The Canadian Sport for Life, Long-term Athlete Development (LTAD) Model outlines the seven stages of a generic pathway to develop Physical Literacy for life-long participation in physical activity and podium performances. Now all National Sport Organizations in Canada are designing their own sport-specific LTAD models. This poster is an overview of the sport-specific Karate LTAD model.

These stages relating to competitive performance are outlined below:

	Active Start	FUNdamentals	Learn To Train	Train To Train	Train To Compete	Train To Perform	Train To Win	Active For Life
Chronological or Developmental Age	Chronological	Chronological	Chronological and Developmental	Developmental	Developmental and Chronological	Chronological	Chronological	Chronological
Male age	0-6	6-9	9-12	12-16	16-18+/-	18-24+/-	Kumite 24+/- Kata 27+/-	Enter at any age
Female age	0-6	6-8	8-11	11-15	15-17+/-	17-22 +/-	Kumite 22+/- Kata 26+/-	Enter at any age

*Shaded areas indicate stages that incorporate both chronological and Chronological Age refers to: "the number of years and days elapsed since birth." **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.

The LTAD model for Karate consists of 8 stages.

The first three stages of the Long Term Athlete Development Model encourage physical literacy

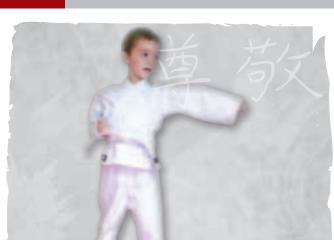
including karate specific skills:

- Active Start
- 2. FUNdamentals 3. Learn to Train
- The next four stages focus on karate excellence, preparing for the podium:
- 4. Train to Train
- 5. Train to Compete 6. Train to Perform 7. Train to Win
- The eighth stage encourages life-long karate involvement and can be entered at any age:
- 8. Active for Life

ACTIVE START - Hajime

Males and Females 0-6 years old

Chronological Age



The purpose of the Active Start stage of the karate LTAD is to learn fundamental movements and link them together into play. Physical activity is essential for healthy child development. Among its other benefits, physical activity:

- encourages development of brain function, coordination gross motor skills, social skills, leadership skills, emotional intelligence, and imagination
- builds confidence and positive self-esteem • builds strong bones and muscles, improves flexibility, develops good posture and balance,
- improves fitness, reduces stress, and improves sleep patterns promotes healthy weight.
- helps children learn to move skillfully and enjoy being active.

Physical activity should be fun and an integral part of every child's daily life. When children engage in play, they learn to associate fun and enjoyment with being physically active. This allows them to easily and willingly develop a repertoire of physical skills and a healthy level of fitness.

It also instills a positive attitude towards sports participation and physical activity that will benefit them throughout their lives.

FUNDAMENTALS - Building Blocks

Males 6-9 years old Females 6-8 years old

Chronological Age





General Karate Training 3-4 Hours Other Physical Activity 6-7 Hours

*refer to Karate LTAD model

The aim of the FUNdamental stage is to develop general movement skills using a fun, yet structured approach. Physical skills are introduced through multi-sport participation using methods that keep children interested in sport and physical activity.

The general movement skills that should be emphasized during this stage are referred to as the fundamentals of physical literacy. These include: the ABCs of athleticism (Agility, Balance Coordination and Speed, RJT (Running, Jumping, Throwing), and CPKs (Catching, Passing, Kicking, Striking with an implement). Correct demonstration (modeling) of these skills by coaches, and accurate detection and correction of errors are essential, since children learn through imitation.

Children should be encouraged to participate in a variety of games and activities that provide an opportunity to practice these skills. The environment should be fun and playful to maintain their

This stage focuses on developing the fundamentals of physical literacy because mastering the general movement skills will improve the ease with which children successfully learn the more complex, sport specific skills taught in the later stages of the model. Ideally, the general movement skills should be mastered by the end of the FUNdamental stage.

The first window of optimal trainability for speed occurs in this stage. When we refer to a window of optimal trainability, we are talking about a specific time during an athlete's physiological development which favours the acquisition and retention of a particular skill in motor memory

With regard to the window of optimal trainability for speed, coaches should take advantage of this window by introducing games and activities which encourage improvements in quickness and agility

Strength can be developed using body weight, stability balls, medicine balls and elastic tubing.

The basic ethics of Karate, style specific kihon, the basic competitive karate rules, and simple tactical decision-making can also be introduced during this stage.

An appropriate weekly training schedule for children in the FUNdamental stage would include 9 to 11 hours of physical activity. This should include 3 to 4 hours of Karate and 6 to 7 hours of general physical activity. Each training session should last 30 to 60 minutes, and focus on developing fundamental movement skills.

No formal periodization is recommended at this stage, and activities should revolve around the school year with multi-sport camps occurring during school holidays. Regular participation in formal

Talent identification for this stage should be based on a wide range of athletic skills rather than solely on Karate ability or competition success.

