

# Speed Skating Canada – Long Term Athlete Development Matrix

## Draft June 2004

	Stage 1	Stage 2	Stage 3	Stage 4		Stage 5	
	FUNdamentals	Learning to Train	Training to train	Learning to Compete	Training to Compete	Learning to Win	Training to Win
	CHILDHOOD	LATE CHILDHOOD	ADOLESCENCE	LATE ADOLESCENCE	EARLY ADULTHOOD	ADULTHOOD	ADULTHOOD
DEVELOPMENT PHASES	Fundamental movement skills	Fundamental sports skills including speedskating skills	"Building the Engine" & sport specific skills	"Optimising the engine" & speedskating specific skills and fitness	"Optimising the engine" & speedskating specific skills and fitness	"Maximising the engine" & speedskating specific skills and fitness	"Maximising the engine" & speedskating specific skills and fitness
AGE ST	Male 6-9; Female 6-8	Male 9-12; Female 8-11	Male 12-16; Female 11-15	Male 16-18; Female 15-17	Male 18-21; Female 17-21	Male 20-23; Female 20-23	23+/-
AGE LT	Male 6-9; Female 6-8	Male 9-12; Female 8-11	Male 12-16; Female 11-15	Male 16-18; Female 15-17	Male 18-21; Female 17-21	Male 21-25; Female 21-25	25+/-
AGE FOR COMPETITION	age on date of competition	age on date of competition	age on date of competition	as per ISU age groups			
DELIVERERS	Clubs and schools, holiday camps	clubs, schools, regional camps	clubs, provincial camps, RTC's	RTC's / provincial team / clubs	RTC's/ NTC's	NTC	NTC
COACHING	Recreational programmer	Recreational programmer with technical teaching skills	Development coach doing everything. Strong technical knowledge.	High performance coach doing everything. Starting to have specialist support.	High performance with specialist support	High performance with specialist support	High performance with specialist support
Growth & Development Considerations	MOVEMENT LITERACY	SPEED SKATING LITERACY	CRITICAL SKILL AND PHYSICAL DEVELOPMENT	COMPETITIVE DEVELOPMENT	COMPETITIVE DEVELOPMENT	PERFORMANCE DEVELOPMENT	PERFORMANCE DEVELOPMENT
	Learn to skate	learn to speedskate - short and long	major fitness development phase - emphasise aerobic development at onset of PHV	continue strength, aerobic, speed and skill development through diagnostics	continue strength, aerobic, speed and skill development through diagnostics	maximise individual, event, fitness, technical and tactical skills	maximise individual, event, fitness, technical and tactical skills
	fundamental movement development	overall sports skills including speedskating					
		major skill development emphasis	key strength development window for females at onset of menarche				
		peak motor development	key speed development windows (female 11-13yrs; male 13-16yrs)				
	identify individual	identify individual	identify individual	identify individual needs			

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	needs for program development in relation to windows of trainability	needs for program development in relation to windows of trainability	needs for program development in relation to windows of trainability and individual maturation	for program development in relation to windows of trainability and individual maturation			
<b>PHYSICAL / TACTICAL / TECHNICAL / MENTAL / REMEDIAL PROGRAMS TO CATER FOR LATE ENTRANTS AT EACH LEVEL</b>							

