family and enjoys canoeing and surfing as part of a generally healthy lifestyle.

Although each paddler chose a different road, they all started out on the same journey. When faced with opportunities and decisions about the direction to take, they had the foundation skills that enabled them to choose their preferred route.

# Foundation Paddlesport

## FUNdamentals

Applies to all Children

For paddlers who fall outside these age bands see the guidance in the Foundation paddlesport Introduction (P13) – this helps to interpret this to suit specific needs.

<b>Ideal developmental stage</b>	Late childhood
<b>Age at Start of Stage</b>	Boys 5 - 7 years Girls 4 - 6 years
<b>Age at End of Stage</b>	Boys 8 – 10 years Girls 7 – 9 years
<b>Training age</b>	First 3 years of sporting activity
<b>Key Focus</b>	Fun Learning to move Water confidence
<b>Key delivery</b>	Schools, Clubs, Coaches and Centres (Paddlesport Coaches, Centres and Clubs may be involved in part of the process)

### Participation

- Regular Participation in physical activity 4-6 times per week (structured sport or active play)
- Emphasis on basic movement skills by participation in a range of physical activity / sport e.g. Gymnastics, athletics, swimming, surfing, ball games etc.
- If Children have a preferred sport, a maximum of 2 sessions per week is recommended, supported by other physical activity 3-4 times per week (remember this can be active play)
- Children can do any combination of competitions, events, trips and practice sessions – anything goes as long as they are having lots of fun!

The key focus during this stage is on developing a range of fundamental movement skills in a positive and fun environment. This is achieved through participation in a wide variety of sports with the emphasis on locomotive, manipulative, stability and spatial awareness skills.

Locomotive Skills	Manipulative Skills	Stability Skills
Walking, Running, Jumping, Leaping, Hopping. Galloping, Sliding, Skipping, Climbing, Spinning and Gliding.	Throwing, Kicking, Punting, Striking, Volleying and bouncing. Rolling, Catching, Trapping.	Bending, Stretching, Twisting, Turning, Swinging and floating. Balance, Body Rolling, Starting, Stopping, Dodging, Inverted supports.
Spatial Awareness		

### Key Components

- Lots of general sports participation / physical activity to learn basic movement skills
- Some water based activities, to develop water confidence and feel for travelling through / on the water
- Ideally including some sports involving travel on a craft to develop a feel of moving over a surface and balance. i.e. skateboarding, skiing, horse riding, biking, paddling or playing with a float in a swimming pool
- Equipment and playing area need to be appropriately sized
- A variety of experiences is essential for; enjoyment in sport as a recreation, the ability to move with confidence and control, and for future excellence
- Windows of Opportunity - Speed and Skill (see appendix 1)

It is important that we can recognise if paddlers have developed the foundation movement skills before moving onto paddlesport specifics. If a youngster has not developed these skills, they will not have the foundation necessary to develop fully as a paddler. Paddlesport coaches need to be able to recognise fundamental movement skills to enable them to remedy any gaps in performance. This can be achieved on the water using games that develop the feelings of sliding, gliding, floating, spinning, spatial awareness, starting, stopping and balance, as well as using land based exercises and games in warm-ups or in the gym. These sessions should be fun, with maximum time playing, and focused on exercises and games that develop these key skills.

### Key Outcomes for Stage:

The individual has developed:

- Enthusiasm for sport developed from positive experiences
- Basic locomotive, manipulative, stability skills and spatial awareness
- Feel for travel over a surface
- Experience of a variety of sports
- Basic game and movement concepts
- Ability to do 5 second sprints with changes of direction
- Basic water confidence
- Basic movement confidence
- Knowledge of basic sports equipment, footwear and clothing
- Understanding of simple rules and ethics of sport
- Basic level of concentration and perseverance during sessions

# Foundation Paddlesport



## Paddlesport Start

Applies to anyone new to paddling

For paddlers who fall outside these age bands see the guidance in the Foundation paddlesport Introduction (P13) – this helps to interpret this to suit specific needs.

<b>Ideal developmental stage</b>	Late childhood / early puberty
<b>Age at Start of Stage</b>	Boys 8 - 10 years Girls 7 - 9 years
<b>Age at End of Stage</b>	Boys 9 – 11 years Girls 8 – 10 years
<b>Training age</b>	First year of paddling participation First 50 - 72 hours (4 – 6 hours / month)
<b>Key Focus</b>	FUN Introduction to paddlesport Learn fundamental paddlesport skills Alongside learning to play other sports
<b>Key delivery</b>	Schools, Coaches, Centres and Clubs

Paddlesport start covers the introduction to canoeing and learning the fundamental skills of the sport. This paddlesport experience should be supplemented through a programme of activity based on structured or deliberate play.

### Participation

- Fun is still at the forefront!
- Physical activity 5-6 times per week including at least 1 water based session and occasional paddlesport
- Regular participation in at least two sports i.e. gymnastics, athletics, swimming, skateboarding, surfing, ball games etc.
- Approximately 1-2 wet sessions : 4 other sport sessions
- If children have a preferred sport, a maximum of two sessions per week is recommended, supported by other sports 3-4 times per week
- Competition or competition like training should make up a maximum of 25% of the time spent participating in sport. The remaining 75% should be focused on practising and learning. Whilst a person is performing in competition they are displaying their current level of ability, if this is engaged in too much they will not improve. For the non-competitive disciplines this is equally as important, the balance of time spent learning to performing should be similar at 75:25

**Training 75%**

**Performing 25%**

### Key Components

- Continuation from FUNdamental stage with movement skill development in a variety of sports
- Participation in wide variety of paddlesport, canoe and kayak
- Sporting activity and venue should be varied, and equipment appropriate to size
- This begins as a generic foundation to sport, developing an extensive base of motor skills including paddlesport skills
- The first paddling sessions or series of sessions
- Window of Opportunity - Skill development (see appendix 1)

The key focus during paddlesport sessions at this stage is about providing a fun introduction to the sport that enthuses people to want more! It is important to recognise that this will differ from person to person. This should underpin all paddlesport sessions at this stage. Skill development is also vital, this can be delivered in a structured manner, or through fun and games.

