

Saskatchewan Karate Association

LONG-TERM ATHLETE DEVELOPMENT



Table of Contents

Acknowledgements	2
Glossary of Acronyms.....	3
Glossary of Terms	4
Introduction	8
Periodization	13
Physical Literacy.....	15
Stages of Long-Term Athlete Development.....	19
Saskatchewan Karate Stages	24
Active Start	24
FUNdamentals.....	26
Learn to Train	29
Train to Train	33
Train to Compete.....	37
Train to Perform.....	40
Train to Win	43
Active for Life	45
Training and Competition.....	47
Implementation of Long-Term Athlete Development.....	49
Conclusion	51
Selected Bibliography	52

Acknowledgements

Saskatchewan Karate Association acknowledges the financial support of the Saskatchewan Lotteries and Sask Sport.

Saskatchewan Karate Association (SKA) would like to thank the following key individuals for their contributions to the research, development and preparation of the Saskatchewan Karate Association Long-Term Athlete Development pathway: Istvan Balyi, Charles Cardinal and the Sport for Life Committees.

Thank you to the SKA Technical Committee and to the LTAD Committee for their commitment and contributions they have made in the preparation of this document.

We would also like to thank Jymmi Kaye Demchuk for developing/compiling the Saskatchewan Karate Association Long Term Athlete Development Module. Jymmi Kaye provided research and guidance to the process while utilizing the expertise of the Saskatchewan Karate Association Technical Directors and the LTAD Committee.

Finally, Saskatchewan Karate Association would like to thank the coaches, officials, administrators, volunteers, and athletes who give their time, energy, and passion to the art of traditional Karate.

Thank you!

PROUDLY SUPPORTED BY



Glossary of Acronyms

ABCs	Agility, Balance, Coordination, and Speed
BOD	Board of Directors
FMS	Fundamental Movement Skills
KGBs	Kinesthetic, Gliding, Buoyancy, and Striking with the body
LTAD	Long-Term Athlete Development
NCCP	National Coaching Certification Program
PE	Physical Education
IST	Integrated Support Team
PSO	Provincial Sport Organization
RJT	Running, Jumping, and Throwing
PCKs	Passing, Catching, Kicking, and Striking with an implement
PHV	Peak Height Velocity
PSV	Peak Strength Velocity

The goal of the Saskatchewan Karate Association is to promote and facilitate the development of Traditional Karate as a Martial Art and as a Sport throughout the Province by encouraging participation from as diverse an area and population as possible; standardizing and supervising the quality of karate instruction throughout the province, instruction of “karate-do” (the karate way); examination and registration of student ranking and other technical qualifications; sponsoring seminars and other events, developing qualified coaches, instructors and officials; cooperating with organizations for development of karate; such other activities as may assist in achieving the above goal.

Glossary of Terms

The **5 Basic Ss** of Training and Performance are Stamina (Endurance), Strength, Speed, Skill, and Suppleness (Flexibility).

Active recovery is the use of a low heart rate movement while recovering from high intensity exercise.

Active rest refers to the use of other sports, or low heart rate activities, during the rest phase of the macrocycle.

Adaptation refers to a response to a stimulus or a series of stimuli that induces functional and/or morphological changes in the organism. Naturally, the level or degree of adaptation is dependent upon the genetic endowment of an individual. However, the general trends or patterns of adaptation are identified by physiological research, and guidelines are clearly delineated of the various adaptation processes, such as adaptation to muscular endurance or maximum strength.

Adolescence is a difficult period to define in terms of the time of its onset and termination. During this period, most bodily systems become adult both structurally and functionally. Structurally, adolescence begins with acceleration in the rate of growth in stature, which marks the onset of the adolescent growth spurt. The rate of statural growth reaches a peak, begins a slower or decelerative phase, and finally terminates with the attainment of adult stature.

Aerobic energy system refers to the muscle energy system that requires oxygen. It does not produce fatigue producing waste products (ie lactic acid). This system is used in lower intensity activities. An aerobic activity lasts for a period of more than 2 minutes.

Anaerobic alactic energy system refers to the start-up energy system that does not require oxygen and does not produce lactic acid. An anaerobic alactic activity lasts for a period of 10 seconds or less.

Anaerobic lactic refers to the start-up energy system that does not require oxygen and does produce lactic acid. An anaerobic alactic activity lasts for a period of 10 seconds to 2 minutes.

Ancillary Capacities refer to the knowledge and experience base of an athlete and includes warm-up and cool-down procedures, stretching, nutrition, hydration, rest, recovery, restoration, regeneration, mental preparation, and taper and peak.

The more knowledgeable athletes are about these training and performance factors, the more they can enhance their training and performance levels. When athletes reach their genetic potential and physiologically cannot improve anymore, performance can be improved by using the ancillary capacities to full advantage.

Block learning refers to a controlled learning environment.

¹ Balyi I., Cardinal C., Higgs C., Norris S., and Way R. *Long-Term Athlete Development - Canadian Sport for Life*, 2005.

Childhood ordinarily spans the end of infancy — the first birthday — to the start of adolescence and is characterized by relatively steady progress in growth and maturation and rapid progress in neuromuscular or motor development. It is often divided into early childhood, which includes preschool children aged 1 to 5 years, and late childhood, which includes elementary school-age children, aged 6 through to the onset of adolescence.

Chronological age refers to the number of years and days elapsed since birth. Growth, development, and maturation operate in a time framework – the child’s chronological age. Children of the same chronological age can differ by several years in their level of biological maturation. The integrated nature of growth and maturation is achieved by the interaction of genes, hormones, nutrients, and the physical and psychosocial environments in which the individual lives. This complex interaction regulates the child’s growth, neuromuscular maturation, sexual maturation, and general physical metamorphosis during the first two decades of life.

Competition is defined as all sanctioned (league, tournament, Club Championships, etc.) and non-sanctioned (exhibition) competitions

Critical periods of development refers to a point in the development of a specific behaviour when experience or training has an optimal effect on development. The same experience, introduced at an earlier or later time, has no effect on or retards later skill acquisition.

Development refers to the interrelationship between growth and maturation in relation to the passage of time. The concept of development also includes the social, emotional, intellectual, and motor realms of the child.

Developmental age refers to the degree of physical, mental, cognitive, and emotional maturity. Physical developmental age can be determined by skeletal maturity or bone age after which mental, cognitive, and emotional maturity is incorporated.

Dry land is defined as core/stability and weight training outside of the water.

Eustress is referred to as positive physical stimuli.

Frequency refers to the number of workouts within a given time frame, usually per microcycle. Frequency relates to the loading period within the mesocycle

Game scenario is defined as a situation where technical skills are incorporated into a setting where the athlete is forced to make a pressured decision with multiple options.

The terms **-growth** and **-maturation** are often used together and sometimes synonymously. However, each refers to specific biological activities. Growth refers to observable, step-by-step, measurable changes in body size such as height, weight, and percentage of body fat. Maturation refers to qualitative system changes, both structural and functional in nature, in the organism’s progress toward maturity; for example, the change of cartilage to bone in the skeleton.

Intensity is the qualitative component of the training regimen. Intensity is measured through heart rate and contains all activities within a given unit of time.

Loading to recovery ratio refers to the number of microcycles within a mesocycle. Loading means increasing volume, while recovery is a lowering of volume and increase of intensity.

Macrocycle is commonly referred to as the training period in question and is divided into distinct phases. A typical macrocycle lasts for a period of 12 months.

Mesocycle reflects specific training emphasis relating to a change of volume and intensity of training for that phase of training. A typical mesocycle lasts for a period of 3-4 weeks.

A **microcycle** lasts for a period of 7 days. The number of recovery microcycles determines the length of the mesocycle. For example, a 4-week mesocycle would entail three weeks of increasing intensity with one week of lower intensity (creating a loading to recovery ratio of 3:1)

Passive rest refers to no physical or mental training during the rest phase of the macrocycle.

Peak height velocity (PHV) is the maximum rate of growth in stature during growth spurt. The age of maximum velocity of growth (i.e. the period where an individual's growth is most accelerated) is called the age at PHV.

Peak strength velocity (PSV) is the maximum rate of increase in strength during growth spurt. The age of maximum increase in strength is called the age at PSV.

Peak weight velocity (PWV) is the maximum rate of increase in weight during growth spurt. The age of maximum increase in weight is called the age at PWV.

The concept of **periodization** centers on time management – it is the process of varying a training program at regular time intervals to produce peak performance for a specific competitive event.

Physical literacy Physical literacy is the development of fundamental movement skills and fundamental sport skills that permit a child to move confidently and with control in a wide range of physical activity, rhythmic (i.e. dance), and sport situations. Physical literacy also includes the ability of individuals to read all what is going on around them in an activity setting and react appropriately to those events. This developmental stage takes place between the ages of 0 and 12.

Post-natal growth is commonly, although sometimes arbitrarily, divided into three or four age periods, including infancy, childhood, adolescence, and puberty.

Random learning refers to a learning environment that simulates competition realities.

Readiness refers to the child's level of growth, maturity, and development that enables him/her to perform tasks and meet demands through training and competition. Readiness and critical periods of trainability during growth and development of young athletes are also referred to as the correct time for the programming of certain stimuli to achieve optimum adaptation with regard to motor skills, muscular and/or aerobic power.

Sensitive period of development refers to points in the development of specific capacities when training has an optimal effect. Factors such as readiness and critical periods of trainability during growth and development of young athletes, where the stimulus must be timed to achieve optimum adaptation with regard to motor skills, muscular, and/or aerobic power, also influence these sensitive periods of development.

Skeletal age refers to the maturity of the skeleton determined by the degree of ossification of the bone structure. It is a measure of age that takes into consideration how far given bones have progressed toward maturity in respect to shape and position to one another rather than size.

Trainability refers to the faster adaptation to stimuli and the genetic endowment of athletes as they respond to specific stimuli and adapt to it accordingly. Trainability refers to the responsiveness of developing individuals to training stimulus at different stages of growth and maturation.

Training is defined core/stability and weight training, and technical Karate skill development.

Training age refers to the age where athletes begin participating in regular, planned, and goal- oriented training. An athlete's training is influenced by his or her developmental status – individuals who mature at an early age have a major advantage over average or late maturers during the Competitive Foundations stage. However, after all athletes have gone through their growth spurt, late maturers often exhibit greater potential to become top athletes provided they experience quality coaching throughout their development.