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	FUNdamentals	Learning to Train	Training to train	Learning to Compete	Training to Compete	Learning to Win	Training to Win
	speed power and endurance through FUN and games peak motor development	develop endurance through FUN activities peak motor development	major fitness development phase - emphasise aerobic development at onset of PHV	fitness and recovery tailored to individual	fitness and recovery tailored to individual	maintenance or improvement of physical capacities	maintenance or improvement of physical capacities
<b>Flexibility</b>		introduced through FUN activities	Emphasis on development	Maintenance and specific needs	Maintenance and specific needs	Maintenance and specific needs	Maintenance and specific needs
<b>Agility, balance and coordination (ABCs)</b>	Development through games and warm-up activities RJT et KGB, FBI	Advanced development through games and warm-up activities	Advanced drills sport specific, CIA	Advanced drills sport specific	Maintenance and specific needs	Maintenance and specific needs	Maintenance and specific needs
<b>Speed</b>	through agility, quickness, change of direction in warm-up	through agility, quickness, change of direction in warm-up	Initiation to plyometric training	Development through plyometric and specific sprint training	Development through plyometric and specific sprint training, intro of max. power	Development through plyometric and specific sprint training, max. power	Refinement through plyometric and specific sprint training, max. power and Maintenance
<b>Posture and body alignment</b>		generic ankle / knee stability	knee / ankle and core stability based on diagnostics	knee / ankle and core stability based on diagnostics	knee / ankle and core stability based on diagnostics	knee / ankle and core stability based on diagnostics	knee / ankle and core stability based on diagnostics
<b>Periodisation</b>		introduce structured physical conditioning	Develop strength (male/female timing differences related to PHV)	sport and individual specific physical conditioning under competitive conditions	introduction to physical preparation to peak	physical preparation tailored to peak for major competitions	physical preparation tailored to peak for major competitions
<b>Strength training objectives</b>	intro to core stability through fun games	continued development of core stability through fun games	Technical development of movement	Development of general strength, sport specific in specific phase	Development of sport specific strength	Development of sport specific strength Max Power	Development of sport specific strength and maintenance
<b>Strength training methods</b>		medicine balls, swiss balls, and own body exercises for strength	introduce free weights	Advanced general strength training with free weights	Specific training strength training with free weights	Specific training strength training with free weights	All methods tailored to individual requirements of each athlete
<b>Warm-up/cool-down</b>	Intro to concept	Intro to concept	Develop athlete specific routines	Integral part of training Develop specificity based on training and competition event	Integral part of training and competition	Integral part of training and competition	Integral part of training and competition
<b>Anaerobic Lactic</b>	Athletes have no lactic system	Athletes have no lactic system	Competition phase only	Specific and competition phases only	Periodised development	Periodised development	Periodised development
<b>Aerobic objective</b>	Incidental development	Incidental and some targeted development	Targeted development	Targeted development Aerobic power development	Development during off ice period, Aerobic power development and maintenance of base on ice	Development during off ice period, Aerobic power development and maintenance of base on ice	Maintenance with development following quadrennial plan

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<b>Aerobic training methods</b>	Through fun and games	Develop through complimentary sports and games	Complimentary sports and specific training	Primarily specific training, some complimentary sports	Specific training	Specific training	Specific training
<b>COGNITIVE</b>	<b>Stage 1</b>	<b>Stage 2</b>	<b>Stage 3</b>	<b>Stage 4</b>		<b>Stage 5</b>	
	<b>FUNdamentals</b>	<b>Learning to Train</b>	<b>Training to train</b>	<b>Learning to Compete</b>	<b>Training to Compete</b>	<b>Learning to Win</b>	<b>Training to Win</b>
	motor learning issues adopted in coaching practices	motor learning issues adopted in coaching practices	motor learning issues adopted in coaching practices				
			decision making	decision making	decision making	decision making	decision making
	Focus on motivating and FUN activities	Focus on motivating and FUN activities					
			develop further mental preparation - appropriate attitude to competition - being the best you can be developing -belief in the process	develop further mental preparation	develop further mental preparation	Advanced mental preparation	Advanced mental preparation
					media training etc	media training etc	media training etc
					distraction management	distraction management	distraction management
			profiling of mental qualities	social psychology and team dynamics	social psychology and team dynamics	social psychology and team dynamics	social psychology and team dynamics
<b>LIFESTYLE</b>	<b>Stage 1</b>	<b>Stage 2</b>	<b>Stage 3</b>	<b>Stage 4</b>	<b>Stage 5</b>		
	<b>FUNdamentals</b>	<b>Learning to Train</b>	<b>Training to train</b>	<b>Learning to Compete</b>	<b>Training to Compete</b>	<b>Learning to Win</b>	<b>Training to Win</b>
		introduce: cultural / lifestyle habits; nutrition/hydration; recovery/regeneration	develop: cultural / lifestyle habits; nutrition/hydration; recovery/regeneration ; tapering and peaking	optimise: cultural / lifestyle habits; nutrition/hydration; recovery/regeneration; tapering and peaking	optimise: cultural / lifestyle habits; nutrition/hydration; recovery/regeneration; tapering and peaking	optimise: cultural / lifestyle habits; nutrition/hydration; recovery/regeneration ; tapering and peaking	maximise: cultural / lifestyle habits; nutrition/hydration; recovery/regeneration ; tapering and peaking
				Develop travel strategies			
		parental education about these issues	parental education and involvement in lifestyle management	parental education and involvement in lifestyle management			
			introduce individual management / career planning	individual management / career planning	individual management / career planning	individual management / career planning	individual management / career planning
			introduction to training diary				

