ATHLETE DEVELOPMENT MATRIX

Table Tennis Canada is very excited to introduce the Athlete Development Matrix (ADM). The matrix has been designed to provide a framework of competencies for all those involved in delivering the game of table tennis at each stage defined in our Long-Term Athlete Development (LTAD) model.

The ADM has been produced based on empirically and scientifically relevant information which indicates when certain competencies are best developed. The matrix looks to develop the individual by covering the table tennis-specific components of technical, tactical, physical and mental areas of the sport, while intertwining the components of social, parental, educative and competitive experiences.

Document consists of six sections, Fundamentals plus five stages that are directly related to LTAD stages related to High Performance pathways:

- Fundamental (added because of its importance as the introductory stage to HP)
- Learning to Train
- Training to Train
- Training to Compete
- Learning to Win
- Living to Win.

Each section is providing guidelines regarding

- player's age
- competition categories that are usually associated with certain stage
- overview of player's development
- players', coaches' and parents' roles and responsibilities
- practice and competition demand and recommendations
- required skills sets that are to be mastered in given stage
- technical skills - seven level progression scale
- table tennis exercises.

Fundamentals

In a few words - age, categories, tasks

Girls: 6-8 Boys 6-9

Competition's categories:

Hopes (U11)

Enjoy

In the FUNdamentals stage, participants develop fundamental movement skills in structured and unstructured environments of play. The focus is on providing fun, inclusive, multisport, and developmentally appropriate sport and physical activity. These experiences will result in the participant developing a wide range of movement skills along with the confidence and desire to participate.

Deliberate play is the key for maintaining proper motivation and enabling the player and table tennis coaches to discover true strengths that will be vital for future development.

Adjusting table tennis equipment: tables, if possible and certainly the rackets is one of the most effective way to support the child at this stage.

Player

- Learn basic table tennis skills
- Develop motor skills
- Learn rules
- Introduction to table tennis ethics

Coach

- Make participation fun
- Create positive environment
- Consider modified equipment
- Knowledge about growth and development~~emnt~~ is essetial

Parent

- Suport table tennis as enjoyable experience for the child
- Encourage unstructural play

Fundamentals

Practice and competitions

Practicing and Competing	Competing		Practicing			
	# of tournaments per year	Type of competitions	Physical Training	Table Tennis training	Total # of hours/week	Rest and Regeneration
High Performance stream	Just a few	Club, city level	15-60 min	Up to 90 min	6-12 hours	8 weeks
Recreation stream	Just a few	Club			Up to 6 hours	

Fundamentals

Skills

Mental	
Enjoys playing and practicing	Participates in table tennis activities with fun, persistence and without pressure from environment (family, peers)
	Displays positive attitude when facing challenges (learning new skills, facing competitive situations)
Learning to be cooperative	Communicates with coaches and peers
	Able to express him/herself and understands others
Learning to focus on tasks	Able to understand drill's requirements
	Able to pursue the drill's goal
	Able to work for at least 8 minutes on the task oriented drill
	Able to be focused during practice on the task-oriented exercises for at least 30 minutes
	Able to keep the score
	Remembers serving patterns
Learning emotional control	Able to control emotions during competitions (winning and losing situations)
	Able to control extreme reactions (for example anger or "don't care" attitude) when distracted or challenged
Learning to display good sportsmanship	Understands and respects the ethics of the game
	Able to respect opponents in victory and defeat
Enjoys competing	Shows desired level of engagement at tournaments
	Able to learn during tournaments (regardless of the outcome)
	Improved attitude and improved habits with each new competition
Developing a competitive spirit	Thinking of ways to win
	Every ball matter
	Focused before and during the game
Cooperative with practice partners	Understands the difference between competing drills and drills where one's practice partner has a role of sparing
	Showing respect during practice with partners of different levels (stronger, same, and weaker)
Developing good practice habits	Seeking to understand and pursuing the goal of each drill
	Always on time
	Showing up to training sessions prepared (equipment, water, towel)

Fundamentals

Skills

Physical	
Movement through general coordination exercises	Skipping rope
	Jumping (both and one leg jumps, isolated and connected actions, with and without obstacles)
	Running in different directions (forward, backward, sideways) with changing directions
	Dribbling (soccer, basketball, handball)
	Basic gymnastics drills (with different variations): - Forward roll - Backward roll - Cartwheel
	Throwing different balls, frisbee, different objects
	Working against opposition
Hand-eye coordination, time-space orientation	Throwing table tennis balls (with and without a racket)
	Catching different balls (direct, after bounce, at different stage of the bounce)
	Catching table tennis balls
	Hitting (with all kind of racquets, baseball bat etc.)
	Hitting with table tennis racquet (introduce rotation)
Body self-control	Balance (using equipment)
	Balance (using own body)
	Sports with emphasis on balance (gymnastics, diving)
Speed, agility, decision-making skills	React quickly at only one signal
	The child should develop reaction speed, time-space analysis, and coordination under difficult conditions
Flexibility (Priority 2)	General flexibility using global postures
Strength (Priority 3)	Introduction to strength-endurance exercises without additional load (body weight)
Endurance (Priority 4)	Able to run 10 to 15 min.,
	Skip rope from 1 to 2 minutes (non-stop)

Fundamentals

Skills

Tactical	
Basic position	Understand, demonstrate and apply basic body and racket position
Grip	Learn and understand proper grip
	Understand importance of using "neutral" shake hand grip at this stage
	Consider using smaller and lighter rackets (especially for penholder grips)
Racket/ ball contact	Understand effects of the different contact points with the ball and direction of applied force
	Able to stroke the ball with underspin, topspin and no spin effect
Timing	Understand different ball trajectories
	Demonstrate ability to make contact with a ball at different points of the trajectory (early, at top, late)
Basic techniques	Introduced to all table tennis strokes
	Able to perform drive, underspin, and topspin
	Learn basic serves – underspin, no spin and side spin; fast-long and slow-somewhat shorter
	Basic receiving – long push and elements of flip
	Sideways footwork
Technical	
Learning to use of quality rally balls (medium speed and arch trajectory to out- rally opponent)	Number of the described rallies in game
Introduction to increasing the arch of the ball trajectory	Ability to produce high arch trajectory
Learning the importance of competing with a high level of consistency	Coach's observation
Learning to recognize opponent's weakness including serves and returns	Interview after completed game; check player's impression with coach's note and video
Learning to use their FH when receiving a ball that is placed down the middle	Simple tests
	Number of situations in a game when ball is received in the middle
Learning to choose proper response: offence or defense according to the characteristic of the ball received	Simple tests
	Number of situations in a game when ball is received in the middle

Fundamentals

Technical skills progression scale

Basic Technical Skills	Perceiving		Pattering		Adapting		Refining				Varying		Improvising	Composing	
	Discover	Recognize/ Identify	Demonstrate	Perform	Control (Practice)	Apply (Competition)	Perform smoothly	Change rhythm	Show Flair (practice)	Control (competition)	Embellish	Revise	Show Flair (competition)	Novel movements	Design
Drive															
Underspin															
Topspin															
Block															
Serve															
Receive															
Footwork															

Excellent	Very Good	Good	Getting to understand

In 2 to 3 years, players are introduced to a larger number of skills. The most important skill in that period is the core movement that produces the correct rotation. Racket speed should be the fastest at the moment of the contact with the ball. Preparation for the stroke, execution and regaining basic balance shall all be considered as one stroke.