Karate training is defined as technical skill development, and refers to all aspects including kata, kihon and kumite, and any related skill exercises including rule training.

Windows of optimal trainability refers to the sensitive periods of accelerating adaptation to training, which occurs prior to, during, and early post-puberty. During sensitive periods, the window for optimal training is fully open. This window remains open outside the sensitive periods, ensuring that there is always an opportunity for training and development.

Volume is the quantitative component of the training program. The volume of activity is defined by the duration (i.e. length of time) and/or length of the exercise (i.e. distance).

Introduction

The Saskatchewan Karate Association (SKA) was formed in 1977 incorporating a number of systems, or styles of Karate, which meet the necessary ethical and technical standards of training and instruction. The goal of the Association is to promote and develop Karate as a martial art and as a sport throughout the province. Meeting this goal involves:

- Encouraging wide participation in the art of Karate
- Standardizing and supervising the quality of Karate instruction
- Instructing “Karate-Do”(the Karate way)
- Examining and registering student ranking and other technical qualification
- Sponsoring seminars and other events
- Examining and registering student ranking and other technical qualification
- Developing qualified coaches, instructors and officials
- Cooperation with organizations for development of Karate
- Producing written materials related to Karate other activities to assist the goal of the “SKA”
- Provides coaches, instructors and officials that are trained in Respect in Sports (anti-bullying awareness)

What is Traditional Karate?

Although today there are many different Karate styles, originally there was only one. The first or Traditional Karate (Karate-Do) was the original Karate from which these later styles borrowed the name “Karate,” as it is commonly and widely used today.

Karate has its roots in “Tode” – a weaponless self-defense system developed in Okinawa, influenced by Chinese martial arts with more than two thousand years of history. In mainland Japan, it was established as a part of “Budo” (Japanese martial arts) system; “Traditional Karate” therefore is a general term for Karate that follows Budo principles.

After World War II, Karate’s value for self-defense, physical fitness, competition, and overall mental and physical development came to be increasingly recognized. However, as a martial art, it necessitated long and repeated careful study. Because the practice of Karate soon came to approach the semblance of a “boom” in popularity, the requirements of long and repeated careful study came to be overridden by the demands of today’s world for more rapid results and quicker development. The result was the emergence of many new sports using the name of Karate. To avoid confusion with these new sports, the public began distinguishing the original Karate as “Traditional Karate.”

The international governing body of Traditional Karate is the International Traditional Karate Federation (ITKF), which is composed of Traditional Karate national federation from each member country. Each member of the national federation is the governing body for Traditional Karate in its respective country. Worldwide, members of ITKF practice many different “styles” of Karate (such as Shotokan, Goju-Ryu, etc.). These “styles” are

comparable to schools or academies and have their own unique training systems developed by Karate masters over many centuries. However, even under the same style, groups affiliated with ITKF pursue Budo Karate while others not belonging to ITKF practice so called “karate sports” which are merely punching / kicking games with no Budo principles.

What is Long-Term Athlete Development?

Long-Term Athlete Development is a process that takes participants from playground to podium and beyond. This growth is achieved through segmenting age groups based on the physical, mental, emotional, and cognitive development of individuals. The Long-Term Athlete Development program optimizes the competition structure for the various stages of an athlete’s development to ensure that optimal training, competition, and recovery programs are provided throughout a participant’s career. Long-Term Athlete Development attempts to achieve this by integrating high-performance sports, community sport and recreation, scholastic sport, and physical education in schools. It is important to note that Long-Term Athlete Development has a dual purpose – while it ultimately prepares athletes for international competition, it is also focused on developing individuals who participate in sport for life as athletes, coaches, volunteers, and officials. In essence, Long-Term Athlete Development offers an operational framework for clubs, communities, Provincial Sport Organizations, and the National Sport Organization to structure competition and age/skill groupings based on developmental age and optimize playing and training opportunities for all skill and commitment levels at any age.

At the heart of this proposal is a desire to improve upon the current structure governing Karate in Saskatchewan. To further develop the martial art, we need to introduce a program and structure that attracts athletes from a young age and encourages them to stay involved in the system through adulthood, either as athletes, coaches, officials or volunteers.

To achieve this, we need to increase participation in Karate, and develop future coaches, club presidents, officials and volunteers. In examining program excellence in sport and Karate programs in other nations, it is apparent that the principles governing Long-Term Athlete Development pathways hold great promise for Canadian athletes and the future of this Traditional martial art in Canada.

Table 1 – Stages of Saskatchewan Karate Long-Term Athlete Development

Stages of Saskatchewan Karate Long-Term Athlete Development
Active Start
FUNDamentals
Learn to Train
Train to Train
Train to Compete
Train to Perform
Elite Athletes
Active for Life

During the earlier stages of the pathway, coaches must focus on skills development to produce competent, well-rounded athletes, and not the final outcome.

During these early stages, athletes are acquiring the skills it takes to be successful. However, it is important to note that this is a skill that cannot be learnt overnight

The **5 Basic Ss** of Training and Performance are Stamina (Endurance), Strength, Speed, Skill, and Suppleness (Flexibility).⁸

Stamina (Endurance)

The optimal window of endurance trainability occurs at the onset of Peak Height Velocity which is the maximum rate of growth in stature during growth spurt. The age of maximum velocity of growth (i.e. the period where an individual's growth is most accelerated) is called the age at PHV. Aerobic capacity training is recommended before athletes reach Peak Height Velocity. Aerobic power should be introduced progressively after growth rate decelerates.

Strength

The optimal window of strength trainability for females is immediately after Peak Height Velocity or at the onset of the menarche. For males, the optimal window of trainability is 12 to 18 months after Peak Height Velocity is reached.

Speed

For males, the first speed training window occurs between the ages of 7 and 9 years and the second window occurs between the ages of 13 and 16. For females, the first speed training window occurs between the ages of 6 and 8 years and the second window occurs between the ages of 11 and 13 years.

Skill

The window for optimal skill training for males takes place between the ages of 9 and 12 and between the ages of 8 and 11 for females.

Suppleness (Flexibility)

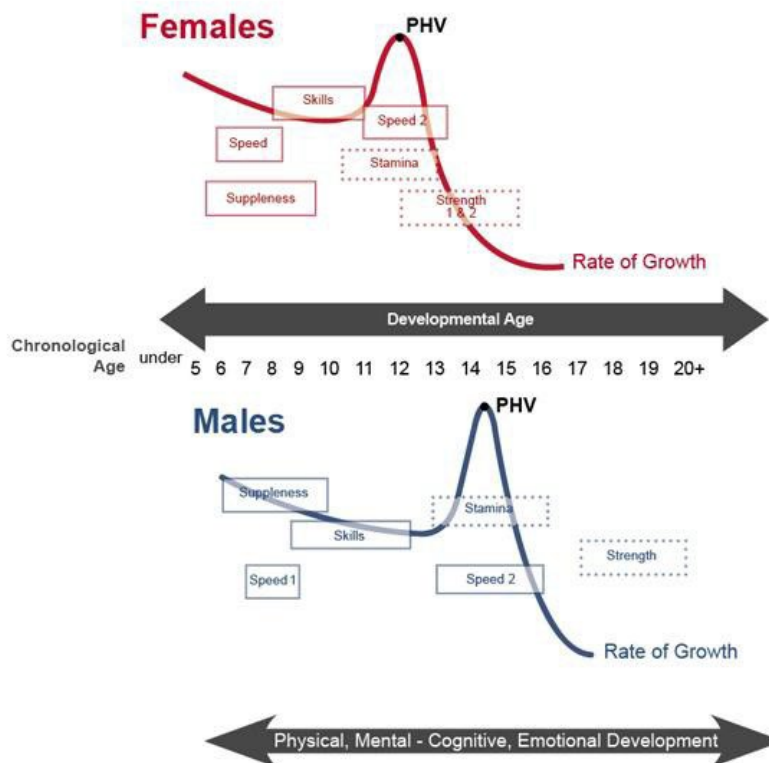
The optimal window of trainability for suppleness for both genders occurs between the ages of 6 and 10.

Figure 5 illustrates the Windows of Optimal Trainability for Females and Males. Two windows – stamina and strength – are based on the moving scales of the onset of the growth spurt and Peak Height Velocity. The other three windows – speed, skill, and suppleness – are based on chronological age.

⁷ Norris, S.R., Smith, D.J. —Planning, Periodization, And Sequencing of Training And Competition: The Rationale For A Competently Planned, Optimally Executed Training And Competition Program, Supported By A Multidisciplinary Team. In M. Kellmann (Ed.) *Enhancing Recovery: Preventing Underperformance in Athletes*, 2002, pp.121-141.

⁸ Dick, F.W., *Sports Training Principles*, 1985

Figure 5 – Windows of Optimal Trainability⁹



As illustrated above, the windows of optimal training for suppleness, speed, and skill development are chronological – under the age of 12 for females and under the age of 13 for males. The windows of optimal training for stamina and strength, on the other hand, are dependent upon developmental age – the onset of Peak Height Velocity (indicated above by the dotted-line boxes). After approximately 10 years of age, both the physical and biological maturation of the individual athlete needs to be considered, as the windows of optimal trainability differ greatly between males and females. As a result, mixed gender training and competition for athletes after the age of 10 is counter-productive and should be avoided.

⁹ Balyi I., Cardinal C., Higgs C., Norris S., and Way R. *Long-Term Athlete Development - Canadian Sport for Life*, 2005.

Periodization

The concept of periodization centers on time management. It is the process of varying a training program at regular time intervals to produce peak performance for a specific competitive event. The basic principle of periodization in workout routines is a shift from an emphasis on high volume (Exercises x Sets x Repetitions) and low intensity (% of maximum effort) training to low volume and high intensity training. In the context of Long-Term Athlete Development, periodization connects the stage the athlete is in, to the requirements of that stage.

As a tool, periodization is highly flexible. When used in conjunction with sound methodology and ongoing monitoring and evaluation, it is an essential component in optimal sports programming and athlete development. Although the concept of periodization is drawn from scientific research, active coaching is heavily involved in creating the appropriate periodization plan.