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<b>Sporting decisions</b>			ST or LT specialisation near end of phase Selection of competitions Prioritise competitive sports near end of phase	ST or LT specialisation Selection of competitions Relocation RTC/NTC Prioritise competitive sports	Relocation NTC Make other life objectives, including education, fit within frame necessary for HP success.	Distance specialisation LT Make other life objectives, including education, fit within frame necessary for HP success.	Prioritise events – LT middle distance Make other life objectives, including education, fit within frame necessary for HP success. Retirement
<b>EQUIPMENT</b>	<b>Stage 1</b>	<b>Stage 2</b>	<b>Stage 3</b>	<b>Stage 4</b>		<b>Stage 5</b>	
	<b>FUNdamentals</b>	<b>Learning to Train</b>	<b>Training to train</b>	<b>Learning to Compete</b>	<b>Training to Compete</b>	<b>Learning to Win</b>	<b>Training to Win</b>
	skaters learn proper maintenance of skates	introduce the sharpening of blades	skaters able to sharpen own blades and introduce the awareness of rockering	introduce higher level of equipment preparation and maintenance ie rocker, bend, sharpening.	refine skills in equipment preparation	competent in all aspects of equipment preparation and maintenance	competent in all aspects of equipment preparation and maintenance
	tie and fit skates						
	properly fitted boots		introduce awareness of bending				
	appropriate skates and blades for development level of skater	appropriate skates and blades for development level of skater	appropriate skates and blades for development level of skater				
			correct decision making for appropriate clothing for racing and training	maintenance of off ice training equipment eg bicycles			