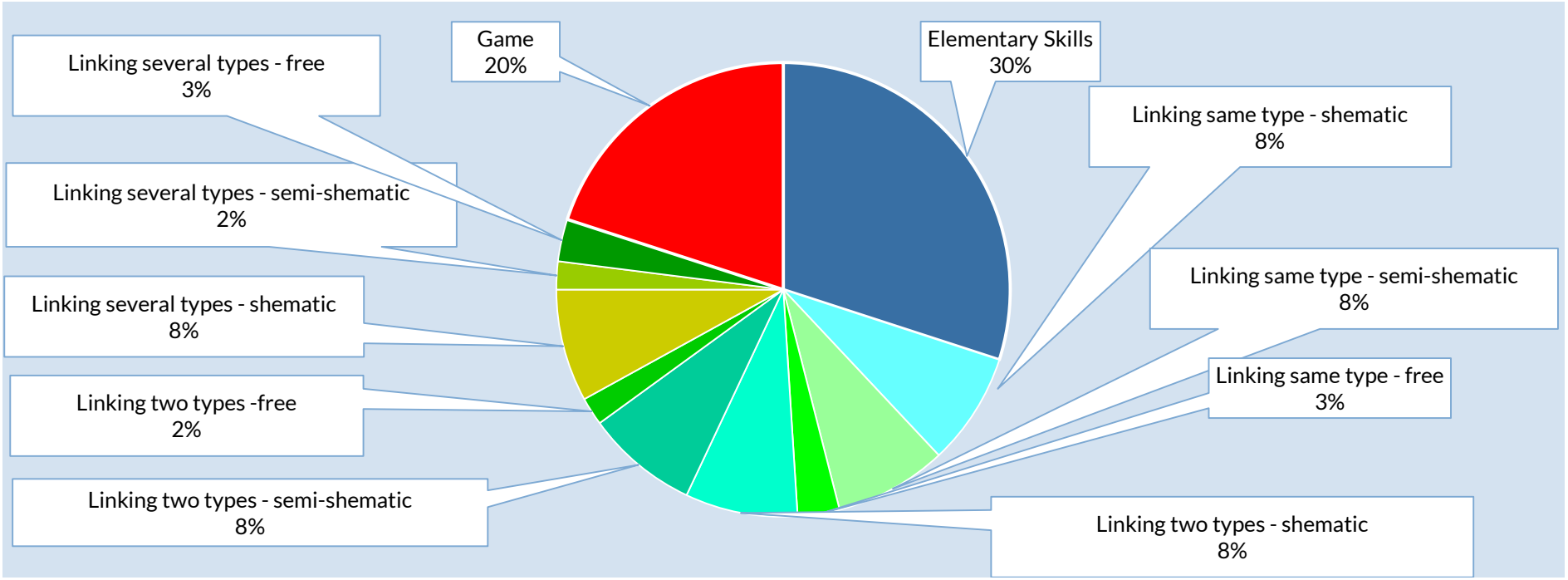
The coach-should concentrate on the overall movement, where the sequence of body parts movements is crucial to establish proper technical base. If players manage to achieve a stage of patterning without major biomechanical mistakes, they will enter the following period with a good foundation.

Typically, players gain the most knowledge in forehand and backhand drive and in strokes that are less complex – underspin and block.

Topspin, serve and receive are more complex to develop and execute. Topspin also requires ~~a~~ more power for proper execution which players do not have in this stage.

Fundamentals

Time committed to certain table tennis specific practice exercises



Elementary Skills	Learn, improve or correct basic technique
Linking same type - schematic	Similar to elementary skills – in each of those exercises there are elements of footwork
Linking same type - semi-schematic	Learn recovery
Linking same type - free	Important to learn anticipation
Linking two types - schematic	Linking strokes with different rotation is key for kinesthetic senses
Linking two types - semi-schematic	Mastering strokes with unknown rotation and placement is demanding; it is very important to start with a slow pace and adjust body position for each ball
Linking two types -free	Very demanding; most likely only exceptionally talented players will be able to master those types of exercises
Linking several types - schematic	Most of the exercises will be composed of serve or receiving, followed up with given pattern of real game situations
Linking several types - semi-schematic	Almost like a game situation
Linking several types - free	
Game	

Learn to Train

In a few words - age, categories, tasks

Girls: 8-11 Boys 9-12

Competition's categories:

Hopes (U11) and mini-cadets (U13)

Become an athlete

In this stage players are very coachable. They accept coach's authority, enjoy the game and like to work hard when practice is well designed.

It is the beginning of a long journey and the coach is responsible for setting up the stage for building the right habits and awareness by understanding player's age. This is a stage where coach has to focus on larger number of key factors. It is the coach's responsibility to use windows of optimal trainability to enhance player's physical fitness and to develop players with proper technique.

Player

- Learn basic technical skills in table tennis
- Develop good habits
- Enjoy the sport

Coach

- Teach basic table tennis skills
- Introduce physical conditioning
- Measure peak height velocity 3-4 times a year
- Take advantage of windows of optimal tranability
- Develop strong relations with athletes
- Select appropriate matches for participation

Parent

- Suport child - make table tennis an enjoyable experience
- Understand table tennis athlete's pathways
- Encourage unstructural play
- Maintain composure/neutral body langugage at competitions

Learn to Train

Practice and competitions

Practicing and Competing		Competing		Practicing			
		# of tournaments per year	Type of competitions	Physical Training (including other sports)	Table Tennis training	Total # of hours/week	Rest and regeneration
Girls	Boys	**High Performance stream**					
8-9	9	8	Club, city	4-5 hours	6-8 hours (including 2-3hrs of individual training)	10-12	8 weeks
10	10	10	Club, city, Provincial Championships and Winter Games (Multi-Sport), National Hopes event	5-6 hours	8-10 hours (including 2-5hrs of individual training)	12-15	8 weeks
11	11-12	12-15	Club, city, Provincial Championships and Winter Games (Multi-Sport), National and Continental Hopes event	5-6 hours	10-12 hours (including 2-5hrs of individual training)	15-18	6-8 weeks
Girls	Boys	**Recreation stream**					
8-11	9-12	Just a few	Club, city	Up to 8 hours			

Skills

Mental	
Higher level of focus and engagement in training	Amount of time with planned fun at training is gradually replaced with drills demanding learning and repetitions
	Players are occasionally exposed to very demanding units (at the end of the stage)
Understanding different aspects of competitions	Working and learning component is promoted at tournaments
	Player is developing habits of reflecting on performance (logs and debriefing with coach)
Projecting a calm and positive attitude	Consistently working hard
	Committed to improvement
Learning to effectively manage mistakes in a positive manner	Accepting that mistakes are part of developing process
	Find solution for similar situations in future, instead of emotional response only
Developing an ability to self-manage and be responsible while away from home	On time and follow given plan
	Build good nutrition habits and taking care of hygiene
	Show independence in other small personal tasks (i.e. packing of personal belongings, equipment)
Fostering the concept of respect for coaches, officials and other players	Able to have a calm communication
	Seek information and clarification from others when in doubt
	Develop good listening skills
Cooperation with practice partners	Understand partner's abilities and using them as a base for good training
	Participate in team building activities
Developing good practice habits	Respect practice time (own and practice partner)
	Effort is consistent, does not depend on mood or training partner
	Able to participate actively at the debriefings at the end of practice sessions
Physical	
Coordination skills	Skip rope using different kinds of footwork
	Adapt to changing rhythms
	Maintain balance in different situations
	Continue to use gymnastics basic drills
Speed and agility	React quickly to multiple signals
	Have good multi- directional running techniques
Decision making skills	Player should further develop reaction speed, time-space analysis and coordination under more difficult situations Perform multiple tasks at the same time Coordination in the form of timed contests/games or competitions context
Flexibility (Priority 2)	Working on the basics of flexibility using global postures
Strength (Priority 3)	Strength-endurance exercises without additional load (body weight); core stability is introduced
Endurance (Priority 4)	To be able to run 15 to 25 min., skip rope from 1 to 3 min. (non-stop)