In periodization, the training year (or macrocycle) is divided into distinct phases. Each phase contains several smaller components (or mesocycles) relating to a change in the volume and intensity of training. A mesocycle may last up to one month. Typically, each mesocycle reflects a specific training emphasis for that phase of training. Within each mesocycle are several smaller cycles (or microcycles) that are usually seven days in length. The number of recovery microcycles determines the length of the mesocycle. For example, a 4 week mesocycle would entail 3 weeks of increasing intensity with one week of lower intensity (creating a loading to recovery ratio of 3:1). If a macrocycle phase lasts more than the 4-week loading-recovery period, then a combination of loading/recovery periods within that phase (e.g. 2 x 3:1 = 8-week period) may be created.

Table 4 – Phases of an Annual Plan – Single and Double Periodization¹⁰

Five Phases of A Single Periodized Annual Plan	Eight Phases of A Double Periodized Annual Plan
General Preparation Phase (GPP)	General Preparation Phase (GPP)
Specific Preparation Phase (SPP)	Specific Preparation Phase 1 (SPP1)
Pre-Competition Phase (PCP)	Pre-Competition Phase 1 (PCP1)
Competition Phase (CP) <i>Peak</i>	Competition Phase 1 (CP1) <i>Peak 1</i>
Transition Phase (TP)	Specific Preparation Phase 2 (SPP2)
	Pre-Competition Phase 2 (PCP2)
	Competition Phase 2 (CP2) <i>Peak 2</i>
	Transition Phase (TP)

Table 4 describes generic phases within a yearly training plan. The single period model is useful when there is only one peak within the macrocycle (i.e. a year spent building a single goal, such as a competition), whereas the double or triple period models are used when

¹⁰ Adopted from Balyi I., Cardinal C., Higgs C., Norris S., and Way R. *Long-Term Athlete Development - Canadian Sport for Life*, 2005.

there are two or three peaks (i.e. two or three goals or competitions). Please note that there must be a few months between peak periods for double or triple periodization to be successful.

Moreover, it is possible to have multiple peaks occurring during the competition phase of the yearly planning cycle; however, intensity must remain at a high level for the athletes to reach an extended peak. Appendix 2 provides examples of single, double, and triple periodization cycles.

Table 5 below describes the five phases of periodization as applied to the athlete development and identifies the objectives of each phase.

Table 5 – Objectives of Periodization Phases¹¹

Technical Development (General Preparation Phase)	<ul style="list-style-type: none"> • Build aerobic base by slowly shocking body with eustress (positive physical stimuli). • High volume, low intensity training. • Rather than running laps, aerobic base is built through the development of basic Karate skills.
Conditioning (Specific Preparation Phase)	<ul style="list-style-type: none"> • Continue to build aerobic base while increasing the intensity of the Karate drills. • Maintain the basic skills, while moving onto more advanced skills and some specific skills.
Pre-Competition Phase	<ul style="list-style-type: none"> • Transition to high intensity, moderate volume training. • Focus on developing strength and recovery. • Maintain basic skills, perfect advanced skills, and focus on situational specific skills.
Competition Phase (Peak)	<ul style="list-style-type: none"> • High intensity, low volume training to build speed. • Technical focus is dedicated towards perfecting strategic system. • Requires ample recovery time within drills – a 6:1 work to recovery ratio. • Active recovery is key to development.
Post-Season (Transition Phase)	<ul style="list-style-type: none"> • Provide athletes the opportunity to recover from the mental and emotional stress of competition. • A minimum of two weeks. • Focus on maintaining entire skill set built over the season. Keep workouts fun and motivational. • Continue building aerobic base.

¹¹ Adopted from Balyi I., Cardinal C., Higgs C., Norris S., and Way R. *Long-Term Athlete Development - Canadian Sport for Life*, 2005.

Physical Literacy

Childhood obesity and rising inactivity among children are problems that need to be addressed now to prevent a generation of children from growing up with chronic health problems. Physical activity later in life depends on feeling confident in an activity setting; confidence as an adult often comes from having learned fundamental movement and sport skills as a child.

Physical literacy is the development of fundamental movement skills and fundamental sport skills that permit a child to move confidently and with control in a wide range of physical activity, rhythmic (i.e. dance), and sport situations. Physical literacy also includes the ability of individuals to realize what is going on around them in an activity setting and react appropriately to those events. This developmental stage takes place between the ages of 0 and 12.

The notion that physical literacy skills just happen – that children develop these skills on their own through trial and error – is incorrect. In fact, many children do not develop good physical literacy skills. The consequences of failing to develop these skills can be severe and long-lasting.

As a result, it is important that all adult parties around children take part in developing their basic movement skills. Table 6 below indicates where these skills are acquired, and who within the community and/or household is responsible for the child’s physical development based on the Long-Term Athlete Development pathway. Please note that in Table 6, Learn to Train refers to the Technical Foundations phase in Karate.

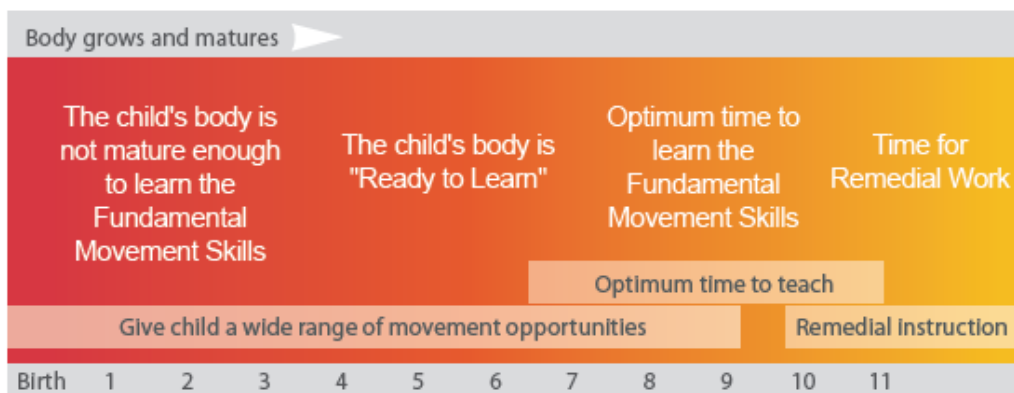
Table 6 – Who is Responsible for Physical Literacy¹³

	Where?	Physical Literacy	Who?
LTAD Stage	Schools Sport clubs Community recreation Sport programs Home	Learn to Train Girls 8-11, Boys 9-12	Parents/Guardians Coaches Teachers Recreation leaders Youth leaders
	Schools Sport clubs Community recreation Sport programs Home	FUNDamental Girls 6-8, Boys 6-9	Parents/Guardians Coaches Teachers Recreation leaders Youth leaders
	Home Pre-schools Day care Sport programs Community recreation	Active Start Girls and Boys 0-6	Parents/Guardians Day care providers Pre-school teachers Kindergarten teachers

As a child grows and develops/matures, nerve cells make more connections. At the same time, the muscles of the body get stronger. For a skill to be developed, both the body and the mind must be ready. If the brain is not mature enough, or the muscles are not strong enough, the child simply cannot learn the skill. Trying to teach the child when the body is unable to learn the skill will accomplish little. During the physical literacy stage, it is important to provide the child with as many opportunities as possible to explore all possible movements in a rich environment that is both safe and challenging. As skills begin to emerge naturally, learning can be dramatically improved through opportunities for fun practice using a variety of equipment and materials.

Providing the child with simple instruction and plenty of practice can help the child develop confidence that stays with them for life (though, admittedly, this may not accelerate the learning process). Table 7 below shows a progression of when the child's body and mind are mature enough to begin learning the fundamental movement and sport skills.

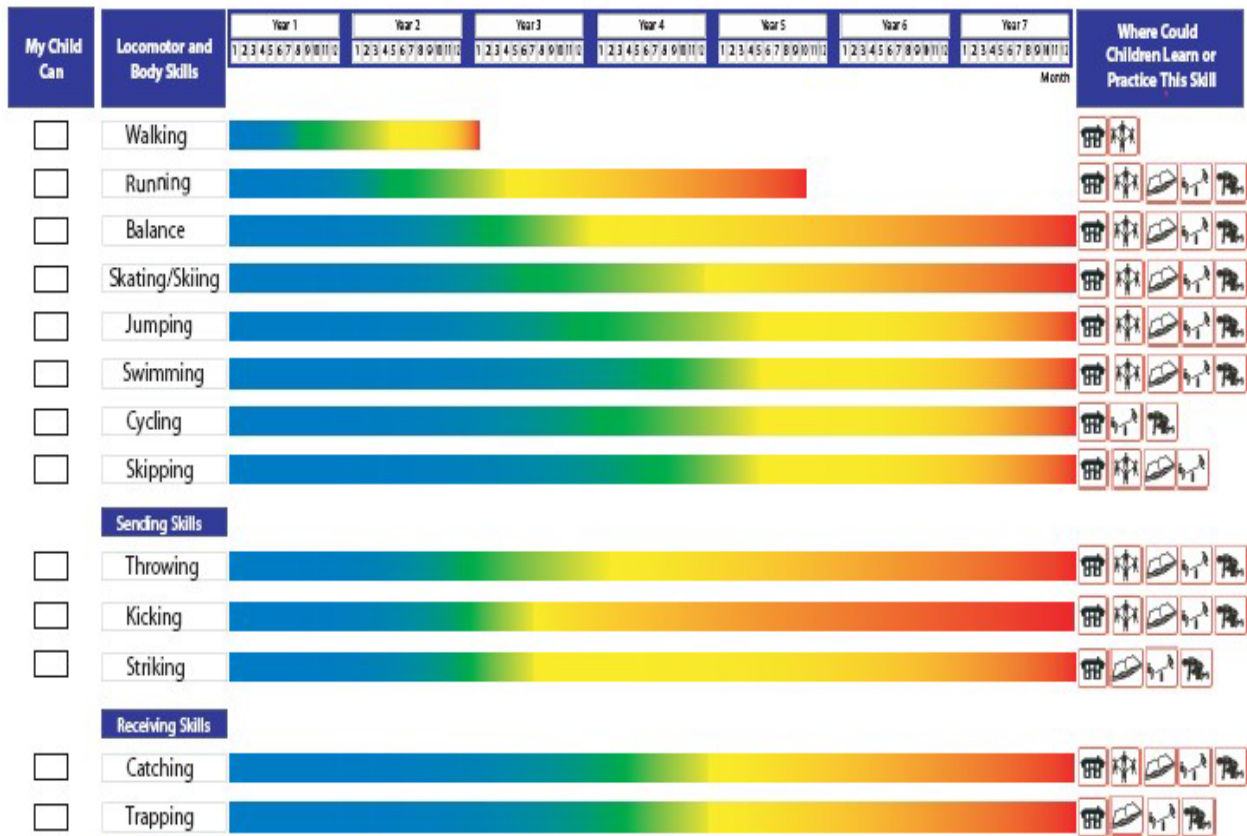
Table 7 – Learning Fundamental Movement Skills



For every emerging skill there is an ideal or best time for the child to learn. While the best time to teach a particular skill to an individual child varies, there is great consistency in the sequence children learn skills. If the child goes too long without learning a specific skill, then learning it may become more difficult. However, the sooner the child starts to overcome the learning deficit, the easier it is for them to catch up and develop the skill and confidence needed to be fully active with their peers.