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SPORT SPECIFIC SKILLS							
	FUNdamentals	Learning to Train	Training to train	Learning to Compete	Training to Compete	Learning to Win	Training to Win
	Introduce and develop basic skating skills:	Emphasis is placed on developing correct timing in the execution of skating	Refine core techniques.	Refine competition and technical skills and test various strategies	Optimise competition and technical skills. Test various strategies under competition conditions	Maximise specific technical and tactical skills under competition conditions	Maximise specific technical and tactical skills under competition conditions
<b>Tactical</b>		Introduce passing, track patterns, pacing etc.	Experiment different passing techniques, track patterns, pacing etc.	Refine different passing techniques, track patterns, pacing etc.	Refine different passing techniques, track patterns, pacing etc.	Optimise different passing techniques, track patterns, pacing etc.	Optimised passing techniques, track patterns, pacing etc.
<b>Racing</b>	Intro to racing	Intro to general competition skills including relays	Introduce Team Pursuit Develop relay Introduce race specific tactics	Develop Team Pursuit Refine relay skills Select competitions for performance and for training "training races"	Refine Team Pursuit Optimise relay skills Integration of all technical and tactical elements	Specialisation - LT; Optimise Team Pursuit and relay Optimal integration of all technical and tactical elements	Optimised Team Pursuit and relay Optimal integration of all technical and tactical elements
		develop generic knowledge and experience in racing	introduction to video analysis	incorporate video analysis	incorporate video analysis	incorporate video analysis	incorporate video analysis
<b>Technical</b>	Introduce and develop basic skating skills: forward, backward, balance and edge control, crossover both ways, basic speedskating positions, stops, starts and agility	develop speedskating skills - LT & ST  Refine skating skills so that skaters can achieve gold level in "Cutting Edge". Emphasis is placed on developing correct timing in the execution of skating.	refine speedskating specific skills - LT & ST  Refine core techniques. Introduce competition skills such as passing, track patterns, pacing, changing lanes, with Olympic style racing towards 2nd half of phase	Refine competition and technical skills and test various strategies	Optimise competition and technical skills. Test various strategies under competition conditions	Maximise competition and technical skills	Maximise competition and technical skills
		develop speedskating skills - LT & ST	refine speedskating specific skills - LT & ST				
		Introduction to off ice skill development during speedskating training sessions	Incorporate off ice training	Incorporate off ice training	Incorporate off ice training	Incorporate off ice training	Incorporate off ice training
<b>Rules</b>	introduction to simple rules and ethics of sport	introduction to simple rules and ethics of sport	rules and ethics of sport	rules and ethics of sport	rules and ethics of sport	rules and ethics of sport	rules and ethics of sport

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TRAINING / COMPETITION	Stage 1	Stage 2	Stage 3	Stage 4		Stage 5	
	FUNdamentals	Learning to Train	Training to train	Learning to Compete	Training to Compete	Learning to Win	Training to Win
<b>COMPETITIONS</b>	3 to 5	5 to 7	5 to 7	5 to 10	7 to 10	10 +	10 +
<b>Races</b>	80+	+/-60	+/-30	+/-60 LT 75 to 150 - ST	+/-60 LT 150+ - ST	+/-30 – LT Sprint 20-25 – LT All-round 125 – 150 - ST	+/-30 – LT Sprint 20-25 – LT All-round 125 – 150 - ST
<b>PRIORITY COMPETITIONS</b>	Local with regional events and Provincial Champs	Regional with Provincial Champs	Provincial Age class champs. Canadian Junior Champs if Local	Canadian Junior Champs. Local Senior Events World Junior Champs.	Canadian Junior Champs. World Junior Champs. Nat. Ranking Events	Nat. Ranking Events or International Circuit	Nat. Ranking Events or International Circuit
				need to explore international club exchanges to increase competitions	need to explore international club exchanges to increase competitions		
<b>QUANTITY AND INTENSITY</b>	1 - 2 per week / 22 - 24 weeks	4 sessions per week / 20-29 weeks	5/wk in early part of phase;	6 on ice + 3 dryland	9 - 12 sessions + regeneration and other ancillary sessions	9 - 12 sessions + regeneration and other ancillary sessions	9 - 12 sessions + regeneration and other ancillary sessions
<b>AVERAGE DURATION OF SESSIONS</b>	45min	60 min	60 - 90min	90+ Based on training program objective	90+ Based on training program objective	90+ Based on training program objective	90+ Based on training program objective
		3 on ice / 3 other organised activities	3 on ice + 2 dryland in early part of phase; 4 on ice + 2 dryland in later part of phase; 5 on ice + 2 dryland in last part of phase				
			those maturing earlier can increase dryland to take advantage of development windows				

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<b>SPORTING ACTIVITY</b>	4 sports	3 sports	2 sports	1 sport			
recommended that skaters also participate in other sports							
<b>PERIODIZATION</b>		single	single	double	double	double	double
		follow seasonal sports schedule	follow seasonal sports schedule	1 off ice / 1 competition (multiple competition peaks)	1 off ice / 1 competition (multiple competition peaks)	1 off ice / 1 competition (multiple competition peaks)	1 off ice / 1 competition (multiple competition peaks)