Skills

Tactical	
Adjust risk	Play the right shot at the right time (rally, attack or defend) at a higher tempo
"Read" opponent well	Recognize opponent's strengths, weaknesses and tendencies and how to neutralize and exploit them
Use opponent's mistakes at early phase of the rally	Punish all opponent's low-quality serves
	High percentage of execution after opponent's bad returns
Read the game (improve anticipation)	Prepare set of strokes that will work like patterns (previous stroke will produce highly anticipated returns)
	Use timeout and time between sets to set up or change tactical goals
Technical	
Basic position	Apply basic body and racket position
Grip	Learn and understand proper grip
	Understand importance of using "neutral" shake hand grip at this stage
	consider using smaller and lighter rackets (especially for penholder grips)
Racket ball contact	Able to produce different force and direction at various point of the ball
Timing	Adjust racket position and apply proper contact with the ball Able to give different trajectory with underspin and topspin strokes
Basic techniques	Able to adopt various strokes depending on the timing (early, on top, late)
	Understand that length of strokes depends on timing and applied force
	Linking most of the strokes in training situation
	Learn basic serves – underspin, no spin and side spin; fast-long and slow-somewhat shorter
	In simple exercises able to perform 12-15 strokes without mistake at high tempo or in 2 minutes test both players to have less than 6 mistakes at 80+ tempo
	Start to explore different opportunities with serve and learning basics about receiving
	Learn regular and cross steps
Playing Style	First ideas of player's style to be identified
	Analyzing video when player is in a "free" environment (no coaching, no instructions)

Learn to Train

Technical skills progression scale

Basic Technical Skills	Perceiving		Pattering		Adapting		Refining				Varying		Improvising	Composing	
	Discover	Recognize/ Identify	Demonstrate	Perform	Control (Practice)	Apply (Competition)	Perform smoothly	Change rhythm	Show Flair (practice)	Control (competition)	Embellish	Revise	Show Flair (competition)	Novel movements	Design
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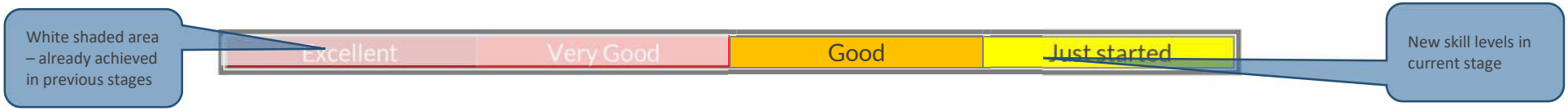
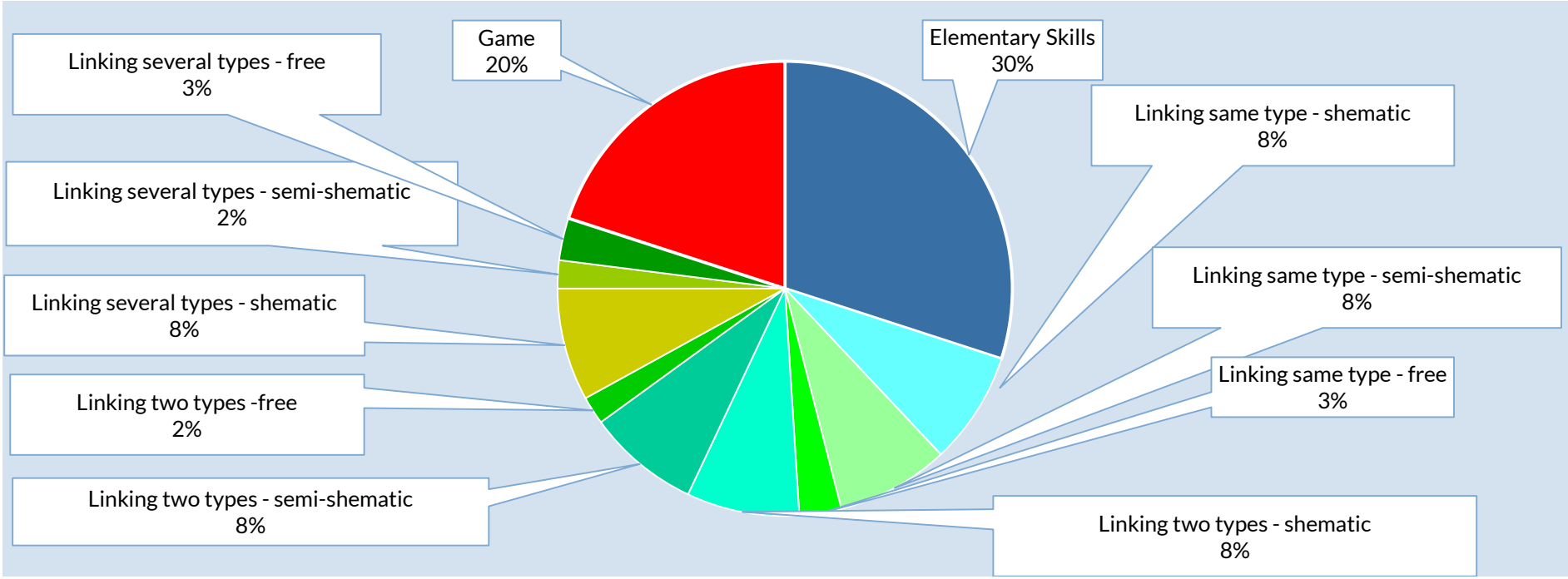
Footwork															



- Learning to Train is a stage when players are introduced to the most of new technical skills.
- Player will improve the most in drive (counterattack) and underspin strokes.
- Topspin strokes, as the most complex one, will need to be refined in detail. This is the time when players are still not building to produce necessary explosive power, but nevertheless it is good opportunity to master basic biomechanical needs of these demanding strokes.
- Block strokes are easier to learn, but many times practice is not accompanied with necessary focus. Distance from table is crucial when practicing topspin and block.
- Ball control in basic exercises should be treated with a high priority. Learning skills must be followed with achieving consistency in simple rallies.
- Able to develop quick and vigorous footwork without getting into the uncontrollable tempo of playing.
- Start with developing basic serve and receive strokes.

Learn to Train

Time committed to certain table tennis specific practice exercises



Elementary Skills	Learn, improve or correct basic technique
Linking same type - schematic	Similar as elementary skills – in each of those exercises there are elements of footwork
Linking same type - semi-schematic	Learn recovery
Linking same type - free	Important to learn anticipation
Linking two types - schematic	Linking strokes with different rotation is key for kinesthetic senses
Linking two types - semi-schematic	Mastering strokes with unknown rotation and placement is demanding; it is very important to start with slow pace and adjust body position for each ball
Linking two types -free	Very demanding; most likely only exceptionally talented players will be able to master those type of exercise
Linking several types - schematic	Most of the exercises will be composed of serve or receiving, followed up with given pattern of real game situations
Linking several types - semi-schematic	Almost like a game situation
Linking several types - free	
Game	

Train to Train

In a few words - age, categories, tasks

Girls: 12-14 Boys 13-15

Competition's categories:

Cadets (U15)

Consolidate

Athletes enter the Train to Train stage when they have developed proficiency in the athlete development performance components (physical, technical-tactical, mental, and emotional). Rapid physical growth, development of sporting capability, and commitment occurs in this stage.