### Underpinning the key paddlesport skills are:

- Feel for how the boat moves / balances / glides / spins
- Feel for how the paddle is used for power, turning and support
- Feel for how the body (upper body, lower body and trunk / core) is used to assist turning, power and balance
- Development of high-quality techniques
- Able to choose effective and efficient techniques to manoeuvre the boat around the water
- Correct posture

### Key Outcomes for Stage

Has the individual has:

- Met the targets from the FUNdamental stage
- Become enthused about paddlesport / sport
- Developed a range of skills, from a variety of sports
- Developed key paddlesport skills, in a variety of venues and boats
- Developed the FUNdamental movement skills into paddlesport
- Water- confidence, self-confidence and movement-confidence
- Developed a responsible attitude towards own and others safety
- Developed a basic understanding of the rules and ethics
- Been introduced to mental preparation techniques
- A level of strength / core stability able to cope with the demands of the sport
- Been introduced to the ancillary capacities

# Foundation Paddlesport

## Paddlesport Development

For paddlers who fall outside these age bands see the guidance in the Foundation paddlesport Introduction (P13) – this helps to interpret this to suit specific needs.

<b>Ideal developmental stage</b>	Late childhood / early puberty
<b>Age at Start of Stage</b>	Boys 9 – 11 years Girls 8 – 10 years
<b>Age at End of Stage</b>	Boys 12 – 14 years Girls 11 – 13 years
<b>Training age</b>	Years 2 & 3 paddling participation 200 hours of paddlesport during the stage. Between 4 to 12 hours / month paddling Supported with 4 to 12 hours / month other sports
<b>Key Focus</b>	FUN Develop Paddlesport Skills
<b>Key delivery</b>	Clubs, Schools, Coaches and Centres

### Participation

- Participation in wide variety of paddlesport, canoe and kayak, in varied environments
- Some discipline specific focus, in areas of talent and interest
- Participation in variety of complimentary sports – (similar energy systems / movement patterns)

### Creating skilful Paddlers

In order for someone to develop into a skilful paddler, they need to be exposed to a wide variety of experiences. Paddlers should be given the opportunity to experience as many different elements of paddlesport as possible. For example:

- Kayak and canoe
- Rivers, the sea, lakes, canals, lochs, flat and moving water
- Boats i.e. polo, racing, slalom, white water racing, freestyle, general purpose, open canoes and surf

This should be taken in context of local opportunities, it is obviously restricted by availability of venues, boats and coaches. Although it may only be possible to offer a few of those activities, other clubs within the locality may offer something different, we should be encouraging new paddlers to go elsewhere to gain experiences that we cannot offer.

This will help paddlers to develop a sound base of paddlesport skills - rather than limited and specific techniques. Ultimately we are trying to help people become better paddlers; as they progress, they may choose one discipline over another and specialise. With a sound base they are better prepared and their progress in the chosen discipline will be more effective.

### Key paddlesport skills in varied environments (moving and/or flat water):

- Sound forward paddling technique
- Posing – looking good!
- Feel for how the boat moves / balances
- Feel for how the paddle is used for power, turning and support
- Feel for how the body (upper body, lower body and trunk / core) is used to assist turning, power and balance
- Development of high-quality techniques
- Able to choose effective and efficient techniques to move the boat around the water
- Correct posture

### Key Components

- Specialisation should be encouraged where participants show particular talent and interest. Continued skill development should also be encouraged in a wide variety of other activities.
- By the end of the stage paddlers should have been exposed to a mix of opportunities within paddlesport and begin to have an idea of which discipline they wish to pursue based on opportunity, personal preference and talent.
- Window of Opportunity - Skill development (see appendix 1)

### Key Outcomes for Stage

The individual has:

- Developed the outcomes from the Paddlesport Start stage
- Been exposed to a variety of boats, environments and disciplines
- Developed key paddlesport skills in varied environments
- Decided if they wish to specialise, if so in which area?
- Understood key rules
- A level of strength / functional stability able to cope with the demands of the sport
- Knowledge of the ancillary capacities

Competition or competition like training should make up a maximum of 25% of the time spent participating in sport. The remaining 75% should be focused on practising and learning. For the non-competitive disciplines this is equally as important, the balance of time spent learning : performing should be similar at 75:25

**Training 75%**

**Performing 25%**

‘**Training**’ represents play, practice and learning based participation.

‘**Performing**’ represents competition, competition like training and paddling where the focus is on displaying your current level of ability

# Foundation Paddlesport

## Recreational Paddlesport

This section aims to provide “recreational” paddlesport with guidance on how the principles of LTPD can be practically applied to help any paddler, no matter what their age, ability, aspiration or specific interest. It outlines the LTPD approach to helping paddlers build on the generic Foundation Stages (see pages 13-19) to maximise their enjoyment and satisfaction in the time available for paddlesport.

This section is applicable to paddlers who wish to achieve personal goals, i.e.

- Enjoy a surfing holiday
- Be able to paddle class 3 water
- Learn to cartwheel
- Be able to take the kids on a canoe camping trip
- Coach
- Use paddling as a fitness session
- To enjoy regular trips on the local river
- To use paddlesport to supplement other activity / sport

Long Term Paddler Development can be used to help recreational paddlers achieve their aspirations, just as it does high-level performers – but it needs some imagination and the ability to sift through the relevant bits. LTPD is based on theory and practice from across the world of sport and human development. It is predominantly about applying the best available knowledge and practice to helping people to improve as performers. The principles behind the model can be used as a goal setting and evaluation tool helping individuals and coaches to identify specific areas that need development and provide a practical approach to reach those personal goals.

### Understanding the role paddlesport takes in someone’s life:

Paddlers fall into three different categories depending upon their level of commitment and aspirations:

- Increasing Paddlesport Commitment
- Maintaining Paddlesport Commitment
- Declining Paddlesport Commitment

This can then be matched with one of the following statements regarding performance expectations / aspirations:

- Aiming to improve standard of performance
- Aiming to maintain current level of performance
- Accepting a decline in current level of performance

Establishing the desired commitment and aspirations will help people to understand the role paddling takes within their lives, whether this is done formally, or informally does not matter.

### Identifying needs / goals

There are many reasons why people participate in paddlesport, to name just a few:

- Fun
- Keep Fit
- To socialise
- Achieve success
- Excitement
- Adventure
- Solitude
- Tranquillity
- Journeying
- Ambition

Establishing a paddler’s motivation to participate will help them to tailor their participation to the right level, ensuring maximum enjoyment and satisfaction, and avoiding conflict with other aspects of their lives. Individuals should also be encouraged to consider the balance between work, social, other hobbies, health and paddling to ensure the balance meets the individual’s needs and expectations.