Many skills need to be learned, and there is no single place a parent can take their child to learn them all. To help understand the sequence of development of children, the Fundamental Movement Skills chart is provided below as Table 8. This chart outlines the important physical skills each child needs to master, identifies when a child is ready to learn each skill, pinpoints the optimum time to learn the skill, and notes where the child can learn or practice each skill. It also identifies the age by which failure to learn the skill might motivate caregivers to seek professional help.

Table 8 – When and Where Children Learn and Practice Fundamental Movement Skills



■ Body not mature enough for skill ■ Best time to teach/practice
■ Normal onset of skill ■ Intervention program if skill not learned

* Time -lines based on Bressan E.S., and Rathbone, J. (2007). Fundamental Motor Skill Development. A paper prepared for Long-Term Athlete Development - Canadian Sport Centres - PacificSport.

NOTE 1: There is tremendous variability in the normal time of onset of skills among children, and this chart should be considered ONLY as a rough guide to the sequence of development that might be expected.

If you have concerns about the development of your child see your pediatrician.

Key
 In the home Preschool School
 Organized sport Community Recreation

All children should be exposed to a wide range of fundamental movement skills in a wide range of settings including on-land, on ice/snow, in water, and in the air. Since agility, balance and coordination are critical, children should be given the opportunity to learn running, jumping and throwing, gymnastics, swimming, and ice/snow activities. Communities should consider establishing single programs that expose children to the whole range of skills.

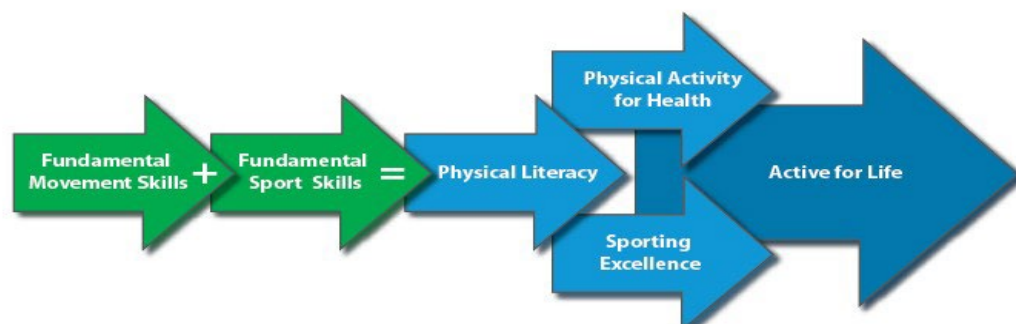
For children to have success in sport, either as a health-related recreational activity or in competition, they must master fundamental movement skills before learning fundamental sport skills. In turn, fundamental sport skills must be learned prior to being introduced to sport specific techniques. However, it is important that communities are aware of the significance of the development of fundamental movement skills, so that when children join sports, they continue their skills development by progressing to fundamental sport skills.

When children join Karate at the FUNdamentals phase, emphasis should be placed on continued development of the fundamental movement skills, rather than solely teaching Karate.

Competitive Foundations pathways will focus on fundamental movement skills rather than teaching fundamental Karate skills and/or specific Karate techniques.

When a child has confidence in his or her ability to take part in recreational and sporting activities without fear of failure, the probability that they will join in is high. Moreover, if they enjoy the activity, they will likely continue with it. A child's movement confidence develops gradually as they grow and learn, and children constantly compare their own level of ability with the ability of the children they play with. Physically literate children who move with skillful purpose know that they move well, and this confidence encourages them to try new and different activities without fear. Having a well-developed set of physical literacy skills is key for success in any athletic activity. As a result, it is important that communities embrace the development of these fundamental movement skills. Success in basic development leads to active living and participation in sports. It also is a key factor in athlete retention.

Figure 6 – Physical Literacy Leads to an Active Life²⁴



Stages of Long-Term Athlete Development

The Long-Term Athlete Development model combines scientific research about physical and mental development, skills acquisition, and training methodology with the art of coaching.

Understanding how bodies work, develop, and respond to stimuli is critical in developing successful athletes. Ensuring that this scientific knowledge is employed by coaches to engage, motivate, and teach athletes to play the sport is just as important. This section will describe the various stages of development that comprise the Long-Term Athlete Development pathway model for the Saskatchewan Karate Association.

There are three goals for the Long-Term Athlete Development program for Karate:

1. Expanding the art to include more athletes at earlier ages/stages of development
2. Ensuring that athletes are active for life
3. Creating and maintaining a sustainable high-performance program

Figure 7 – Tiered Competition Diagram²⁵



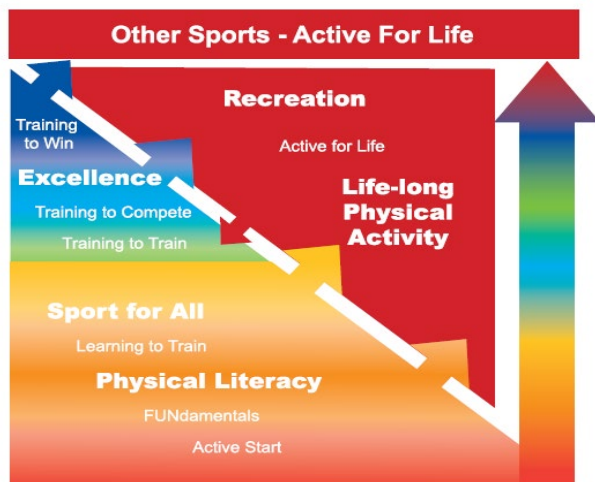
Figure 7 above uses colours to depict the different levels in the Karate Long-Term Athlete Development pathway. The largest section, Active for Life, appears in red and represents recreational or community training and competition. The orange section, Competitive, represents the current level of training and competition offered by Canadian clubs. The blue section, Excellence, represents the high-performance group of athletes. Providing the foundation for each of these sections is Physical Literacy, which is indicated in yellow.

The trajectory of this diagram - from cradle (at the bottom of the diagram) to grave (at the top) – depicts how people progress through sports. Underlying any kind of sporting activity is the development of the skills (both basic movement and sport related) that are required to participate in sports. Upon acquisition of these skills, participants fall into excellence, competitive, and recreational divisions. Over time, both the excellence stream and the competitive stream narrow (the excellence stream, in fact, ends), while the recreational stream expands, revealing how fewer people remain involved in the high performance and competitive streams as they age, and how most people move into recreational physical activity.

Building upon the tiered competition system noted in Figure 7, Figure 8 below outlines how each stage of Long-Term Athlete Development and the streams of Karate competition link with other sports. All sports and recreation activities require the development of fundamental movement and fundamental sport skills, which is collectively known as Physical Literacy. Take note how the colours used in Figure 7 translate and merge with the pathways in Figure 8 (red represents recreational/life-long sport, orange represents competitive sport, and blue represents excellence in sport).

²⁵ Balyi I., Cardinal C., Higgs C., Norris S., and Way R. *Long-Term Athlete Development - Canadian Sport for Life*, 2005.

Figure 8 – Participation in Life-long Physical Activity²⁶



In Figure 8, the multi-colored triangle to the left begins with Active Start and progresses upwards to Training to Win, representing the Canadian Sport for Life Long-Term Athlete Development model. Fundamental movement skills and fundamental sport skills (Physical Literacy) provide the foundation for training and excellence that follow as an athlete develops and progresses.

The red triangle to the right represents activity/participation in other sports. Many of the athletic abilities transfer between the Karate model and participation in other sports, as foundation skills and training principles are common to both areas. Over time, the wide base of athletes that make up the bottom of the pyramid narrows through the competition stream, while the number of athletes involved in recreational/activity sport grows as people move out of the competitive stream and into the recreational stream.

Active for Life is both a competition stream (represented by the red section in Figure 7) and a Long-Term Athlete Development pathway (illustrated by the red triangle in Figure 8). After the Physical Literacy stage, participants can freely move in and out of all levels of competitiveness (Active for Life, Competitive, and Excellence) up until the Training to Compete, Training to Perform²⁷ and Training to Win stages. While the general trajectory for most athletes is to move from the Competitive or Excellence streams to the Active for Life stream, it is also possible (though difficult) for participants to move from the Active for Life stream at the Training to Compete stage to the Competitive or Excellence streams. Participants are able to choose their own path at the Competitive Foundations (Training to Train) stage, as indicated by the directional arrows in Figure 8. It is important to note that the Active for Life pathway does not promote community and recreational Karate opportunities exclusively. Instead, the Active for Life pathway also provides former athletes with opportunities to become involved as coaches, referees, and administrators/volunteers.

²⁶ Balyi I., Cardinal C., Higgs C., Norris S., and Way R. *Long-Term Athlete Development - Canadian Sport for Life*, 200

An athlete who is multi-sport oriented may follow the Active for Life pathway and competition stream for more than one sport during the Competitive Foundations (Training to Train) stage. However, this physically active person can decide to pursue a Karate career and move into the Competition and Excellence stream. Active for Life and Physical Literacy illustrate how Long- Term Athlete Development links Karate with all other systems (e.g. community, education) and all other sports.