This is the critical stage for participants to learn and understand vaules and consequences of one's action.

Daily training environement and healthy groups are key for success because of tremendous influence on behaviour from peer groups and possibly tensions between adults and adolescents.

Player

- Be well prepared for training and competitions
- Become more responsible for own preparation
- Love table tennis

Coach

- Meet regularly with fitness coach
- Raise the performance capacity of the player
- Pursue PD to support players in this stage
- Encourage decision-making and self-responsibility

Parent

- Be supportive - pressures increases in this stage
- Provide guidance but listen to a child
- Understand the LTAD pathways
- Reinforce values
- Support child's decision if wants to switch to recreation

Practice and competitions

Practicing and Competing		Competing				Practicing			
		# of tournaments per year	Type of competitions		# of peaks	Physical Training (including other sports)	Table Tennis training	Total # of hours/week	Rest and regeneration
Girls	Boys		Divide all competitions into two parts:	**Period**					
12	13	15	All others	Preparation and Competition	1	4-5 hours	8-10 hours (including 2-3hrs of individual training)	12-14	6 weeks
			Major	Competition (Major phase)					
13-14	14-15	15-20	All others	Preparation and Competition	2	5-6 hours	9-14 hours (including 2-5hrs of individual training)	14-20	4-6 weeks
			Major	Competition (Major phase)					

First periodization is in place. During first years, development component of periodization is more important than the competitive one. Overall player's performance is improving very fast and the peaks are associated with the best performance that year. Therefore, it would be beneficial if peak event is planned for the end of the season. Only in the last year of this stage, typical periodization will be applied.

Typical major events for the players in the last year of this stage are:

a) World Cadet Challenge (only a few of the best players believe that making the team will not be a major issue)
b) Continental Championships (for player that believes that will make national team squad through other, not major competitions)
c) National Championships (for player pursuing a spot on the national team)
d) Provincial Championships (for player pursuing a spot-on a provincial team)

Skills

Mental	
Be consistent	Maintaining enthusiasm and enjoyment both in practice and competition despite the ups and downs experienced during this stage
	The development of an identity as a "table tennis player". Intrinsically motivated to train and compete
Becoming resourceful in competitive situations	Calm and show initiative when matters most (clutch situations, period of peaking in the season)
	Has awareness of the importance of different situations and what is required
Enjoys the pressure of competition	Look at competition as a challenge rather than a stern test
	Developing a "going for it" mentality; "hitting the right shot under pressure" regardless of the score or situation
Developing a "no excuse" style	Able to rationally analyze performance at competition and practice
	Accept obstacles and difficulties as a part of process and as a challenge
	Always tries to find a way to be competitive
Developing the ability to manage excitability levels through proper breathing and relaxation techniques.	Learn breathing and relaxation techniques.
	Apply techniques
	Apply breathing techniques and positive self-talk at competitions
Displaying positive self-talk, belief, thinking and body language	Acquiring the skills to control the pace of the match via both an understanding of match momentum and the use of routines and rituals.
Physical	
Endurance	40 minutes of multi-ball training
	Run 30 to 45 min
	Undisrupted quality of training at training camps (5-6 hours training daily for several days)
Strength	Consolidation of the basic muscular strength movements,
	Introduction to explosive-strength with resistance.
Speed and agility	Adjust to new exercises fast
	Able to accelerate
	Master multi-directional movement
Coordination skills	To master sport fundamentals
	Work on specific coordination
Flexibility	Master stretching techniques

Skills

Tactical	
Risk adjustment	Adjust strokes strength and pace of the game to be effective (not only attractive)
Basic tactical skills	Developing defensive, neutralizing and counter-attacking skills to stay in the point or to neutralize attacking opportunities (increased ability to cover the court).
	Get used to observing the opponent before each stroke (position on table, balance, intentions)
	Learn to use placement and angles (like deep balls, playing in opponents' body, playing down the line)
Reading the opponent	Developing an awareness of their opponent's strengths, weaknesses and tendencies.
	Developing the ability to recognize and take advantage of all attacking opportunities (relative to the emerging game styles)
Bringing your best	One-two weapons emerge as a major weapon (extremely high level of consistency, great countering ability, exceptional shot variety)
	Developing the ability to use the change of rhythm and spins in order to take control of the point
	Ability to have a proper positioning becomes essential
	Developing the ability to execute patterns (sequences/combinations) around player' strengths
	Developing the ability to hide intentions when executing strokes (reduce opportunity for opponent to read the game)
Technical	
Contact with the balls	Player is able to demonstrate all types of strokes with proper contact.
Basic techniques	This is a stage where basic strokes are being consolidated. Typical offensive player with smooth rubbers will need to make the most improvement in topspin and block. Serve and receiving are getting first high-performance forms. It is very important that player and coach are devoting enough time for working on those skills. Awareness, habits.
	During this stage, as the player is entering adolescence, the use of power becomes much more distinct when executing almost all strokes.
Timing	The process of learning the basics must be completed in previous stage. Player should enter this stage and be able to demonstrate and control all strokes when hitting ball in different part of trajectory
	Player is "searching" for the right set of strokes and most comfortable distance from the table.
Style	At the end of this period the coach should have list of detailed skills the player will need to acquire in the next stage
	Although development of the playing style is in the initial period, individual approach to planning shall be applied more frequently every year.
	Role models are playing an integral-part in directing a player towards certain style. Studying and analyzing role models with a coach will help the player to learn about the game on a different level.

Train to Train

Technical skills progression scale

Basic Technical Skills	Perceiving		Pattering		Adapting		Refining				Varying		Improvising	Composing	
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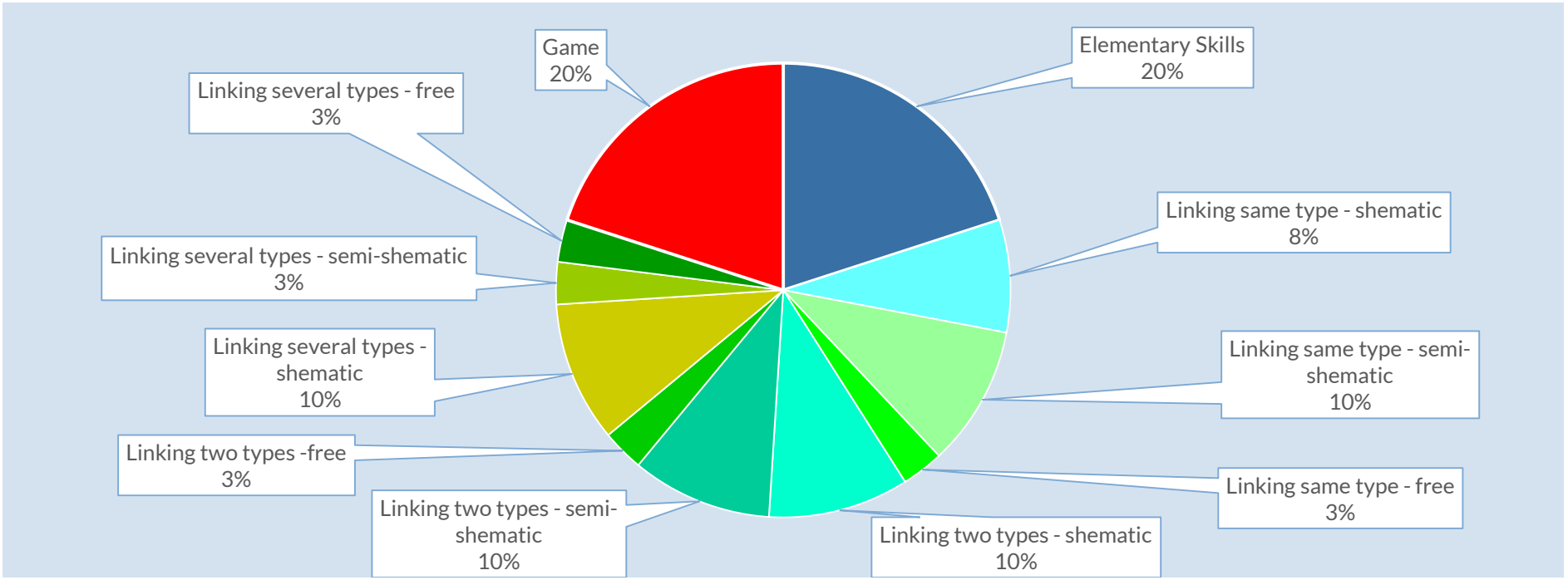
Drive															
Underspin															
Topspin															
Block															
Serve															
Receive															
Footwork															