# Recreational Paddlesport

## Recreational Paddlesport

Appropriate goal setting will help the individual achieve their targets. A mix of short-, medium- and long-term goals used in the right balance is necessary, with the long term determining the short and medium term activity. This balance may be skewed in one direction depending on the individuals needs, and goals can be either formal or informal.

Once this background has been established the following headings can be used to help coaches profile the needs of their paddlers. The matrix acts as a prompt to help coaches and paddlers to identify their priorities, which in turn provides the basis for a programme of practice and or training.

<b>Physical</b>	Stamina Strength Speed Suppleness						
<b>Psychological</b>	Relaxation Imagery / Mental Rehearsal Self-Talk Self-, water-, movement- and performance-Confidence Motivation Control of Arousal & Activation Control of Stress & Anxiety Concentration & Attention control Coping with Adversity						
<b>Tactical</b>	Discipline Specific						
<b>Technical</b>	<table border="0"> <tr> <td>Body Boat Blade</td> <td style="font-size: 2em; vertical-align: middle;">}</td> <td>Discipline Specific</td> </tr> <tr> <td colspan="3">Skilful application of techniques Decision making skills</td> </tr> </table>	Body Boat Blade	}	Discipline Specific	Skilful application of techniques Decision making skills		
Body Boat Blade	}	Discipline Specific					
Skilful application of techniques Decision making skills							
<b>Ancillary</b>	Warm-up / Cool-down Nutrition / Hydration Rest and Recovery Teamwork Safety Correct Equipment						

The section on Performance paddlesport (see pages 24-31) refers to some of these points in more detail.

Although the Performance section is very much based around optimal performance at the optimal age, if a paddler falls outside this, they can still use the guidelines as a template for goal setting. Tone the guiding principles to suit individual needs, and cherry pick the relevant information.

For example, if a paddler wishes to pass their four star, they will need to address certain elements of fitness, technique, psychological preparation and ancillary capacities. Using the LTPD profiling matrix will not only provide the best basis for the short-term success; gaining the four star, it will also help ensure the best long-term development of the paddler! The applicable sections can be taken from the performance stages and applied at a relevant level for that individual. Check out the key outcomes and guidelines for each stage and base goal setting around the relevant points.

### Key Outcomes

Paddlers:

- Maximisation of the fun, enjoyment, and achievement from paddlesport within available time and environmental constraints
- Able to recognise current strengths and weaknesses and adopt a holistic approach to their paddlesport activity
- Recognise the level of commitment they are prepared to invest in paddlesport
- Identify why they participate in paddling, and what it is they enjoy about it
- Have short-, medium-, and long-term goals that reflect the process required to meet personal aspirations and injury free participation to the level required, in technical, tactical, physiological, psychological and ancillary capacities
- Have an individually acceptable balance between home: social: work: health: other hobbies: and paddling

# Recreational Paddlesport

## Performance Paddlesport

The next three stages are applicable to anyone wishing to maximise their potential and equally applies to the competitive and non-competitive disciplines. It is split into three stages:

1. Train to train – Developing skills and fitness
2. Train to perform – Learning how to perform under pressure
3. Train to excel – Producing the goods when it matters

Paddlers who would come into this category would include for example those with high aspirations on the competitive strands of paddlesport, but equally those wishing to pursue a recreational discipline to the highest level for example a solo sea kayaking expedition or a first descent.

If this appears too elitist for your level of performance or you fall outside the age bands please see below.

### Recreational Paddlers / Coaches Recreational Competition Paddlers

**The guidelines here are based around optimal performance at the optimal age. If a paddler falls outside this, either because of aspirations or age (or both) they can still use this as a template for goal setting.**

**If a paddler wishes to achieve lower level personal goals, then this section needs toning down to reflect individual needs. For example, if a paddler wishes to complete the Caledonian Canal, they will need to address certain elements of fitness, technique, psychological preparation and ancillary capacities – but on a different level to a high level performer. The applicable sections can be taken from the performance stages and applied at a relevant level for that individual.**

**Check out the key outcomes and guidelines for each stage and base goal setting around the relevant points.**

### Advice for Paddlers outside the age bands

Rather than making the physiological focus on the windows of opportunity, take an individualised approach to each element. Base training around personal needs, current level of fitness, aspirations and sport specific needs.

The guidelines for psychological, technical, tactical and ancillary capacities can be applied to individual needs.

Check out the key outcomes and guidelines for each stage and base goal setting around the relevant points.

## Train to Train

**This reflects the principles behind discipline specific paddler development models**

<b>Ideal developmental stage</b>	Puberty
<b>Age at Start of Stage</b>	Boys 11-14 years Girls 10-13 years
<b>Age at End of Stage</b>	Boys 14-17 years Girls 12-15 years
<b>Training age</b>	First 4 years of hard physical training Approximately 1600 hours of training during the stage Based on 8 hours per week (including land and water training)
<b>Key Focus</b>	Building the engine. Physical training - programmed and individualised. Discipline specific skills in varied environments. Weekly height measurements taken and recorded.
<b>Key delivery</b>	Individual Coaches, Clubs, Discipline Squads, and Home Nation Projects.

### Participation

- Increasing participation in chosen discipline throughout stage, alongside elements of other paddlesport disciplines (canoe and kayak, in varied environments) and other related sports (similar energy systems / movement patterns).
- Moving from 3 - 7 discipline specific sessions / week
- Moving from 4 – 1 general paddlesport sessions / week
- Land based work to supplement physiological development as necessary
- Need to do a high volume of training during this stage and therefore cannot afford to spend too much time competing or doing competition like training

**Training 75%**

**Performing 25%**

# Performance Paddlesport

## Key Components

### Technical

- Development of environment specific specialisation i.e. sea / moving water / flat water at start of stage, becoming more discipline specific throughout stage
- Building on the fundamental, start and development movement skills with a range of discipline specific skill development
- Focus on learning the sport, rather than on winning / performance
- Stress the Importance of working **fast** – this is not the same as **hard**

### Physiological

- Generic building of the physiological base – creating an athlete - to optimum level by end of stage
- Physiological training based around growth spurt, windows of opportunity and discipline requirements (see appendix 1)
- Training volume, intensity, load and duration should be carefully considered and monitored