Karate is a late specialization sport. In this respect, Karate is quite unique within Canadian sport. Most sports (e.g. hockey, soccer, baseball, etc.) encourage participation from a very young age. For example, participants do not require a highly developed set of skills before playing organized soccer, so children can join leagues and begin playing at age 4. Karate, on the other hand, requires demonstrated proficiency in a number of important skills, which necessitates late entry into the art. Moreover, because individuals come to the art later, and because they require skills and abilities that cannot be taught until certain levels of physical and mental maturity are reached, participants are unable to specialize in Karate until much later in their athletic development.

As a result of this unique status, the following Long-Term Athlete Development pathways have been created for all Saskatchewan Karate coaches, athletes, parents, and administrators/volunteers to follow. These pathways provide a framework for expanding Karate programs, assessing athlete development and skill levels, developing high-performance athletes and teams for national and international competition, and advancing a culture of participation for life.

The structure of the Long-Term Athlete Development model for Saskatchewan Karate is:

1. Active Start
2. FUNdamentals
3. Technical Foundations (Learn to Train)
4. Competitive Foundations (Train to Train)
5. Training to Compete
6. Training to Perform
7. Training to Win
8. Active for Life

Although only the later pathway models involve the terms win and perform, that does not mean that winning cannot take place at the earlier stages. However, it is important that the focus is on the process and not the final outcome during the earlier stages. Ensuring that all participants have an opportunity to practice and develop their skills in game settings is an important tenet of the Long-Term Athlete Development model. That is, the focus during these early stages should be on skill and ability development for all athletes.

This philosophy results in better individual athletes and more balanced teams, and positions teams and individuals to win through skill. Instead, the focus should be on how

the developed skill set will allow the team to perform to the best of their abilities, consequently, trying to win with the use of skill. The end result of such a philosophy is developing skilled and experienced athletes who are able to win an Olympic gold medal. Failure to follow this model and philosophy may result in short-term gains (i.e. wins), but these come at the expense of long-term success (i.e. athlete and club development).

The following sections outline the various stages of the Karate Long-Term Athlete Development model, noting the ages of participants, the philosophy for the stage, an overview of the stage, and outlining the skills to be acquired and the activities to be introduced, performed and mastered.

Saskatchewan Karate Stages

Active Start

Age Under 6 years old (males and females)

Philosophy Fun

Primary Objectives

- Learn fundamental movements and link to them together into play

Guiding Principles

- Physical activity should be fun and part of everyday life

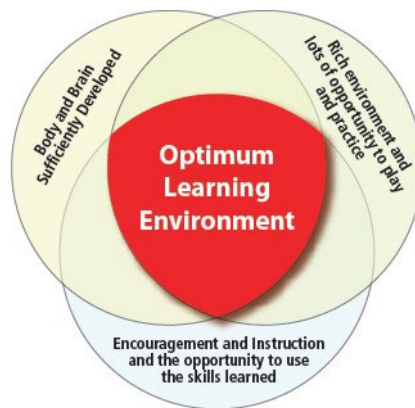
General Overview

- Physical activity should be a fun part of the child's daily life
- Active play is the way young children are physically active
- During this period, children rapidly outgrow their mobility aids, so communities must find effective ways (e.g. equipment swaps or rentals) to ensure that all children have access to the equipment they need to be active
- At least 30 minutes a day of organized physical activity for toddlers and at least 60 minutes a day for preschoolers
- At least 60 minutes (and up to several hours) of unstructured physical activity (i.e. active play) a day for toddlers and preschoolers (toddlers and preschoolers should not be sedentary for more than 60 minutes at a time except while sleeping)
- Provide physical activity every day regardless of weather
- Starting in infancy, provide infants, toddlers, and preschoolers with opportunities to participate in daily physical activity that promotes fitness and the development of movement skills
- Ensure that children acquire movement skills that build towards more complex movements
- Encourage basic movement skills – they do not just happen as a child grows older, but develop depending on each child's heredity, activity experiences, and environment

- Focus on improving basic movement skills such as running, jumping, twisting, wheeling, kicking, throwing, and catching
- Design activities that help children to feel competent and comfortable participating in a variety of fun and challenging sports activities
- Ensure that games for young children are non-competitive and focus on participation
- Ensure that activities are gender-neutral and inclusive so that active living is equally valued and promoted for all children

Figure 9 below highlights the importance of Physical Literacy and the factors that lead to an optimum learning environment. It is essential that children take part in playful physical activity at an early age to build the physical skills needed to participate in various activities, including Karate. To ensure today’s children become tomorrow’s athletes, the Karate community must do its part to encourage the spread of Physical Literacy in daycares, elementary schools, households, summer camps, community club programs, etc. While children in this group simply do not have the skills required to participate in Karate, Karate groups can act as advocates in the community about the importance of the Active Start pathway to ensure future participation in sport. Investment in the athletic development of children in this age group provides an increased opportunity for these children to eventually participate in Karate activities in the Active for Life, Competitive, or Excellence streams.

Figure 9 – Optimum Learning Environment²⁸



²⁸ Adopted from *Developing Physical Literacy*, a supplement of Canadian Sport for Life.

FUNdamentals

Age 6 - 9 years old for males
6 - 8 years old for females

Philosophy Physical Literacy

Primary Objective

- Overall movement skills
- Overall sports skills
- Integrated mental, cognitive and emotional development
- ABCs of athleticism: agility, balance, coordination and speed

Time Commitment & Conditioning Activities

- 8 to 11 hours of physical activity per week
 - 2 to 4 hours of Karate
 - 6 to 7 hours general physical activity
- Daily participation in sport and physical activities
- Development of physical literacy – the basic movement skills of three activities provide the base for all other sports
 - Athletics: run, wheel, jump, and throw
 - ABCs of athleticism – Agility, Balance, Coordination and Speed

Conditioning Objectives

- Daily Participation in sport and physical activities. Fundamental movement skills

Growth & Development Considerations

- Emphasis on development of generic sports skills
- 1st speed window agility and quickness
- Suppleness window flexibility

Mental and Cognitive Development

- Use imagination to develop visualization skills
- Make use of elementary language to guide decision making
- Communication-working with others

Purpose of Competition

- Participation
- Modified rules to fit skill level

Types of Competition

- Structured competition

Technical Skills

- The basic ethics of Karate – respect for your opponent
- Style specific Kihon and Kata
- The rules of competition
- Correct guard and fighting stance
- Footwork
- Single attacks
- Single attacks on static targets
- Correct breathing and eye position

Tactical and Strategies Skills

- Not applicable

Optimal Practice to Competition Ratio

- All activity is Fun based

Supplementary Knowledge

- Development of social skills, cooperation
- Following directions
- Self-control, group interaction
- Listening skills
- Introduction to simple safety guidelines
- Introduction to fair play philosophy

Coaching Certification and Education

- Understand each phase of children's physiological development
- Understand teaching progressions and age appropriate terminology
- Understand necessary modifications to games and competitions

- Understand how to:
 - Communicate with children
 - Provide a good learning environment
 - Develop self-esteem
 - Give feedback to children
 - Establish positive behavior in children
 - Handle difficult children
 - Communicate with parents
 - Provide appropriate achievement awards

Officials Certification and Education

- Officials Certification Class D to A, provincial (Class D – table official, Class C-corner official, Class B – corner/some center officials, Class A – center official)
- Recognize national and international officials' ranking

Learn to Train

Age 9 - 12 years old for males
8 - 11 years old for females

Philosophy Develop Motor Coordination

Primary Objective

- This stage continues to focus on developing fundamental movement and basic Karate skills
- Children should be involved in 2 other sports or other types of physical activity

Guiding Principles

- Athletes must be actively engaged in the activity; motor and cognitive wise
- Involved in 2 other sports/types of activity

Time & Conditioning Time Commitment

- 8 -11 hours per week
- 2 - 4 sessions should focus on Karate
- 6 - 7 hours should focus on other sports and/or types of physical activity

Conditioning Objectives

- Fundamental motor skills
 - ABCs
 - RJT
 - KGB
 - PCK

Growth and Development Considerations

- Emphasis on skill development
- Peak motor coordination (PMVC)
 - Girls 11 years old
 - Boys 12 years old
- Suppleness window – flexibility
 - 6-10 years old
- 2nd speed window (a lactic)
 - Girls 11-13 years old
- Special attention to suppleness during peak height velocity. Aerobic capacity training is recommended before athletes reach peak height velocity. Aerobic power should be introduced progressively after growth rate declines.

Mental and Cognitive

- Introduce and reinforce positive visualization
- Make use of elementary language to guide decision making
- Develop communication skills and understanding

Purpose of Competition

- Concentrate on skill development
- Modified rules to fit skill level
- Introduction of base tactics

Types of Competition

- Structured competition
- Modified Matches to fit skill level, following kyu rank/age competition rules
- Incorporate skill development within competitions

Planning and Periodization

- No periodization

Technical Skills

- distancing
- timing
- phases of the technique
- double attacks technique based on skill level
- block-counter defensive technique
- using footwork, the defensive concepts of:
 - partial evasion in the short distance
 - interceptive, partial/total evasion and active attack in the middle distance
 - total evasion in the long distance
- reactive targeting with single and double attacks
- decision making
- shadow kumite
- correct biomechanics
- focus of power (kime)

Optimal Practice to Competition Ratio

- 95% Karate skills
- 4% competition training
- 1% competition

Supplementary Knowledge

- Understanding and enhancement of dojo etiquette skills
- Understanding and adherence to fair play
- Commitment expectations
- Introduction to ancillary capacities
- Injury prevention and management

Coaching Certification and Education

- Deeper understanding of technical/tactical aspects
- Age appropriate skill development progressions
- Demonstrated belief in fair play, and the ability to instill this belief in karateka
- Demonstrated open and honest communication with parents and karateka
- Knowledge of Karate specific training principles and adaptations

Officials Certification and Education

- Officials Certification, Class D to A, provincial (Class D – table official, Class C – corner official, Class B – corner/some center official, Class A – center official)
- Recognize national and international officials' ranking

Train to Train

Age 12 - 16 years old for males
11 - 15 years old for females

Philosophy Build the Engine

Primary Objective

- Build an aerobic base, develop speed and strength
- Develop and consolidate sport specific skills

Guiding Principles

- Intensity must be gradually raised to reach competition requirements

Time and Conditioning Commitment

- 8-12 hrs /week
- 4-6 hrs/week Karate Skills, incorporating competitive skills
- 4-6 hrs/week other sports and school activities

Conditioning Objectives

- General physical fitness (balance)

Growth and Development Considerations PHV

- Emphasis on stamina (endurance) at the onset of peak height velocity
- Onset of Peak Height Velocity
 - Girls 12-13 yrs old
 - Boys 14-15 yrs old
- 2nd speed window (alactic)
 - Girls 11-13 yrs old
 - Boys 13-16 yrs old

- Optimal strength window
 - Girls immediately after peak height velocity roughly 13-17 yrs old
- Special attention to suppleness during peak height velocity. Aerobic capacity training is recommended before athletes reach peak height velocity. Aerobic power should be introduced progressively after growth rate declines.