Excellent	Very Good	Good	Just started

Generally, it is stage when improvement in technical skills is the most challenging. Players are going through HPV (Height Peak Velocity) stage. The challenge is not only to advance at progression scale but also to maintain skills acquired in previous stage. It is of utmost importance that at the end of this stage player doesn't have major technical mistakes. Wrong movements can become habits and correcting mistakes in following stages will take a huge amount of time with uncertain results. Coordination in serve and receiving is less demanding than in other skills. Player is becoming aware of initial strokes' importance. It is a perfect time to make first advances in serve and receive skills. Coach will be challenged with fact that those skills many times are associate with less attractive drills requiring patience. Stage is characterized with further development of topspin strokes and a significant advance in footwork skills.

Train to Train

Time committed to certain table tennis specific practice exercises



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Linking same type - semi-schematic	Learn recovery
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Linking several types - schematic	Most of the exercises will be composed of serve or receiving, followed up with given pattern of real game situations
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Linking several types - free	
Game	

Train to Compete

In a few words - age, categories, tasks

Girls: 15-17 Boys 16-18

Competition's categories:

Juniors (U19)

Learn to Perform

Train to Compete is a stage with proficient table tennis development components (physical, technical-tactical, mental, and emotional). Players are training nearly full-time and individual committment, volume and intensity of training are key elements for success.

Players are performing in a rich competition calendar. Results vary greatly as a consequence of constant physical, emotional and technical development. It is important to understand that developmental goals are still at higher priority to competition results.

Player

- Be responsible and independent
- Discuss goals and aspirations with coach and parents
- Represent yourself and team well

Coach

- Identify the right competition
- Raise the performance capacity of the player
- Pursue professional development to support players in this stage
- Encourage decision-making and self-responsibility
- Form Integrated Support Team (IST)

Parent

- Assist in balancing sport and educational demands
- Explore atlernative educational options
- Encourage interests outside of sport - balanced lifestyle
- Make sure that child enjoys table tennis
- Involve child in decisions about table tennis
- Encourage independence

Train to Compete

Training and competitions

Competing				Practicing			Rest and regeneration
# of tournaments per year	Type of competitions		# of peaks	Physical Training (including other sports)	Table Tennis training	Total # of hours/week	
20-24	Divide all competitions into three parts:	Period	2-3				4-5 weeks
12-15	a) Preparatory (where new technical skills are going to be applied)	Preparatory (specific phase) and competitive		6-12	12-24 hours (including 3-5hrs of individual training)	24-32	
6-8	b) Important (results and performance do matter)	Competitive		4-6 hours	14-18 hours (including 2-3hrs of individual training)	20-24	
2-3	c) Major	Competitive (Major)				16	

Goals' setting plays a major role in planning. Final years of adolescence, when the player's body is still going through dramatic changes, basic skills are still developing, increased pressure (social, school, table tennis) …all those factors contribute to complexity of goals' settings at this stage. Coach's role is critical to recognize how far the player is able and ready to go. "Begin with the End in Mind" shall guide the coach when planning this stage.
Dividing competition calendar into three categories and pursuing peak performances is successful only if goals are difficult but achievable. This stage is very sensitive for the player because success at competition will most likely determine if the player is going to move on with pursuing high-performance path (Learning and Living to Win in next two stages). Selection of major competitions (peaks) is also sending the message to the player of his possible level. For example, announcing that national events (championships and selection tournament) are the major events, and the goal for the player is to secure a spot on the national team but not really to perform its best at international level.

Skills

Mental	
Developing ownership of their career	Become a responsible and autonomous athlete.
	Adopt a positive lifestyle such as no smoking, no alcohol, no drugs, good sleep habits.
	Show interest and implementation in sport medicine, nutrition, strength and conditioning, sport psychology, exercise physiology.
Developing comprehensive understanding of the critical factors that affect ideal performance state	Demonstrate good knowledge of the selection and care of equipment (racquet, gluing, testing racquets, shoes, balls)
	Introduce psychological routines to produce the ideal performance state.
	Quality and consistency in the warm-up, recovery and diet.
	As periodization starts to be more important factor, understanding that peaking is possible only a few times in a year.
Developing "mental flexibility" and the ability to find solutions	Concentrate on opponent at matches (not on oneself)
	Learn to "work" during the competition; between games on recovery and refocusing; during game on finding the right tactical plays
	Learn to cope with the challenges of different competitive situations such as different venues, tables, altitude and game style
	Deal with pressures (schedules, traveling, criticism, expectations on and off the court)
Physical	
Strength	To further develop strength.
	To develop explosive-strength
	Introduce explosive-strength endurance.
Endurance (Priority 2)	To have stamina for 60 min multi-ball training
	To have interval training regularly
	To run 1000 meters in 3 minutes or under
	To run 400 meters in 60 seconds or under
Speed and agility (Priority 3)	To build capacity to accelerate, decelerate and change directions quickly.
	To move fast in specific (table tennis) situations
	To create his own set of specific exercises that correlate with playing style
Coordination skills (Priority 3)	Build set of specific drills, using table tennis court and equipment, whenever possible
Flexibility (Priority 3)	To ensure that improvements in strength are followed with the same improvements in flexibility.

Skills

Tactical	
Decision-making	The ability to play percentage game, select not only the right stroke but also the right placement and tempo
Build the game around strong side	Clear game style with one or two strong tools
	Displaying conviction to execute the appropriate shot confidently under pressure
Learn patterns	The ability to execute 2-4 shot sequences/ combinations around those strengths
Have a strong start in each rally	Initial stage of rally (either the serve or return) and the shots following become more critical at this stage than in the stage before
Apply “open” and “close” rally concept	Able to direct game to exchange of strokes without paying too much attention to anticipation (“open”) or short, unattractive rallies where players are trying to outsmart each other
Read opponent’s style	Have knowledge of major playing concepts
	Able to recognize opponent’s style and his major weaknesses and strong sides after just a set or two
	Apply basic tactical concepts against recognized style (without specific details about certain opponent)
Know opposition	Update the journal after each match
	Several times in a year watch videos of opponents; update the journal
	Discuss opponents with the coach and teammates by crosschecking notes
	Bring the journal to every competition and use it before matches