**Windows of opportunity:** See Appendix 1 for details

<b>Aerobic window</b>	From start of Growth Spurt for 3-4 years.
<b>Girl's strength window</b>	At the onset of Menarche (for most girls). From Start of PHV (for the others). Throughout stage and into Train to Perform.
<b>Boy's strength window</b>	12 -18 months after PHV into Train to Perform.
<b>Girls 2nd Speed window</b>	From age 11 to 13 years
<b>Boys 2nd Speed window</b>	From age 13 to 16 years

## Key Outcomes for Stage

Has the individual:

- Met the outcomes from the foundation paddlesport stages
- A strong core base of discipline specific skills
- Monitored height through the growth spurt
- Someone who is their 'coach'

Prior to the window of opportunity for strength training:

- Learnt how to strength train
- Developed a base core strength
- Learnt how to perform the Olympic lifts safely

During the window of opportunity for strength training:

- A sound strength training programme using Olympic lifts
- Knowledge of the ancillary capacities

- Before the growth spurt – learnt how to train the aerobic system
- During the growth spurt – a sound aerobic capacity training programme
- A sound flexibility programme
- Functional stability to cope with the demands of the sport
- Working knowledge of sport psychology (Relaxation, goal-setting, imagery and mental rehearsal, self-talk, self-confidence, motivation, arousal and activation, stress and anxiety, concentration and attention control, and coping strategies)
- The ability to use sport specific tactics in performance
- A positive attitude to training and performing
- An Independent (rather than coach dependant) approach to training and performing
- Knowledge of training principles
- Working knowledge of the ancillary capacities
- A training programme
- Short and medium term goals (process and product)

# Performance Paddlesport

## Train to Perform

This reflects the principles behind discipline specific paddler development models

<b>Ideal developmental stage</b>	Late puberty / early adulthood
<b>Age at Start of Stage</b>	Boys 14-17 years Girls 12-15 years
<b>Age at End of Stage</b>	Boys 17 – 21 years Girls 15 – 20 years
<b>Training age</b>	Next 4 years of hard training 2 - 3000 hours of training during the stage (7-14 sessions / week)
<b>Key Focus</b>	Optimising physiological development and sport specific skills Learning to perform on demand Individualised training / development programmes
<b>Key delivery</b>	Individual Coaches, Clubs, Discipline Squads, and Home Nation Projects

### Participation

- 7-14 specific training sessions per week, land and water based as appropriate
- Retain generic paddlesport sessions as appropriate
- Discipline specific focus, generic sport and varied paddlesport activity still maintained

**Training 50%**

**Performing 50%**

### Key Components

The emphasis is now on learning how to perform, individual preparation aims to address the paddlers strengths and weakness learning to perform in a variety of conditions.

- Practice for top-level performance
- Further development of physical and mental capacities alongside refining performance
- Further transfer of skills to the competitive / performance environment
- Increased knowledge of external factors affecting performance i.e. nutrition / hydration / recovery etc.
- Varied performance challenges including a balance of easy, medium and hard.  
For example: A surfer practices on a variety of waves, ranging from relatively easy, where they would expect 100% success, to hard when the success rate will be much less

**Windows of opportunity - Maximum strength development** (see Appendix 1)

### Key Outcomes for Stage

Has the individual:

- Met the outcomes from the previous stages
- A strong level of fitness
- A strong and consistent level of technical / tactical ability
- A strong and consistent record of performance
- The ability to use psychological skills to aid consistent performance under pressure
- A training programme that reflects strengths and weaknesses, individual and sport specific needs
- Effective short, medium and long term goals

# Performance Paddlesport

## Train to Excel

This reflects the principles behind discipline specific paddler development models

<b>Ideal developmental stage</b>	Early adulthood
<b>Age at Start of Stage</b>	Males 17-21 years Females 15 - 20 years
<b>Age at End of Stage</b>	N/A
<b>Key Focus</b>	Producing high level performance Individualised training / development programmes Tapered and periodised training Diagnostics appropriate to development of the athlete
<b>Key delivery</b>	Individual Coaches, Clubs, Discipline Squads, and GB Projects

Three distinct categories of athlete fall into this phase:

1. Athletes still improving, Pre-Genetic Peak
2. Athletes at their Peak, Genetic Ceiling
3. Athletes past their peak, Post genetic peak

### Participation

- Discipline specific focus, generic sport and varied paddlesport activity still maintained
- Individualised as appropriate

**Training 25%**

**Performing 75%**

### Key Components

- Individualised programmes aimed to optimise all aspects of performance leading to key competitions or performances
- The focus is on maximisation of performance
- Learning to peak for major events
- Training is relatively high intensity and volume
- Prophylactic breaks are important to avoid burn out
- Diagnostics approach to development of physical, psychological, technical, tactical and ancillary capacities

### Key Outcomes for Stage

Has the individual:

- Met the outcomes from the previous stages
- A developmental programme that reflects the input required to achieve:
  - Short, medium and long-term goals
  - Balance in all aspects of their performance (strengths / weaknesses)
  - Progression in key factors necessary for success
- Achieved desired outcomes –achieved goals

This stage could last for many years and is best taken in 3 stages:

1. Senior Development
2. Senior Performance
3. Olympic Elite

As a paddler progresses through these stages their training and preparation will obviously be adjusted accordingly.

The key to this stage is that preparation is tailored to the individual based on past experience, strengths and weaknesses, personal goals and the needs of the sport.

# Performance Paddlesport



**Windows of Opportunity**

A number of researchers have reported that there are certain periods during maturation when the body is particularly sensitive to training. These critical periods are what we call ‘windows of opportunity’. Maturation can be expressed in relation to the development of the secondary sexual characteristics, or more practically, the growth spurt. This is described in more detail in appendix 2. The growth spurt gives us a reference point for the design of optimal training programmes in relation to these critical periods of trainability during the maturation process.

It is important to realise that the different components are always trainable, but that during these windows of opportunity, accelerated adaptation will take place if the right training is done.