Mental and Cognitive Development

- Introduction to goal setting: shared leadership
- Mental rehearsal: competition situations - greater independence
- Develop decision making abilities – competition situation
- Team building activities
- Reinforce positive visualization

Purpose of Competition

- Concentration on skill development
- Progression of base tactics
- Introduction to elite level competition

Types of Competition

- Follow kyu rank competition rules

Planning and Periodization

- Single or double periodization
- Year-round active participation in a variety of sports and physical activities – encourage athletes to take part in high school team sports
- Emphasis on consolidating skills and tactics and increasing the athlete’s motor repertoire
- Preparatory period must be long enough to raise the performance capacity of the athletes
- Official competitive period of 5-6 months focusing on Athlete development and coping with competition stress
- Off-season to include involvement in other sports and physical activities

Technical Skills

- Mobile targeting (single, double and multi attacks)
- Multi attacks
 - Block-counter defensive technique
 - Defensive concepts of:
 - protective and obstructive in the short distance
 - passive attacks in the long distance
 - Offensive-defensive transition
 - Competitive simulations
 - Competitive strategies:
 - Opponent analysis (kata and kumite)
 - Match plan (kata and kumite)
 - Time management (kumite)
 - Ring management (kumite)
 - Rhythm management(kumite)
 - Referee management (kata and kumite)
 - Scoreboard management (kumite)
 - Athlete/coach communication (kata and kumite)

Tactical and Strategies Skills

- Competitive simulations
- Competitive strategies
- Match plans
 - Reading your opponent
 - Playing to personal strengths
 - Exposing opponent's weakness
 - pre-match routines
 - entering the ring
 - beginning the match, returning to the line in the last 30 seconds of match over-time
 - the last 10 seconds of over-time
 - between matches
 - preparing for repechage
- Correct focus of attention, embusen and bunkai of kata

“ Uncontrolled document once printed “

Optimal Practice to Competition Ratio

- 70% Karate skills
- 28% competition training
- 2% competition

Supplementary Knowledge

- Enhancement and understanding of dojo etiquette skills
- Injury prevention and management

Coaching Certification and Education

- Coaching needs vary for each of the streams
- Deeper understanding of technical/tactical aspects
- Understanding age appropriate skill development progressions
- Knowledge of Karate specific training principles and adaptations
- Demonstrated belief in fair play, and the ability to instill this belief in athletes
- Demonstrated open and honest communication with parents and athletes
- Development of club and club staffing structure
- Introduction to video analysis tools and techniques

Officials Certification and Education

- Officials Certification, Class D to A, provincial (Class D – table official, Class C – corner official, Class B – corner/some center officials, Class A – center official)
- Recognize national and international officials' ranking

Train to Compete

Age 16 - 19 +/- years old for males 15 - 18 +/- years old for females

Philosophy Optimize fitness preparation

Primary Objective Optimize the engine and learn to compete

Guiding Principles

- Training Intensity must always be high to optimal
- Sub-maximal intensity will alter the motor coordination of the athlete

Time and Conditioning Commitment

- 15 – 23 hours per week
- 6 – 10 hours per week competition skills
- 4 – 6 hours per week style specific training
- 5 – 6 hours per week specific fitness training

Conditioning Objectives

- General and specific physical fitness related to the demands of Karate

Growth and Development Considerations (PHV)

- Emphasis on peak strength development
- Make use of ancillary capacities
- Optimal strength window
- Boys 12-18 months after peak height velocity – roughly 15-19 yrs old

Mental and Cognitive Development

- Stress management and coping strategies (consolidate)
- Pre-competition, competition and post competition routines (refinement)
- Visualization and decision making (refinement)
- Leadership, team dynamics and independence (consolidate)

Purpose of Competition

- Development of tactical competition play
- Application of techniques within competition context
- Individual targets relevant to long-term goals
- Introduction to International competition

Types of Competition

Follow kyu rank competition rules

Planning and Periodization

- Single or double periodization
- Year-round training with periodic breaks throughout the year
- Specialization
- Emphasis on optimizing the performance factors and their integration leading to performance
- Preparatory period focuses more on specificity
- Official competition period of 6 months focusing on the development of consistency of the athlete
- Off-season (transition period) includes both passive and active rest

Technical Skills

- At this stage, greater emphasis should be placed on developing and perfecting the advanced skills. At the same time, maintenance and refinement of the basic skills, and development of the specific and positional skills is imperative. Basic and advanced skills must be perfected before an athlete can move on to the Training to Win pathway.
- Self-analysis, planning and opponent analysis should be introduced
- Gradual increase in volume and intensity of training

Tactical and Strategies Skills:

- Self-analysis
- Opponent management

Optimal Practice to Competition Ratio (optimally based on skill level)

- 40% Karate
- 55% Competition or training
- 5% Competition

Non-elite Karate practitioners

- 45% on general Karate training
- 20% on competition specific issues
- 35% on physical preparation

Supplementary Knowledge

- Understanding the added value of the ancillary capacities
- Knowledge of competition structures and programs
- Understanding and enhancement of dojo etiquette skills
- Development of performance analysis

Coaching Certification and Education

- Deeper understanding of technical/tactical aspects
- Understand age appropriate skill development progressions
- Understand how to use tools and techniques, video analysis, and general and specific statistical analysis
- Detailed understanding of periodization and training
- Understand physical development of strength and power – anaerobic work
- Appropriate supplementary knowledge and application
- Increase complexity of team and club staff structure, with inclusion of expert Integrated Support Team
- Develop an appreciation for the development and understanding of new technologies, teaching methods, technical skills, and tactical strategies

Officials Certification and Education

- Officials Certification, Class D to A, provincial (Class D – table official, Class C – corner official, Class B – corner/some center officials, Class A – center official)
- Recognize national and international officials' ranking

Train to Perform

Age 19 - 25 +/- years old for males
 18 - 23 +/- years old for females

Philosophy Optimize Performance

Primary Objective

- Optimize Karate-specific preparations and make the transition for Junior to Adult divisions

Guiding Principles

- Modeling all possible aspects of training and performance

Time and Conditioning Commitment

- 15-21 hrs/week
- 10-14 Karate specific sessions
- 5-7 hrs/week of competitive fitness

Conditioning Objectives

- Specific physical fitness related to Karate

Growth & Development considerations for Peak Height Velocity

- Further development of stamina, speed, strength, skill and suppleness

Mental and Cognitive

- Self-identification-what kind of athlete am I and what is my role
- Attention and emotional control and stress management (consolidate)
- Pre-competition, competition, and post competition routines (refine and consolidate)
- Visualization, goal setting, and decision making (refine)

Purpose of Competition

- Individual targets relevant to long-term goals
- Building domestic competitive system through exposure to highest level of Karate in Canada

Types of Competition

- Follow kyu rank/black belt competition rules

Planning and Periodization

- Single, double, or triple periodization
- Year-round staggered Karate season, providing National Team athletes multiple competitive playing opportunities
- Intent is for National Team athletes to peak for major international events (World Championships, Pan American Games, and qualifying events)
- Athlete specialization
- Emphasis on optimizing the performance factors and their integration leading to performance
- Preparatory, competition, and transition periods are dependent on the international competition calendar
- Off-season (transition period) includes both passive and active rest

Technical Skills

- Continue to develop technical and tactical proficiency
- Consistency of physical capacities should also continue
- Non-elites can divide their total weekly training so that 50% is technical/tactical training and 50% fitness

Tactical and Strategies Skills

- Discover own “fighting personality”
- Discover opponents’ “fighting personality”

Optimal Practice to Competition Ratio

- 30% Karate
- 65% Competition training
- 5% competition

Supplementary Knowledge

- Understanding the added value of the ancillary capacities
- Refine mental training skills
- Consolidate recovery and regeneration skills
- Communication skills with media, sponsors and VIPS

Coaching Certification and Education

“ Uncontrolled document once printed “

- Deeper understanding of technical/tactical aspects
- Understand how to make use of video analysis, and general and specific statistical analysis
- Detailed understanding of periodization and training
- Understanding of physical development of strength and power – anaerobic work
- Appropriate supplementary knowledge and application
- Increase complexity of team and club staff structure, with inclusion of expert Integrated Support Team
- Develop an appreciation for the development and understanding of new technologies, teaching methods, technical skills, and tactical strategies

Officials Certification and Education

- Officials Certification, Class D to A, provincial (Class D – table official, Class C – corner official, Class B – corner/some center officials, Class A – center official)
- Recognize national and international officials' ranking

Train to Win

The sole difference between the Train to Win and Train to Perform stages is that all emphasis is placed on National Team athletes and professional or semi-professional play. The athletes are at the final stage of their high-performance careers and have reached their physical and mental peak; consequently, the goal is to win World Championship gold medals. At this stage, the Competitive stream has been eliminated, and all athletes still playing are in the Active for Life or Living to Win pathways.

Age 25+ (20+) years old for males 23+
(20+) years old for females

Philosophy Maximizing Performance

Primary Objective

- Competing in high pressure situations at the highest level and is better prepared to win

Guiding Principles

- Modeling all possible aspects of training and performance

Time and Conditioning commitment

- 15 – 21 hrs/week,
- 10 – 14 hrs/week focusing on competition specific components,
- 5 – 7 hrs/week competitive fitness

Conditioning Objectives

- specific physical fitness related to Karate

Growth & Development considerations (PHV)

- further development of stamina, speed, strength, skill and suppleness. Make use of ancillary capacities.