LEARN TO TRAIN - Karate Literacy

Males 9-12 Females 8-11

The Learning to Train stage continues to focus on developing fundamental movement and basic Karate skills. During this stage children should be involved in two other sports besides Karate so that the

Chronological and Developmental Age



general movement skills acquired in the FUNdamental stage are reinforced. The development of motor coordination is a priority now, because of the window of optimal trainability for motor coordination that occurs during this stage. This window presents itself between

ages eight and eleven for girls and between the ages of nine and twelve for boys. Taking advantage of this opportunity to develop motor coordination is of critical importance vis-à-vis long term athletic development. If this opportunity is neglected or minimized, it will have negative consequences on athletic

performance later on, as it is difficult to develop motor coordination in the later stages of an athlete's It is also important to recognize that this stage emphasizes training and mastery of the fundamental

during the later stages of their career is because too much emphasis was placed on competing and winning before the fundamental skills were developed and mastered.

general and karate skills, rather than competition. One of the main reasons that athletes plateau

Differences in gender become more apparent towards the end of the stage, as females gradually outpace males of the same age in abilities including strength, flexibility and fine motor control.

Strength development is continued through the use of stability balls, body weight movements, medicine balls and the addition of light plyometrics (hopping/ bounding) and jumping. Endurance and flexibility training can be introduced to complement the speed and agility training from the FUNdamental stage. Fun Karate style games continue to be recommended as a method of strength training and conditioning.

Protocols relating to the ancillary capacities of warm-up, cool-down, stretching, nutrition and mental training should be introduced, along with simple competitive tactics.

Multi-sport activities are still encouraged. These should be a part of the total training load of 10-13 hours of activity per week. This load should also include 5 to 7 hours of Karate specific activities, broken into 30 to 90 minute sessions, and be supported by 2 hours of physical education at school

Athletes should follow single or double periodization within a well-structured program but taper to

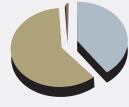
peak for only one competition per year. Talent identification becomes more and more Karate skill-specific as this stage progresses.

Recommended Weekly Hours of Training 10-14 Hours Total *



7-10 Hours Other Physical

Karate Training Activity 2-4 Hours School PE 2 Hours Percent Distribution of Karate Training Load and Competition



Competition Competition 1%

*refer to Karate LTAD model

personalized technical and fitness programs.

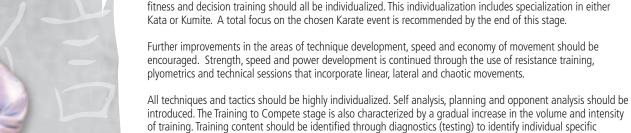
Karate Training 95%

TRAIN TO COMPETE - Developing Performance

Males 16-18+/- Females 15-17+/-

The purpose of the Training to Compete stage is to optimize fitness preparation, to further develop karate skills, and to learn to compete under a wide variety of circumstances. Training for fitness, technique, tactics, mental

Developmental and Chronological Age



A weekly training load of 15 to 23 hours is appropriate at this stage, comprised of 6 to 10 hours of event-specific Karate practice, 5 to 6 hours of specific competition training and simulation, and 4 to 7 hours of event specific

training loads, volumes and intensities for optimizing (enhancing) preparation and performance.

Non-elite karate practitioners can spend 45% of this total weekly training time on general training, 20% on competition- specific issues and 35% on physical preparation.

Double vperiodization can be applied at this stage with refinement in the concepts and practice of tapering to peak. Eight to Twelve competitions annually is appropriate.

Talent can be identified by tournament observation, fitness test standards and national ranking. Anthropometric screening and fitness test results should be used to develop training guidelines.

Recommended Weekly Hours of Training 15-23 Hours Total * Percent Distribution of Karate Training Load and Competition



*refer to Karate LTAD model

- Karate Training ■ Karate Specific
- Style Specific Training 4-7 Hours

Training 40%

Training 55%

Competition or Competition 5%

TRAIN TO PERFORM - Optimizing performance Chronological Age

Males 18-24+/- Females 17-22+/-

The Training to Perform stage aims to optimize Karate-specific preparations and to enable Karate practitioners to make the transition from junior to adult divisions while gaining experience in international senior events. All components of preparation including physical, technical, tactical, mental and ancillary capacities should be mastered prior to entering this stage. The 10S's (Stamina, Strength, Speed, Skill, Suppleness, (p)Sychology,



Structure/Stature, Sustenance, Schooling, and Socio-cultural) continue to be emphasized, along with individualization and specialization to enhance performance. Karate athletes should continue to develop technical and tactical proficiency. Consistency at high speed is refined and physical capacities should also continue to be developed and improved. Content of training should be identified through diagnostics (testing) to id individual specific training loads, volumes and intensities for optimizing (enhancing) preparation and performance.

Weekly training for elite athletes should total 17 to 23 hours per week, and consist of 12 to 16 hours of sport Karate training, and 5 to 7 hours of karate-specific fitness. Athletes should also be gaining experience in all areas of international competition in preparation for the Train to Win-Peak Performance stage.