**Girls Windows of Opportunity:**

<b>Fundamental Movement Development</b>	5 – 8 years old
<b>Speed Development 1</b>	6 – 8.5 years old
<b>Specialist Skill Development</b>	8 – 11 years old
<b>Speed Development 2</b>	11 – 13 years old
<b>Aerobic Development</b>	From the start of the growth spurt
<b>Strength Development</b>	At the onset of Menarche (for most girls) Immediately after Peak Height Velocity (For others)

**Boys Windows of Opportunity:**

<b>Fundamental Movement Development</b>	6 - 9 years old
<b>Speed Development 1</b>	7 - 9 years old
<b>Specialist Skill Development</b>	9 – 12 years old
<b>Aerobic Development</b>	From the start of the growth spurt
<b>Speed Development 2</b>	13 – 16 years old
<b>Strength Development</b>	12 – 18 months after peak height velocity

**Window of Opportunity for Fundamental Movement Skill Development**

During this window children should be working on developing the basic movement skills of agility, balance and co-ordination. These can be developed through games and exercises that include the following movements:

<b>Locomotive Skills</b>	<b>Manipulative Skills</b>	<b>Stability Skills</b>
Walking, Running, Jumping, Leaping, Hopping.	Throwing, Kicking, Punting, Striking, Volleying and Bouncing.	Bending, Stretching, Twisting, Turning, Swinging and floating.
Galloping, Sliding, Skipping, Climbing, Spinning and Gliding.	Rolling, Catching, Trapping.	Balance, Body Rolling, Starting, Stopping, Dodging, Inverted supports.
<b>Spatial Awareness</b>		

**Window of Opportunity for Specialist Skill Development**

This window focuses on developing general sport skills that form the foundation for any sporting development. A wide range of activity in various sports will help develop this aspect, including ball sports, team games, gymnastics/dance, athletics, water sports, racket sports etc.

Girls	0 – 5 years	5 – 8 years	8 – 11 Years	11 onwards
	Learn Rudimentary Movement Skills	<b>Window of Opportunity</b>	<b>Window of Opportunity</b>	Continuation of Specialised Sport
		<b>Fundamental Skills</b>	<b>Specialised Skill Development</b>	Specific Skill Development
Boys	0 – 5 years	5 – 9 years	9 – 12 Years	12 onwards

**Appendices**

## Windows of Opportunity for Speed

### First Window:

Linear, lateral and multidirectional speed should be developed with 5-second bursts. This develops the central nervous system and with it agility, quickness and the ability to change of direction at speed.

### Second Window:

Anaerobic alactic power and anaerobic alactic capacity interval training should be performed during this window. Using 5-15 second sprints.

Girls	0 – 6 years	6 – 8.5 years	8.5 – 11 Years	11 - 13 years	13 years Onwards
	Learn Rudimentary Movement Skills	<b>Window of Opportunity</b>  <b>Speed 1</b>	Continuation of Speed Development	<b>Window of Opportunity</b>  <b>Speed 2</b>	Continuation of Speed Development
Boys	0 – 7 years	7 – 9 years	9 – 13 Years	13 – 16 years	13 years Onwards

## Window of Opportunity for Aerobic Development

Optimal aerobic trainability begins with the onset of PHV. Aerobic activity before this trains the child to become more economic in movement, but with little improvement in VO2 max. However at the onset of PHV the VO2 max increases significantly, this development can be facilitated through correct training.

Girls and Boys	0 – Growth Spurt	Growth Spurt + 4 years	There after
	Play aerobically	<b>Window of Opportunity</b>  <b>Aerobic Development</b>	Continuation of Aerobic Development

## Flexibility

When the growth spurt begins a sudden lengthening of the bones, tendons, ligaments and muscles occurs, this can cause the body to become tight, stiff and prone to injury. Consequently it is important to include flexibility training into the young persons training.

Flexibility training during and after the growth spurt should include dynamic mobility, static stretching and proprioceptive neuromuscular facilitation (PNF) exercises. Flexibility training sessions should be performed as sessions in their own right, rather than as part of a warm-up, or on rest days.

## Window of Opportunity for Strength Development

Strength gains before this window occur because of improvements in movement efficiency, learning movement patterns, and through improved muscle activation. The muscles do not increase in size because of training, but become more effective at doing their job.

It is important that before a child reaches the strength window, they have learnt correct etiquette for strength training and the movements of the exercises that will be expected of them during the window. The Olympic lifts have been found to be the most effective way of strength training and as such these actions should be learnt with manageable weights to allow skill acquisition.

At the start of the window, strength training should be performed 3 or 4 times a week, with sessions of no more than 30 minutes long.

Girls and Boys	0 – Menarche	From Menarche for 4 years	There after
	Play	<b>Window of Opportunity</b>  <b>Strength Development</b>	Continuation of Strength Development
Boys	0 to PHV + 12-18 Months	PHV + 12-18 months for 4 years	There after

## The Adolescent Growth Spurt

Maturation can be measured by the adolescent growth spurt, this gives us a reference point for the design of optimal training programmes. As the body develops through puberty critical periods of trainability occur (windows of opportunity). These windows of opportunity are discussed further in Appendix 1.

Peak Height Velocity (PHV) is the maximum rate of growth that occurs during the pubertal growth spurt. This too is a key indicator required for the optimal timing of training. On average PHV occurs at about aged 12 for girls and about 14 for boys however it may occur as much as 2 years earlier or later.

Children usually grow at about 5-6 cm/year before puberty, this increases to about 9-10 cm/year during the growth spurt, which lasts anything from 1.5 – 5 years. (Menarche occurs in girls approximately 6 to 18 months after PHV. Girls rarely grow more than 5 cm after the menarche has occurred.)

### Average growth rates during adolescence:

Boys	Girls
Year 1 = 6 cm / year	Year 1 = 5 cm / year
Year 2 = 9 cm / year	Year 2 = 7 cm / year
Year 3 = 6 cm / year	Year 3 = 5 cm / year
Year 4 = 3 cm / year	Year 4 = 3 cm / year
Year 5 = 2 cm / year	Year 5 = 1 cm / year
Year 6 = 1 cm / year	

## Measuring Growth Spurt

The best way to identify the growth spurt is to take accurate height measurements:

- Use a reliable tape measure
- Take measurements at the same time everyday
- Measure height without shoes and socks
- Stand with heels flat and together and legs straight
- Stand with heels, buttocks and scapulae against a flat wall
- Keep eyes looking straight ahead
- The arms should be hanging loosely at the sides with the palms facing the thighs with the shoulders relaxed.
- The paddler is asked to breathe in and stand tall
- Height is measured, with a level rule, from the top of the head, to the nearest mm

In order to ensure the growth spurt is recorded these measurements should be taken monthly from age 9 – 10 for girls and 11-12 for boys. This is perhaps earlier than necessary, but avoids the need to monitor breast / testicular development as an indicator for the start of the growth spurt. It also avoids the danger of missing the initial growth acceleration.