Mental and Cognitive Development

- self-identification (what type of athlete am I?).
- Attention and emotional control and stress management – consolidate; pre-competition, competition and post-competition routines – refine and consolidate; visualization, goal setting and decision making – refine

Purpose of Competition

- individual targets relevant to long-term goals, building domestic competitive system through exposure to highest level of Karate available in Canada

Types of Competition

- follow ITKF rules

Planning & Periodization

- double or triple periodization

Technical Skills

- attendance at specialized programs

Optimal Practice to Competition Ratio

- 25% Karate, 70% competition training, 5% competition

Supplementary Knowledge

- understanding the added value of the ancillary capacities, refine mental training skills, consolidate recovery and regeneration skills

Officials Certification

- Officials Certification, Class D to A, provincial (Class D – table official, Class C – corner official, Class B – corner/some center officials, Class A – center official)
- Recognize national and international officials' ranking

Active for Life

Age Enter at any age

Philosophy Lifelong Karate

Primary Objective

- A smooth transition from an athlete's competitive career to lifelong physical activity and participation in Karate
- **Guiding Principles**
- Create Karate opportunities for all ages - athlete, coach, administrator, volunteer and official

Time & Conditioning Commitment

- Minimum of 60 minutes of moderate daily activity or 30 minutes of intense activity for adults

Conditioning Objectives

- General physical fitness and be active

Growth and Development

- No specific growth and development considerations
- Understand where athlete lies on the athlete pathway
- Make use of ancillary capacities

Mental and Cognitive Development

- Positive, fun and stress-free environment
- Self-esteem and confidence building
- Communication, working with others

Purpose of competition

- Provide opportunities, participation and modified rules

Types of Competition

- Community, high school, regional and masters

Planning and Periodization

- No periodization

Technical Skills

- Depends on the individual

Tactical and Strategies Skills

- Depends on the individual

Optimal Practice to Competition Ratio

- Individual's desire

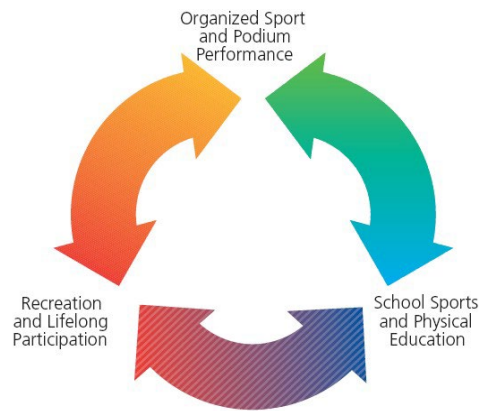
Supplementary Knowledge

- Athletes are more likely to become Active for Life if physical literacy is achieved before the Competitive Foundations stage
- A positive experience in sport is the key to retaining athletes after they leave the competition stream
- create training opportunities for all age groups, not just the Competition and Excellence streams
- Encourage and educate athletes to become coaches, referees, administrators/volunteers
- Create multiple Masters age groups to keep adults Active for Life and involved in Karate in other capacities
- Develop a strong alumni program to allow them to stay connected hopefully keeping them involved in the art

Officials Certification

- Officials Certification, Class D to A, provincial (Class D – table official, Class C – corner official, Class B – corner/some centering official, Class A – centering official)
- Recognize national and international officials' ranking

Figure 10 – Circle of a Physically Active Life



The successful development of the Active for Life pathway is critical to the Saskatchewan Karate Association’s goal to increase the number of registered members and enhance the art’s exposure outside its current tight-knit community. The expansion of enrollment and widening exposure in the community will contribute to the development of an increase in the number of coaches, officials, administrators/volunteers and support staff within clubs, Provincial Sport Organizations, and the National Sport Organization.

Training and Competition

The prevailing thought within sports has been that frequent competition is the best way for young athletes to develop into quality athletes in the latter parts of their careers. This thinking is correct in the sense that the objective of each coach should be to produce athletes who are able to compete at the highest level. However, in many respects, this philosophy and approach is short-sighted and does not lead to a robust program or a healthy sport.

This focus on winning in the short-term comes at the expense of developing a successful long-term program and keeping participants involved in the art over an extended period of time. This practice excludes a significant portion of the club’s population base (average or late maturers) and fails to provide them with an opportunity to participate.

As sport research has shown that late maturers often have a better chance to succeed in a sport (they are forced to pay more attention to fundamentals early on to succeed and grow into their bodies and skills upon maturation), it is irresponsible for teams to exclude these individuals from participating at competitive levels. By engaging in this process, we are limiting involvement in the art, not giving athletes the opportunity to grow and hurting future National Teams by keying in on a small subset of participants for inclusion on programs. This approach is short-sighted and detrimental to Traditional Karate and its athletes.

Changing this process to involve average and late developing athletes and shifting the focus from “winning now” to developing athletes capable of succeeding in the future³⁴ will pay tremendous dividends as we attempt to grow the art of Karate.

The Active for Life pathway is the key ingredient in ensuring the growth of Karate in Saskatchewan. Encouraging the participation of individuals of all ages in Karate activities will translate into a more sustainable high-performance program, and an increased number of coaches, officials, administrators, volunteers and support staff at the club, provincial, national, and National Team levels. To achieve this increased level of participation in physical education and extra-curricular activities, it is important that Karate increase its exposure at the elementary school, high school, and college system levels. Encouraging greater participation at earlier levels and ensuring that these athletes remain active will allow the art of Traditional Karate to grow to new heights in Saskatchewan and may ultimately result in greater international success.

For the Long-Term Athlete Development program to succeed, attention must be paid to the windows of optimal training for the 5 Basic Ss: Stamina (endurance), Strength, Speed, Skills and Suppleness (flexibility). During the early phases, a significant emphasis must be placed on Physical Literacy. Fundamental movement and sport skills must be developed during the Physical Literacy stage, while basic and advanced Karate skills must be perfected during the Train to Train and Train to Compete stages.

Table 10 below illustrates amount of focus to be placed on training and competition in the eight pathways in the Long-Term Athlete Development program.

Table 10 – Optimal Training to Competition Ratios

Pathway	Training	Competition
ACTIVE START	100%	0%
FUNDAMENTALS	95%	5%
Learn to Train	95%	5%
Train to Train	70%	30%
TRAIN TO COMPETE	40%	60%
TRAIN TO PERFORM	30%	70%
Train TO WIN	25%	75%
ACTIVE FOR LIFE	Individual's choice	

Training is defined core/stability and weight training, and technical Karate skill development.

Competition is defined as all sanctioned (league, tournament, National Club Championships, etc.) and non-sanctioned (exhibition, joint training, etc.) competition and scenario drills.

Competition scenario is defined as a situation where technical skills are incorporated into a setting where the athlete is forced to make a pressured decision with multiple options.

Understanding the definition of competition is imperative. Currently, athletes are provided with a variety of competition opportunities, but not enough training. Table 10 provides recommended training and competition ratios and is useful in developing yearly programs (macrocycles). However, these ratios will deviate within each phase and mesocycle of yearly plans.

During the early phases, the emphasis is on building skills. As a result, more time is spent in training than in competition during these stages.

Once basic skills have been acquired, involvement shifts from training activities to a more equal balance between training and competition activities at the Train to Train stage. As athletes progress from the Train to Compete to the Train to Perform and Train to Win stages, the emphasis increasingly shifts to competition.

Participants in the Active for Life pathway should be focusing on developing skills almost all of the time. This pathway is designed to retain athletes in the art who do not wish to train competitively. Under the Long-Term Athlete Development program, these individuals will hopefully transition into roles as coaches, officials, and/or administrators and volunteers. Keeping participants involved means playing often. Creating competitive and high-performance athletes' means finding the right balance between training and competition, with the intent of creating sustainable long-term success at the senior level.

Implementation of Long-Term Athlete Development

Implementation of the Saskatchewan Karate Long-Term Athlete Development model will involve several steps. The first step will focus on building on what is already established before expanding.

Implementation of the Long-Term Athlete Development pathway will be a step-by-step process.

Phase 1 of the implementation involves rolling out the Saskatchewan Karate Long-Term Athlete Development model and educating individuals associated with Karate (coaches, officials, administrators, volunteers, participants) about the value of this model and how it addresses the strengths, weaknesses and concerns of the current Karate landscape in Saskatchewan.

Phase 2 The SKA Technical Committee will be responsible for ensuring the current competition structure fit within the parameters of the Long-Term Athletic Development concepts.

At the same time, the Introductory program must be adopted and implemented by all communities. The successful implementation of the Long-Term Athlete Development pathway requires the development of desire and passion in young children, which is predicated on developing Physical Literacy. The best way to develop Physical Literacy with an eye toward growing Karate is to integrate an Introductory program into all community recreational programming schedules.

It is important to note the existence of several possible obstacles or barriers that will impact the implementation of the Long-Term Athlete Development pathway model. These potential obstacles include the following:

1. *Financial*

Implementing the Long-Term Athlete Development pathway will incur significant costs, including costs of holding meetings, printing reference materials, creating a Long-Term Athlete Development website, developing instructional DVDs, and the distribution of other resource materials.

2. *Resistance*

Personnel who have been utilizing a coaching philosophy over a long period of time may be resistant to the introduction of the Long-Term Athlete Development philosophy.

3. *Availability and cost of space*

4. *Lack of capacity*

Currently, there are not enough personnel – coaches, officials, administrators and volunteers – to implement the Long-Term Athlete Development programs for various sports in Canada. Increasing the number of athletes requires coaches. Increasing the number of competitions requires officials. Increasing the number of clubs, leagues, and tournaments requires administrators and volunteers. To grow the traditional martial art, an increased people infrastructure is required.

Conclusion

Long-Term Athlete Development is a philosophy and vehicle for change. This athlete-centered program encompasses a child's first involvement in Physical Literacy programs to the transition to life-long physical activity and other sport related activities. It establishes a clear development pathway from playground to podium, to being Active for Life. It also provides guidelines for planning optimal performances for all stages of athlete development.

The Saskatchewan Karate Association has developed a Long-Term Athlete Development pathway model based on past and present successes and failures. This model integrates the concept and philosophies of the generic Long-Term Athlete Development model and includes the appropriate adaptations for our traditional martial art. This model addresses the key issues surrounding Karate and provides a blueprint to eliminate these problems and grow the art within the Saskatchewan culture.

It is imperative that all coaches, administrators, volunteers, and officials support the Long-Term Athlete Development principles.