Skills

Technical	
Grip	As a result of physical development and searching for the playing style, player's grip can change from "neutral". The Coach has to monitor eventual changes and ensure the changes are beneficial
Contact with the balls	Contact with the balls should be quite automatic depending on opponent's stroke and decision which stroke to apply (full adaptation in place)
Timing	Player style will determine in which point of trajectory will most of the ball be played and which type of trajectories will be applied
	Hitting a ball outside of the playing style zone. At competition it is a bad sign of a lack of consistency or inability to prevail. At practice, it can be a sign of not rationally spent time in training (player's bad habit or coach's bad planning) or practicing specific coordination (good)
Basic techniques	Player is able to control at practice and apply at competition all table tennis skills. Groundwork has been for getting out of youth categories
	Amongst all strokes, the player will find one or two that will become his/her strong tools. The Coach has to have a very balanced approach during planning. Lack of these strong tools will limit the player pursuing international or even national results. Also, leaving even one or more skills undeveloped can have serious consequences when facing tactically skillful opponents. So, the coach has to make sure that at this stage, the player has one or two strokes quite high on progression scale and not one or more lagging by a lot
Style	Player style has to be quite recognizable by the end of this stage. Coach's responsibility is to make training efficient: most of the time practice sequences that will be used in tournament, style has to fit player's psychological features, physical abilities and technical knowledge

Train to Compete

Technical skills progression scale

Basic Technical Skills	Perceiving		Pattering		Adapting		Refining				Varying		Improvising	Composing	
	Discover	Recognize/ Identify	Demonstrate	Perform	Control (Practice)	Apply (Competition)	Perform smoothly	Change rhythm	Show Flair (practice)	Control (competition)	Embellish	Revise	Show Flair (competition)	Novel movements	Design
Drive															
Underspin															
Topspin															
Block															
Serve															
Receive															
Footwork															

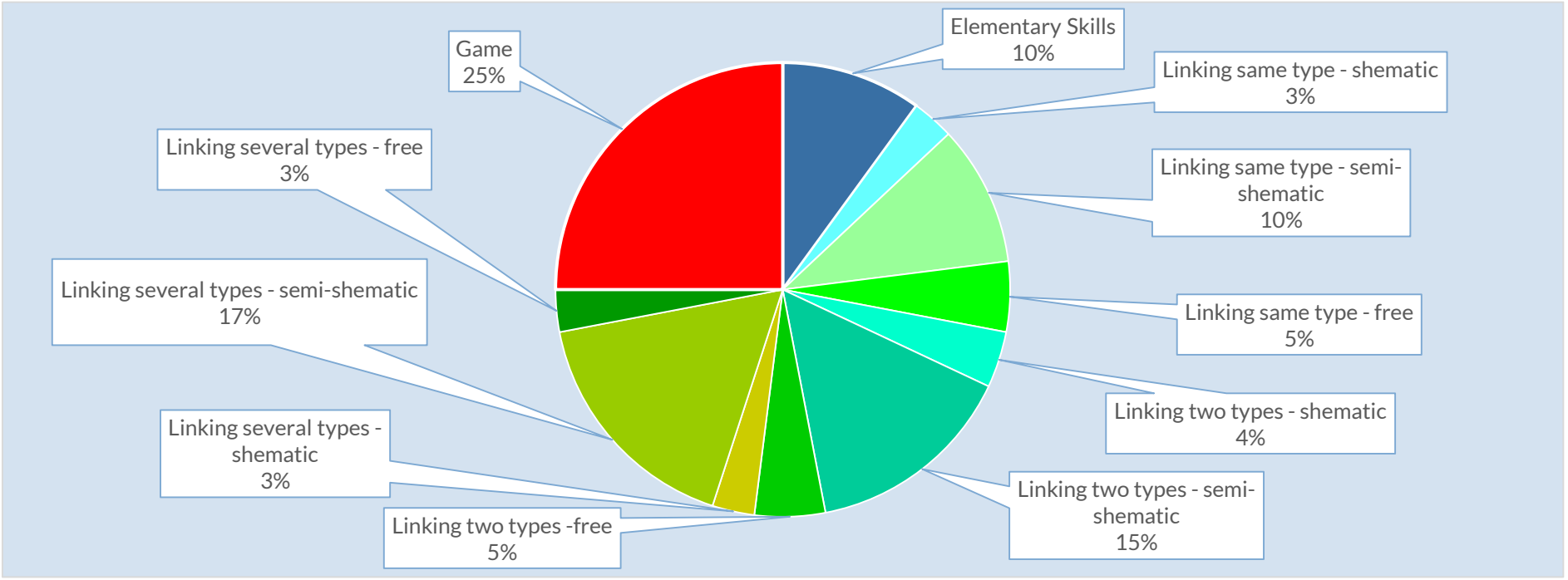
Excellent	Very Good	Good	Just started

Topspin strokes will lag the development of the player's strength. Footwork needs to be mastered at practice. Coach needs to pay attention to the player's ability to regain balance and to be effective in semi-schematic and free exercises.

A significant improvement must be made in serve and receive. In order to choose adequate playing style, the coach needs to empower the player with adequate tools and the right selection of serves which is one of the most important technical factors. If player and the coach fail, consequences can be substantial. Lack of good initial stroke can diminish player's other features – physical, psychological, and even technical. The Coach must plan development of skills with harmony with all of player's characteristics.

Train to Compete

Time committed to certain table tennis specific practice exercises



Elementary Skills	Continue to work on strokes; the most important period to learn ~~right~~ proper technique
Linking same type - schematic	Similar as elementary skills – in each of those exercises there are elements of footwork
Linking same type - semi-schematic	Learn recovery
Linking same type - free	Important to learn anticipation
Linking two types - schematic	Linking strokes with different rotation is key for kinesthetic senses
Linking two types - semi-schematic	Mastering strokes with unknown rotation and placement is demanding; it is very important to start with slow pace and adjust body position for each ball
Linking two types -free	Very demanding; most likely only exceptionally talented players will be able to master those type of exercise
Linking several types - schematic	Most of the exercises will be composed of serve or receiving, followed up with given pattern of real game situations
Linking several types - semi-schematic	Almost like a game situation
Linking several types - free	
Game	

Learn to Win

In a few words - age, categories, tasks

Girls: 18-21 Boys 19-21

Competition's categories:

U21

Learning to Perform

In last two decades table tennis athletes are peaking in their late 20s and beginning of 30s. Many stay competitive untill their mid 40s. This is a tough competition environment where number of competition opportunites for targeted age group is much smaller. Players compete mostly in the Seniors category where pool of athletes is massive and podium appearances for this age group are rare.

The key for success is to understand competition, adjust to "pro" world of table tennis and grab every opportunity to gain confidence.

Player

- Focus on mastering own playing style
- Learn from competition at the international tournaments
- Plan your lifestyle - academics and table tennis to develop hand in hand

Coach

- Learn about playing strategies of the top players
- Master periodization
- "Peaking" is your responsibility

Parent

- Support and understand very demanding lifestyle of the athlete
- Understand change from Junior to Senior categories

Training and competitions

Competing				Practicing			
# of tournaments per year	Type of competitions		# of peaks	Physical Training (including other sports)	Table Tennis training	Total # of hours/week	Rest and regeneration
22-26	Divide all competitions into three parts:	Period	2				4-5 weeks
10-12	a) Preparatory (where new technical skills are going to be applied)	Preparatory (specific phase) and competitive		10-16	16-24 hours (including 3-5 hrs of individual training)	28-34	
10-12	b) Important (results and performance do matter)	Competitive		4-6 hours	20-26 hours (including 2-3 hrs of individual training)	28-34	
2	c) Major	Competitive (Major)				16	

Shift from development to preparation of a player for major international events and professional career. Athlete's body is ready to maintain stable performance and learning curve (basic skills) is reaching plateau. Although there are no big differences in the number of tournaments and periodization compared to previous stage, there is a huge step forward in the level and type of competitions. Players are entering the "big league" of adult table tennis and "making or breaking" period. Player and coach should limit performance curve to two peaks. Planned competitions should be a mix of tough ones (learn about competition for next stage) and ones that fit player's current level. In this stage performance usually varies a lot during the year.
Tip for coaches – performance at "lows" is as important, if not more, than at "highs". That principle will set up a true level that will become player's trademark.