Non elite Karate athletes can divide their total weekly training time so that 70% of training is technical/tactical and 30% fitness related.

Double periodization will be applied with tapers and peaks for major competitions and frequent prophylactic

Recommended Weekly Hours of Training 17-23 Hours Total * **Percent Distribution of Karate Training Load and Competition**



Karate Training 12-16 Hours Karate Specific

Competition Specific

Training 30%

Competition Competition 5%

*refer to Karate LTAD model

TRAIN TO WIN - Maximizing Performance

Males 24+/- Kumite 27+/- Kata **Females** 22+/- Kumite 26+/- Kata

The goal of the Training to Win stage is for the athlete to maximize performance by fine-tuning fitness, technique, tactics, decision-making, mental abilities and all ancillary capacities. This will help to ensure the highest level of competitive proficiency. Additionally, anticipation skills should be refined and the athlete's lifestyle should be directly linked to effective performance.

Chronological Age



This stage is identical to the preceding stage except that the athlete now has the benefit of competing in pressure situations at the highest level and is better prepared to win. The content of training should continue to be identified through diagnostics (testing) to identify individual specific training loads, volumes and intensities for optimizing (enhancing) individual preparation and performance.

Elite athletes' weekly training schedule should include 14 to 16 hours, focusing on competition-specific components, along with 5 to 7 hours spent on competitive fitness for a total of 19 to 23 hours per week. Non-elite athletes should be training 70% of the time on karate specific items and 30% on fitness.

Major and minor peaks will be based on the timing of major

■ Competition 5%

international competitions to ensure adequate prophylactics breaks are scheduled.

Percent Distribution of Karate Training Load and Recommended Weekly Hours of Training 19-23 Hours Total * **Competition Training Load**



14-16 Hours Karate Specific Fitness 5-7 Hours

Competition Specific Karate Training

Training 25% Competition

The more knowled 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 ancillary capacities to full advantage.

taper and peak.

Ancillary Capacities

Ancillary Capacities refer to the

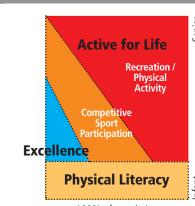
knowledge and experience base of an athlete and includes warm-up and cool down procedures, stretching, nutrition,

hydration, rest, recovery, restoration, regeneration, mental preparation and

*refer to Karate LTAD model

ACTIVE FOR LIFE - Retire, Retain and Retrain 8 **Enter at Any Age**

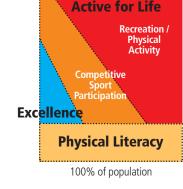
This stage can be entered at any age or level. Karate practitioners of all levels should be encouraged to participate in areas of officiating, etc. The success of any sporting association



Chronological Age



administration, coaching, instructing, volunteering depends on having these positions filled by qualified and enthusiastic individuals.



regeneration are introduced in this stage. Pre-competition, competition, and post competition routines should

athletes can participate in four to eight competitions per year during the Training to Train stage, but the

Karate athletes desiring elite success should be training 12 to 16 hours weekly by the end of this stage. The

total weekly training load should consist of 5 to 7 hours training general Karate skills and 2 to 3 hours training

emphasis is still on the mastery and refinement of skills, not on winning competitions. Talent would now be identified through provincial and national results.

TRAIN TO TRAIN - Developing Karate Skills and Fitness

Males 12-16 **Females** 11-15

The primary purpose of the Training to Train stage is to "build the engine." The focus is on refining and individualizing training and techniques, rather than on competition per se. The development and refinement of physical fitness and karate specific skills and tactics are also of primary importance.

onset of Peak Height Velocity (PVH), commonly known as the adolescent growth spurt. Windows of optimal

trainability for speed and strength occur during the latter part of the Training to Train stage.



Recommended Weekly Hours of Training 11-16 Hours Total *



Other Physical School PE 2 Hours

Karate Training

Percent Distribution of Karate Training Load and Competition

Karate Training 70% Competition

Competition 2%

It is very important that coaches recognize and take full advantage of several windows of optimal trainability that occur in this stage. The first of these is the window for endurance (stamnia), which occurs shortly after the

Developmental Age Based on PHV

Flexibility should be emphasized through PHV, as increased suppleness helps to limit the potential for injury associated with sudden growth in bones, ligaments and tendons that occur during this time. Sport Karate-specific skills such as an increased range of techniques, deception and the reduction of extraneous movement while attacking should be emphasized in this stage. This stage also introduces the concept of

strengths and exposing opponent's weakness are introduced. Sport Karate preparation should start to outweigh traditional Karate training. The concepts of tapering and peaking, time management, training evaluation and training journals, and

Tactical preparation continues to be developed now, and the concepts of reading opponents, playing to personal

specific competitive skills. Each training session should be 2 hours long. Participation in one other sport and school PE for a total of 5 to 7 hours/week make up the remainder of the weekly training load. Double periodization can be implemented now, allowing for a taper and peak at 2 major competitions. Karate