Long-Term Athlete Development provides the framework and all the necessary tools to change Saskatchewan Karate culture, expand our athlete base, and create a sustainable competition structure that provides adequate training and competitive opportunities for all athletes regardless of age, gender, or skill level. We must create a better pathway to keep senior and retiring National Team athletes involved in Karate as coaches, officials, administrators, volunteers, and/or alumni sponsors.

Selected Bibliography

Abbott A., Collins D., Martindale R., Sowerby K., Fundamental Movement Abilities Chart, Talent Identification and Development, An Academic Review, Sport Scotland University of Edinburgh 2002.

Alpine Integration Model. Alpine Canada Alpine, High-performance Advisory Committee, 1999.
Armstrong, N. and Welsman, J. Young People and Physical Activity. Oxford University Press, Oxford, 1997.

Armstrong, N. and Welshman, J. Children in Sport and Exercise. British Journal of Physical Education, 2 (2). Pp. 4-6, 1997.

Balyi, I. and Way, R. —Long-Term Planning of Athlete Development. The Training to Train Phasell. B.C. Coach, 1995. pp. 2 - 10.

Balyi, I. Sport system building and long-term athlete development in Canada. The situation and solutions, in Coaches Report. The Official Publication of the Canadian Professional Coaches Association. Summer 2001. Vol.8, No.1, pp.25-28.

Balyi, I., -Long-term Planning of Athlete Development, Multiple Periodization, Modeling and Normative Datal in FHS, The UK's Quarterly Coaching Magazine, Issue Four, pp. 7 - 9. May 1999.

Balyi, I., -Long-term Planning of Athlete Development, The Training to Train Phasell in FHS, The UK's Quarterly Coaching Magazine, Issue One, pp. 8 - 11. September 1998.

Balyi, I., -Long-term Planning of Athlete Development, The Training to Compete Phasell in FHS, The UK's Quarterly Coaching Magazine, Issue Two, pp. 8 - 11, December 1998.

Balyi I, Cardinal C, Higgs C, Norris S, and Way R, Long-Term Athlete Development, Canadian Sport for Life, 2005.

Balyi, I., and Hamilton, A. Long-term Athlete Development, Trainability and Physical Preparation of Tennis Athletes. In: Strength and Conditioning for Tennis. Eds. Reid, M., Quinn, A. and Crespo, M. ITF, London. 2003. pp. 49-57.

Balyi, I., and Hamilton, A. -Long-term Planning of Athlete Development, The Training to Win Phasell in FHS, The UK's Quarterly Coaching Magazine, Issue Three, pp. 7 - 9. April 1999.

Bar-Or, O. Pediatric Sport Medicine for the Practitioner: From Physiologic Principles to Clinical Applications. New York: Springer Verlag, 1983.

Bar-Or, O. Developing the Prepubertal Athlete: Physiological Principles. In Troup, J.P., Hollander, A.P., Strasse, D., Trappe, S.W., Cappaert, J.M. and Trappe, T.A. (Eds.), Biomechanics and Medicine in Swimming VII., London: E & FN Spon. pp. 135-139, 1996.

Bar-Or, O. Nutritional Considerations for the Child Athlete. Canadian Journal of Applied Physiology. 26(Suppl.), pp. 186-191. 2001.

Bar-Or, O. (ed). The Child and the Adolescent Athlete. Balckwell Science Ltd. Oxford, UK, 1996.

- Belov, E. —For Those Starting Artistic Gymnastics. Translated material of the Canadian Gymnastic Federation. 1995.
- Blimkie, C.J.R and Marion, A. —Resistance Training during Preadolescence: Issues, Controversies and Recommendations. Coaches Report, Vol.1. No.4.1994. pp.10-14.
- Blimkie, C.J.R. and Bar-Or, O. —Trainability of Muscle Strength, Power and Endurance during Childhood. In. Bar-Or, O. ed., *The Child and Adolescent Athlete*. London: Blackwell Scientific Publications, 1996.
- Bloom, B. *Developing Talent in Young People*. New York: Ballantines, 1985.
- Bompa, T. *From Childhood to Champion Athlete*. Toronto. Veritas Publishing Inc. 1995
- Calgary Health Region, *3 Cheers for the Early Years (2004)*. Snactivity box: Activities for promoting healthy eating and active living habits for young children. Retrieved November 22, 2004, from www.calgaryhealthregion.ca/hecomm/nal/child/DaycareToolkit.pdf
- Canadian Child Care Federation. (2001). Supporting your child's physical activity (Resource Sheet #52). Retrieved November 22, 2004, from www.cfc-efc.ca/docs/cccf/rs052en.htm
- Docherty, D. *Trainability and Performance of the Young Athlete*. Victoria: University of Victoria, 1985.
- Dozois, E. (2002, November). *Calgary Health Region Daycare Project: Focus group report*. Prepared for the Calgary Health Region's 3 Cheers for the Early Years. Calgary, AB: Calgary Health Region.
- Drabik, J. *Children and Sport Training*. Stadion, Island Pond, Vermont. 1996.
- Ericsson, K.A. and Charness, N. Expert Performance. Its Structure and Acquisition. *American Psychologist*, August 1994., pp. 725-747.
- Ericsson, K.A., Krampe, R.Th. and Tesch-Romer. The role of deliberate practice in the acquisition of expert performance. *Psychological Review*, 1993, 100. pp. 363-406.
- Gladwell, M. *Outliers: The Story of Success*. (Little Brown and Company, New York: 2008)
- Lynn, M. A. T., & Staden, K. (2001, Fall). The obesity epidemic among children and adolescents. *WellSpring* 12 (2), 5–6.
- Hansford, C., *Fundamental Movements*, Presented British Canoe Union, National Conference, Nottingham Dec. 2004.
- Harsanyi, L. *10-18 éves atletak felkészítésének modellje*. Budapest: Utanpotlas-neveles, No.10, 1983.
- Haywood, K.M. *Life Span Motor Development*. Champaign, Il. Human Kinetics, 1993.

Health Canada. (2002a, November 22). Statistics & public opinion. Canada's physical activity guides for children and youth. Retrieved December 8, 2004, from www.phacaspc.gc.ca/pau-uap/pagguide/child_youth/media/stats.html

Health Canada. (2002b, November 22). Canadian Paediatric Society, College of Family Physicians and Canadian Teachers' Federation call for urgent action to boost physical activity levels in children and youth. Canada's physical activity guides for children and youth. Retrieved December 8, 2004, from www.phacaspc.gc.ca/pau-uap/pagguide/child_youth/media/release.html and www.centre4activeliving.ca/Publications/WellSpring/2004/December.html#Snactivity accessed January 10, 2005.

International Gymnastics Federation. Age Group Development Program. CD Rom. 2000.

MacDougall, J.D., Wenger, H.A. and Green, H.J. (Eds) Physiological Testing of the Elite Athlete. Movement Publications, Inc. Ithaca N.Y., 1982.

Malina, R.M. and Bouchard, C. Growth, Maturation, and Physical Activity. Champaign, Ill.: Human Kinetics, 1991.

McWhorter, W., Wallman, H. W., & Alpert, P. T. (2003). The obese child: Motivation as a tool for exercise. *Journal of Pediatric Health Care*, 17, 11–17.

Nadori, L. Az edzes elmelete es modszeretana. Budapest: Sport, 1986.

National Association for Sport and Physical Education. (2002). Active start: A statement of physical activity guidelines for children birth to five years. Reston, VA: American Alliance for Health, Physical Education, Recreation & Dance.

National Coaching and Training Centre: Building Pathways in Irish Sport. Towards a plan for the sporting health and well-being of the nation. Limerick, Ireland, 2003.

Periodization, Planning for Peak Performance, <http://www.aball-ypi.com/periodization.htm>

Periodized Workout Routine for the Strength/Power Athlete, Weight-Lifting Workout Routines, <http://www.weight-lifting-workout-routines.com/workout-routine-7.html>, 2006

Ready Set Go (n.d.). Ready set go: The sports web site for families. Retrieved November 22, 2004, from www.readysetgo.org

Report of the Minister of State's (Sport) Workgroup on Sport for Persons with a Disability, 2004.

Rowland, T., and Boyajian, A. Aerobic Response to Endurance Training in Children. *Medicine and Science in Sports and Exercise*, 26(5) Supplement.

Rushall, B. The Growth of Physical Characteristics in Male and Female Children. In *Sports Coach*, Vol.20, Summer, 1998. pp. 25 – 27.

Sanderson, L. —Growth and Development Considerations for the Design of Training Plans for Young Athletes. Ottawa: CAC, SPORTS, Vol.10. No.2.1989.

Siff M C, Periodization Breakdown?, Perform Better, http://www.performbetter.com/catalog/matriarch/OnePiecePage.asp_Q_PageID_E_82_A_PageName_E_ArticleSiffPeriodization

Sports Periodization, Wikipedia, http://en.wikipedia.org/wiki/Sports_periodization#History, May 9, 2008

Thumm, H-P. -The Importance of the Basic Training for the Development of Performance New Studies in Athletics, Volume 1. pp.47-64, 1987.

Tihanyi, J. Long-Term Planning for Young Athletes: An Overview of the Influences of Growth, Maturation and Development. Sudbury: Laurentian University, 1990.

Valentine, J. (2003, Winter). Don't children get all the exercise they need from playing? WellSpring 14 (1), 6-8.

Viru, A. Loko, J., Volver, A., Laaneots, L., Karlesom, K. and Viru, M. Age periods of accelerated improvements of muscle strength, power, speed and endurance in age interval 6-18 years. In -Biology of Sport, Warsaw, V., 15 (4) 1998, 211-227 pp.

Viru, A. Adaptation in Sports Training. CRC Press, Boca Raton, 1995. 310.p.

Vorontsov, A.R. Patterns of Growth for Some Characteristics of Physical Development: Functional and Motor Abilities in Boy Swimmers 11 – 18 Years. In: Biomechanics and Medicine in Swimming VIII. Eds. Keskinen, K.L., Komi, P.V. and Hollander, A.P. Jyvaskyla, Gunners, 1999.

Vorontsov, A.R. Multi-Year Training of Young Athlete as Potential Modifier of Growth and Development (Analysis of some biological concepts). Sport Medicine in Aquatic Sports – the XXI Century, FINA World Sport Medicine Congress, 2002.

Wienek, J. Manuel d'entrainement. Paris: Vigot, 1990.