Skills

Mental	
Taking full responsibility for career	Proactive in planning
	Pay attention to details
	Show interest and implementation in sport medicine, nutrition, strength and conditioning, sport psychology, exercise physiology
	Seeking out competitive opportunities during practice on a consistent basis
	Consistent attitude during competitions
	Develop ability to deal/handle adversity and injury
	Build good social and professional environment
	Make the adjustment for moving from Juniors to Pro level
Sharpen mental skills	Developing psychological skills for the purpose of enhancing performance (be able "to deliver" when it matters)
	Apply psychological routines to reach the ideal performance state
	Quality and consistency in the warm-up, recovery and diet
	As periodization starts to be more important factor, understanding that peaking is possible only a few times in a year
	Ability to deal with the pressures associated with the game (e.g., being judged, ranking, travel issues, social issues)
	Ability to adapt and make adjustments or changes in the behaviour that produce positive and productive results, become comfortable with the ever-changing circumstances
Physical	
Speed and agility	Improve specific arm speed (accelerate when topspin, serve and receive)
	Have the capacity to accelerate
	Achieve a level in competitions where footwork and balance are smooth, less noticeable and enabling player to concentrate on decision making
Strength	Priority should be placed on explosive strength and explosive strength-endurance
	Incorporate exercises into the set of routines that will prevent injuries and strengthen core muscles
	Keep a diary performance progress (for example bench press 80 kg, vertical jump 60 cm etc.)
Endurance (Priority 2)	Have stamina for intensive 60 min multi-ball training
	Have interval training regularly
	Capacity to endure several days tournament demands and play best of 7 games 3-4 times a day
	Run 1000 meters in 2 minutes 50 seconds (men) and 3 minutes 20 seconds (women) or under
	Run 400 meters in 58 seconds (men) and 1 minute 5 seconds (women) or under
Flexibility and Coordination (Priority 3)	Ensure improvements in strength are followed with same improvements in flexibility and previously achieved coordination level is not diminished

Skills

Tactical	
The goal is just to solidify their game	Execute at a higher speed with a higher level of consistency
Decision-making	Ability to understand opponent's intentions and respond with appropriate action
Build the game around strong side	Ability to impose own playing style on the opponent
	Execute the appropriate shot confidently under pressure
Patterns	Ability to choose the right pattern depending on the stage of the match
Have a strong start in each rally	High percentage of wining rallies when serving
"Open" and "close" rally concept	One of these concepts prevail as a part of playing style or ability to change it fast as part of decision making
Read opponent's style	Have knowledge of major playing concepts
	Able to recognize opponent's style and his major weaknesses and strong sides after just one set or two
	Apply basic tactical concepts against recognized style (without specific details about certain opponent)
Know opposition	Journal and video files are getting in size. They are organized well and become efficient tool at major events.
	Cross-check records with coaches and teammates
	Learn about opposition (at competitions, social media, expert's opinion)
	Study the best world players, especially with similar playing style
Technical	
Grip	Eventual changing of the grip has to be stabilized and functioning in overall playing style
Contact with the balls	Raising kinesthetic sense ("feeling") to another level. It can be seen at precision of the placement, ability to change ball's trajectory and giving exact amount of necessary strength and angle at the moment of contact
Timing	Timing and playing style are in sync
	Playing in different "zones", out of playing' style, to be used only in transition or recovery session as specific coordination exercises
Basic techniques	Strokes can adjust according to situation in competitions. All executions are fully automated giving the edge to player's decision making
	Strong tools are mastered
	All other strokes reach the level where they do not form any barriers for player's performance
	Eventual technical errors from previous stages are rectified (mostly during preparation periods)
Style	Fully defined

Technical skills progression scale

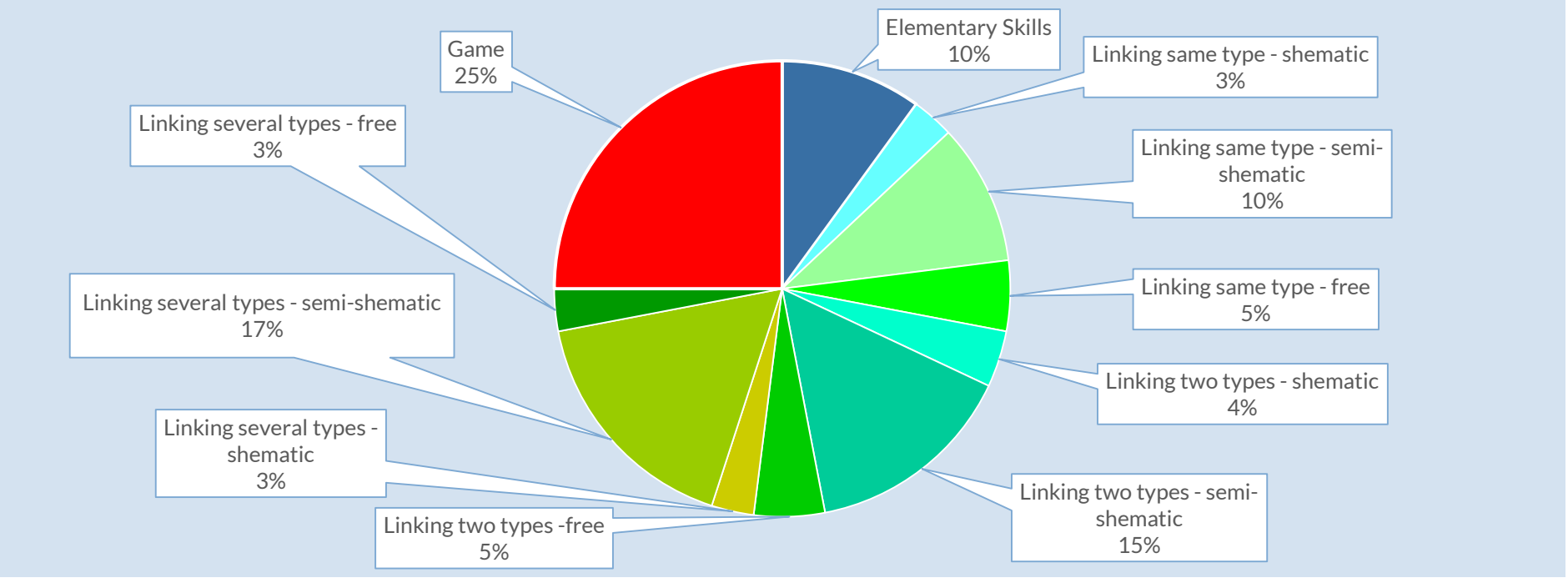
Basic Technical Skills	Perceiving		Pattering		Adapting		Refining				Varying		Improvising	Composing	
	Discover	Recognize/ Identify	Demonstrate	Perform	Control (Practice)	Apply (Competition)	Perform smoothly	Change rhythm	Show Flair (practice)	Control (competition)	Embellish	Revise	Show Flair (competition)	Novel movements	Design
Drive															
Underspin															
Topspin															
Block															
Serve															
Receive															
Footwork															

Excellent	Very Good	Good	Just started

This stage is about mastering technical skills. If a sound technical base is achieved in previous stages, in late teenage years and early twenties frequent participation (both practice and competition) will sharpen player's skills and make strokes look actually good in more demanding situations. Player's ability to read the game well (anticipation), good kinesthetic sense ("feeling") and ability to learn fast are decisive in raising skills to a "pro" level. In other words, quantity is necessary condition but not sufficient without mentioned qualities.