All but the Speed windows of opportunity are based around the adolescent growth spurt (see appendix 1). To summarise:

- Before the growth spurt children should focus their sporting activity on learning sport skills in varied environments
- During the growth spurt accelerated adaptation of the aerobic system occurs, and flexibility is important to help the growing body remain flexible and injury free
- For girls, the optimal time to for strength development comes at the onset of menarche
- For boys, the optimal time for strength development comes 12-18 months after PHV

It is also important to realise that during this time hormonal and emotional changes are taking place as well as physical development. These are discussed in an article titled “Characteristics of Physical, Mental / Cognitive and Emotional Development” By Istvan Balyi. This is available at [www.bcu.org.uk](http://www.bcu.org.uk) by following the LTPD link. This discusses the basic characteristics, general consequences and implications for coaching of Physical, Mental / Cognitive and Emotional Development from late childhood to early adulthood.

# Appendices

## Implementation of LTPD

Investment in the implementation of Long Term Paddler Development will secure its success and ensure it matures from being a strategy to having a widespread influence on paddlesport delivery. This investment requires support from BCU and its members. The Long Term Paddler Development model needs to be accepted across the whole of paddlesport. It is hoped that all deliverers will use Long Term Paddler Development to help improve their existing activities and programmes. Including:

- Parents
- Clubs
- Schools
- Local Authorities
- BCU Coaches
- Outdoor Centres
- Regional and National Squads
- Event Organisers
- Administrators
- World Class Employees
- Competition Disciplines
- Recreational Disciplines
- BCU Coaching Service
- BCU Young Peoples Program
- BCU, CE, SCA, WCA, CANI development initiatives

We are not yet at a stage where we can identify the exact implementation plan. This will be affected by funding decisions and consultation across the sport, that has yet to occur. However, it is envisaged that the implementation plan will be focused around the six priority areas identified within the National Canoeing Development Plan:

1. **Participation** - To ensure provision is paddler focused – providing the right opportunities at the right time for an individual's development in the sport to maximise success and increase participation.
2. **Coaching** - An increased number of coaches with a philosophy underpinned by Long Term Paddler Development principles and with the ability to apply the principles of LTPD in their coaching.
3. **Competition** – To increase participation, International success and ensure competition opportunities are linked to a LTPD philosophy.
4. **Access and facilities** – To increase opportunities based on LTPD principles, for all paddlers, from beginner to elite.
5. **Membership services** - To improve services and support offered to members.
6. **Supported volunteers** – To support, attract, retain and motivate volunteers.

**Agility** is the ability to rapidly change direction of movement. 1.

**Adolescence** is the period between the onset of the adolescent growth spurt and the attainment of adult maturity. 1.

**Ancillary Capacities** are aspects affecting performance, aside from physiological, psychological, technical or tactical factors.

**Childhood** extends from the first birthday to the start of adolescence. 1.

**Chronological Age** refers to the number of years past since a persons birth date. 1.

**Co-ordination** is the skilful and balanced movement of different parts of the body, at the same time. 2.

**Development** refers to the interrelationship between growth and maturation in relation to the passage of time. It includes biological and behavioural development. 1.

**Functional Stability** is the stability of the major joints of the body, to allow control under various static and dynamic conditions.

**Growth** is an increase in the size of the body as a whole, or the size attained by specific parts of the body. 1.

**Growth Spurt** refers to the period of increased growth rate during puberty. 1.

**Maturation** refers to the timing and tempo of progress towards the mature state. 1.

**Menarche** is the onset of first menstruation. 2.

**Peak Height Velocity** is the maximum rate of growth in stature during the adolescent growth spurt. 1.

**Puberty** is the transitional period between childhood and adulthood. 1.

**Trainability** refers to an individuals responsiveness to training. 1.

**Windows of Opportunity** refer to certain periods during maturation when the body is particularly sensitive to training. 3.

Footnotes:

1. Malina, Bouchard & Bar-Or (2004)
2. Encarta Dictionary
3. Balyi and Hamilton (2003)

## Bibliography

Aldridge, J. (1993)  
*Developmental Changes in Children: Why the Child is not a Mini Adult.*  
In Lee, M. (Ed.) (1993) *Coaching Children in Sport: Principles and Practice.* E&FN Spon. 50-63.

Alpine Canada Alpin & The Canadian Ski Coaches Federation. (2000)  
*Alpine Integration Model.*

Amateur Swimming Association. (2003)  
*The Swimmer Pathway.*

Anderson, O. (2002)  
The Importance of Quick Starts in Competitions: Can Kayakers Convince You. *Peak Performance*, 170, 1-5.

Armstrong, N. and Welsman, J. (1993)  
*Childrens Physiological Response to Exercise.* In Lee, M. (Ed.) (1993) *Coaching Children in Sport: Principles and Practice.* E&FN Spon. 64-77.

Armstrong, N. and Welsman, J. (1997)  
Children in Sport and Exercise. Part I. *British Journal of Physical Education*, Spring, 30-32.

Armstrong, N. and Welsman, J. (1997)  
Children in Sport and Exercise. Part II. *British Journal of Physical Education*, Summer, 30-32.

Armstrong, N. and Welsman, J. (2000)  
Development of Aerobic Fitness During Childhood and Adolescence. *Pediatric Exercise Science*, 12, 128-149.

Australian Sports Commission (2001)  
Coaching Children. *Sports Coach*, 23(4), 16-17. (Adapted from Australian Sports Commission's *Beginning Coaching* (2000) chapter 10.)

Balyi, I. (1999)  
Characteristics of Physical, Mental / Cognitive and Emotional Development.  
Adapted from Alpine Canada Alpin & The Canadian Ski Coaches Federation. (2000)

Balyi, I. (2001)  
Sport System Building and Long term Athlete Development in British Columbia  
[http://www.nctc.ul.ie/Forum/presentation\\_files/Istvan%20Balyi.rtf](http://www.nctc.ul.ie/Forum/presentation_files/Istvan%20Balyi.rtf) . Accessed 1/11/2004

Balyi, I. (2002)  
Paradigm Shifts in Coaching. *FHS*, 15, 24-26.