Serve and receive are becoming crucial in determining player's level and should be given higher attention in training and planning. Topspin, block and footwork are shaping into final forms. Improvising and especially designing strokes are very individual. Those levels can be achieved at any time after junior age and most of the time even the top players do not reach the top of technical scale. Designing of a certain stroke will happen occasionally when a player finds a way to revolutionize the game when introducing a new stroke.

Time committed to certain table tennis specific practice exercises



Elementary Skills	Learn, improve or correct basic technique
Linking same type - schematic	Similar as elementary skills – in each of those exercises there are elements of footwork
Linking same type - semi-schematic	Learn recovery
Linking same type - free	Important to learn anticipation
Linking two types - schematic	Linking strokes with different rotation is key for kinesthetic senses
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Linking several types - schematic	Most of the exercises will be composed of serve or receiving, followed up with given pattern of the real game situations
Linking several types - semi-schematic	Almost like a game situation
Linking several types - free	
Game	

Live to Win

In a few words - age, categories, tasks

Girls: 21+ Boys 21+

Competition's categories:

Seniors

Accomplish

Key for success is successful completion of previous LTAD stages. Work on developmenal improvents is also needed for adopting to ever changing competition and game development but at the same time those improvements require more time and they are no so visible compared to previous stages.

Full commitment is needed to achieve podium results at Continental and World major events.

Player

- Be a 24/7 athlete
- Give 100% effort in training and competitions
- Manage financial aspect of the career
- Fully proactive in all aspects of planning
- Act as a role model

Coach

- Model all aspects of training and performance to reach podium results at major events.
- Become recognized as an expert

Parent

- Be supportive
- Recognize the needs, intensity and pressure
- Help in logistics whenever possible
- Assist in planning career after playing as a pro

Training and competitions

Competing				Practicing			
# of tournaments per year	Type of competitions		# of peaks	Physical Training (including other sports)	Table Tennis training	Total # of hours/week	Rest and regeneration
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4-10	a) Preparatory (where new technical skills are going to be applied)	Preparatory (specific phase) and competitive		10-16	6-26 hours	16-36	
12-16	b) Important (results and performance do matter)	Competitive		4-6 hours	10-24 hours	14-28	
2	c) Major	Competitive (Major)				Very individual	

Skills

Mental	
Taking full responsibility for career.	Player partners with his coaching team in planning and goal settings
	Maintain good social and professional environment
Sharpen mental skills	Have the mental skills "to deliver"
	Successfully implement routines to produce the ideal performance state.
	Have the mental skills required to handle stress at competitions
	As periodization starts to be a more important factor, understanding that peaking is possible only a few times in a year.
Physical	
Maintain previously achieved levels	Keep the level achieved in previous stage for as long as possible.
Avoid injuries	Prevent injuries with incorporated set of exercises into training routines.
	Be physically prepared in case of injuries, allow for fast and efficient recovery
Healthy lifestyle	Good diet
	Good sleeping habits
	Sticking to recovery and relaxation techniques
	Build routines when traveling, especially when exposed to several time zones change
Tactical	
Continue to evolve the game	Find a way to bring the game to a new level year-over year by adding variety or improved skills
Know opposition	Very defined procedures in collecting and analyzing data. Player, coach and a member of integrated support team are performing tasks with high degree of professionalism
	Continue to study game
	Able to utilize new tactical elements when playing with well-known opponent
Technical	
The technical skills worked on must effectively support the outlined playing styles. Continued small technical refinements are key for maintaining competitiveness.	

Technical skills progression scale

Basic Technical Skills	Perceiving		Pattering		Adapting		Refining				Varying		Improvising	Composing	
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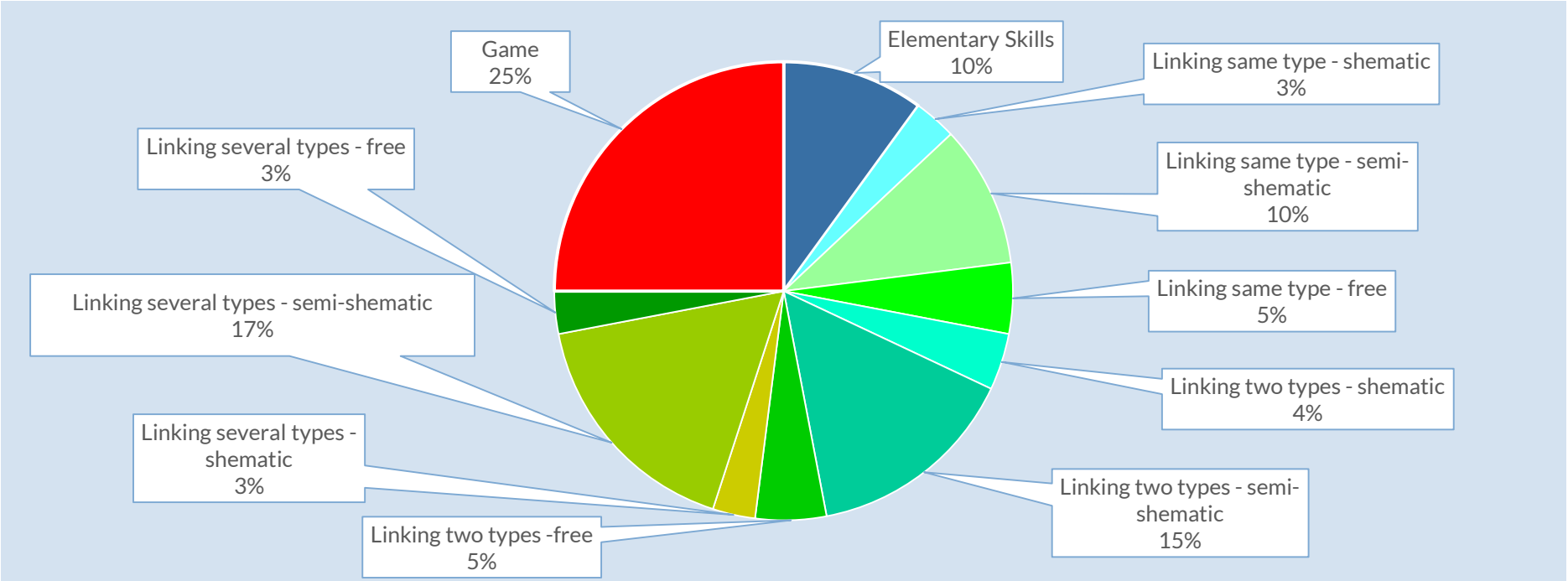
Receive															
Footwork															

Most talented players defining new technical skills.

Excellent	Very Good	Good	Getting to understand

Improvement of technical skills is limited to area of brushing strong tools to perfection and eventually finding more efficient way to execute those strokes. It is all important to follow trends and incorporate adjustments, if needed. Sometimes those trends are results of new, significant strokes (like backhand “banana”) and sometimes it is related to equipment changes (like new balls, different rules for covering racket).

Time committed to certain table tennis specific practice exercises



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