Balyi, I. and Hamilton, A.E., (1998)  
Long Term Planning of Athlete Development: The Training to Train Stage. *FHS*, 1, 8-11.

Balyi, I. and Hamilton, A.E., (1998)  
Long Term Planning of Athlete Development: The Training to Compete Stage. *FHS*, 2, 8-11.

Balyi, I. and Hamilton, A.E., (1998)  
Long Term Planning of Athlete Development: The Training to Win Stage. *FHS*, 3, 7-9.

Balyi, I. and Hamilton, A.E., (2000)  
Key to Success: Long Term Athlete Development. *Sports Coach*, 23(1), 30-32.

Balyi, I. and Hamilton, A.E., (2000)  
Long Term Athlete Development: The Fundamental Stage – Part 1. *Sports Coach*, 23(3), 10-13.

Balyi, I. and Hamilton, A.E., (2000)  
Long Term Athlete Development: The Fundamental Stage – Part 2. *Sports Coach*, 23(4), 23- 25.

Balyi, I. and Hamilton, A.E., (2001)  
Key to Success: Long Term Athlete Development: The Training to Train Stage: Part 1. *Sports Coach*, (24)2, 30-31.

Balyi, I. and Hamilton, A.E., (2001)  
Key to Success: Long Term Athlete Development: The Training to Train Stage: Part 2. *Sports Coach*, (24)3, 16-18.

Balyi, I. and Hamilton, A. (2003)  
Trainability in Childhood and Adolescence. *FHS*, 20.

Balyi, I. and Hamilton, A. (2004)  
Training and the Young Athlete – Trainability in Childhood and Adolescence. *B.C. Coaches Perspective*, Spring, 8-10.

Balyi, I. and Hamilton, A. (2004)  
Developmental Characteristics of Under 10 Players. *B.C. Coaches Perspective*, Spring, 6.

Balyi, I. and Ross, G. (2002)  
Paradigm Shifts in Coaching. *BC Coaches Perspective*, Summer, 10-13.

Beunen, G., Baxter-Jones, A. D. G., Mirwald, R. L., Thomis, M., Lefevre, J., Malina, R.M. and Bailey, D. A. (2002)  
Intraindividual Allometric Development of Aerobic Power in 8- to 16-year-old Boys. *Medicine and Science in Exercise and Sport*, 33(3), 503-510.

Beunen, G. and Malina, R.M. (1988)  
Growth and Physical Performance Relative to the timing of the Adolescent Growth Spurt.  
*Exercise-and-Sport-Sciences-Reviews*, (16), 503-540.

Beunen, G., Malina, R.M., Renson, R., Simons, J., Ostyn, M. and Lefevre, J. (1992)  
Physical Activity and Growth, Maturation and Performance: A Longitudinal Study. *Medicine and Science in Exercise and Sport*, 24(5), 576-585.

Beunen, G. and Thomis, M. (2000)  
Muscular Strength Development in Children and Adolescents. *Pediatric Exercise Science*, 12, 174-197.

Bompa, T. (2000)  
*Total Training for Young Champions.* Human Kinetics.

Bondarchuk, A. (1988)  
Constructing a Training System. Part I. *Track Technique*, 102 (3), Winter, 3254-3268.

Bondarchuk, A. (1988)  
Constructing a Training System. Part II. *Track Technique*, 103 (1), Spring, 3286-3288.

Borms, J. (1986)  
The Child and Exercise: An Overview. *Journal of Sport Sciences*, 4, 4-30.

Branta, C., Haubenstricker, J. and Seefeldt, V. (1984)  
Age Changes in Motor Skills During Childhood and Adolescence. *Exercise-and-Sport-Sciences-Reviews*, Volume 12, 467-520.

British Association of Sport and Exercise Sciences. (2004)  
BASES Position Statement on Guidelines for Resistance Exercise in Young People. *Journal of Sports Sciences*, 22, 383-390.

Caldarone, G., Leglise, M., Giampietro, M. and Berlutti, G. (1986)  
Anthropometric Measurements, Body Composition, Biological Maturation and Growth Predictions in Young Females Gymnastics of High Agnostic Level. *Journal of Sports Medicine*, 26, 263-273.

Connell, R. (1993)  
Understanding the Learner: Guidelines for the Coach.  
In Lee, M. (Ed.) (1993) *Coaching Children in Sport: Principles and Practice.* E&FN Spon. 78-90.

Counsilman, J. E. (1979)  
The Importance of Speed. *Athletic Journal*, 56(9), 59-60.

Dick, F. W. (1989)  
*Sports Training Principles – Second Edition.* A&C Black Publishers.

Earle, C. (2003)  
*Coaching Young Performers.* Coachwise Solutions.

# B i b l i o g r a p h y

## Bibliography

Endicott, W. T. (2003)  
Two Trips to the Top. <http://www.kanot.com/files/%7BC082E6C4-3B1C-46F9-95DE-250A8E43E588%7D.pdf> . Accessed 24/11/2004

Ericsson, K. A. and Charness, N. (1994)  
Expert Performance. *American Psychologist*, 49(8), 725-747.

Ericsson, K. A., Krampe, R. and Tesch-Romer, C. (1993)  
The Role of Deliberate Practice in the Acquisition of Expert Performance. *Psychological Review*, 100(3), 363-406.

Faigenbaum, A. and Westcott, W. (2000)  
Strength and Power for Young Athletes. *Human Kinetics*.

Gibson, B.  
Performance Implications of Physical and Mental Growth of the Young Athlete  
<http://www.coachesinfo.com/article/index.php?id=203&style=printable#> . Accessed 24/11/2004

Gulbin, J. (2001)  
From Novice to National Champion. *Sports Coach*, 24(1), 24-26.

Hassall, P. (2004)  
Finding Our Future Ferraris. *Swimming*, July, 26-27.

Jess, M. and Collins, D. (2003)  
Primary Physical Education in Scotland: The Future in the Making.

Jess, M., Dewar, K. and Fraser, G. (2004)  
Basic Moves: Developing a Foundation for Lifelong Physical Activity.

Kraemer, W. J. and Ratamess, N. A. (2004)  
Fundamentals of Resistance Training: Progression and Exercise Prescription. *Medicine and Science in Sport and Exercise*, 36(4), 674-688.

Lee, M. (Ed.) (1993)  
*Coaching Children in Sport: Principles and Practice*. E&FN Spon.

Lefevre, J., Beunen, G., Steen, G., Claessens, A. and Renson, R. (1990)  
Motor Performance During Adolescence and Age Thirty as related to Age at Peak Height velocity. *Annals Of Human Biology*, 17(5), 423-435.

Lindgren, G. (1978)  
Growth of Schoolchildren with Early, Average and Late ages of Peak Height Velocity. *Annals Of Human Biology*, 5(3), 253-267.

Macdougall, D.J., Wenger, H. A. and Green, H. J. (1991)  
*Physiological Testing of the High Performance Athlete*. 2nd Edition. Human Kinetics.

Malina, R. M. (1983)  
Menarche in Athletes: A Synthesis and Hypothesis. *Annals of Human Biology*, 10(1), 1-24.

Malina, R. M. (1988)  
Competitive Youth Sports and Biological Maturation.  
In *Competitive Sports for Children and Youth: An Overview of Research and Issues*.  
Brown, E. W., and Branta, C. F. (Eds.) (1988) Human Kinetics. 227-245.

Malina, R. M., Bouchard, C., and Bar-Or, O. (2004)  
Growth, Maturation, and Physical Activity. *Human Kinetics*.

Mirwald, R. L., Baxter-Jones, A. D. G., Bailey, D. A. and Beunen, G. (2002)  
An Assessment of Maturity from Anthropometric Measurements. *Medicine and Science in Exercise and Sport*, 34(4), 689-694.

National Coaching and Training Centre, (2002)  
Building Pathways in Irish Sport.  
[http://www.nctc.ul.ie/press/pubs/NCTC\\_pathways\\_Report.pdf](http://www.nctc.ul.ie/press/pubs/NCTC_pathways_Report.pdf) . Accessed 1/11/2004.

Naughton, G., Farpour-Lambert, N. J., Carlson, J., Bradney, M. and Van Praagh, E. (2000)  
Physiological Issues Surrounding the Performance of Adolescent Athletes. *Sports Medicine*, 30(5), 309-325.

Nettleton, B. (2001)  
Decision Making in Sport. *Sports Coach*, 24(2), 32-33.

Nevill, A., and Burwitz, L. (eds.) (2003)  
Proceedings of the 2002 Annual Conference of the International Society for the Advancement of Kinanthropometry and the 12th Commonwealth International Sport Conference – Manchester. *Journal of Sport Sciences*, 21(4), 293-310.

Patel, L., Dixon, M. and David, T. J. (2003)  
Growth and Growth Charts in Cystic Fibrosis. *Journal of Royal Society of Medicine*, 96(13),35-41.

Praagh, E. V. (2000)  
Development of Anaerobic Function During Childhood and Adolescence. *Pediatric Exercise Science*, 12, 150-173.

Ross, W. D. and Marfell-Jones, M. J. (1991)  
*Kinanthropometry*. In Macdougall, D.J., Wenger, H. A. and Green, H. J. (1991). 76-11.

Rushall, B. (1998). The Growth of Physical Characteristics in Male and Female Children. *Sports Coach*, Australia, 20(64), 25-27.

Salmela, J. H. and Durand-Bush, N.  
*Age Group Development Program for Mens and Womens Artistic Gymnastics*. Federation Internationale De Gymnastique

Shepherd, J. (2004)  
Twitch and You're Gone: All you Need to Know About Developing Fast Twitch Muscle Fibre for Speed, Power and Strength.  
*Peak Performance*, 201, 1-4.

Sibte, N. (2003)  
Pre-Adolescent Strength Training – Just Do it! *Sports Coach*, 26 (2), 7-8.

Sports Coach UK  
Developing Coaches Case Study. <http://www.sportscoachuk.org/improve/LTAD/SomersetCaseStudy.pdf> . Accessed 17/11/2004

USA Swimming. (1999)  
Sports Science Summit Report. [http://www.swimfsc.org/sport\\_science\\_summit\\_report.htm](http://www.swimfsc.org/sport_science_summit_report.htm) . Accessed 1/11/2004

Stewart, N. (2003). Core Stability and the Young Athlete. *Modern Athlete and Coach*, 41(3), 27-29.

Stratton, G., Ward, P. and Smeeton, N.J. (2002). Foundation Sport Skills. Top Line Report. Sport England.

Tulloch, B. (Ed).  
Coaching Young Endurance Runners.  
<http://www.ukathletics.net/vsite/vfile/page/fileurl/0,11040,4854-153703-170919-66730-0-file,00.pdf> . Accessed 1/11/2004

Vickers, J. N. (2000)  
*Decision Training: A New Approach to Coaching*. Coaches Association of British Columbia.

Viru, A., Loko, J., Volver, A., Laancots, L., Karelson, K. and Viru, M. (1998)  
Age Periods of Accelerated Improvement of Muscle Strength, Power, Speed and Endurance in the Age Interval 6 – 18 Years.  
*Biology of Sport, Warsaw*, 15(4), 211-227.

Walling, M.D. and Duda, J.L. (1995)  
Motivating kids: Balancing Learning, Fun, and Ego. *Performance Edge*, 4(6), 3-6.

Welsman, J. and Armstrong, N. (2002)  
Maximal Oxygen Uptake: Age, Sex and Maturity of Children  
[http://www.sportsci.org/encyc/drafts/Child\\_VO2max\\_Armstrong.doc](http://www.sportsci.org/encyc/drafts/Child_VO2max_Armstrong.doc) . Accessed 1/11/2004

Welsman, J. and Armstrong, N. (2002)  
Pubertal Stage Assessment. [http://www.sportsci.org/encyc/drafts/Pubertal\\_stage.doc](http://www.sportsci.org/encyc/drafts/Pubertal_stage.doc) . Accessed 1/11/2004

Whitmore, J.  
Sports Coaching: J'accuse! A Noted Coaching Guru Launches a Broadside at Outmoded Thinking and Models.  
<http://www.pponline.co.uk/encyc/sports-coaching.html> . Accessed 20/11/2004

# B i b l i o g r a p h y