



Alpine Training Systems

Development Phases Domain

Elements	Phase	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6
	Biological Age	Early Childhood	Late Childhood	Pre-puberty before growth spurt	Puberty and growth spurt	Post Puberty after Growth Spurt	Full Maturation
	Chronological Age	2-6 years old	6-10 years old	Girls: 9-13 Boys: 10-14	Girls: 11-15 Boys: 12-16	Girls: 12-17 Boys: 14-18	Girls: 16+ Boys: 17+
	Time in Sport	1-4 years in sport	2-5 years in sport	4-7 years in sport	5-8 years in sport	6-11 years in sport	10-15+ years in sport
	Training Volume	50 hours per season 1-2 sessions per week	150 hrs/season 2-3 sessions per week	220 hours/season 3-5 sessions per week	360 hours/season 4-6 sessions per week	480 hours/season 5-7 sessions per week	540 hours/season 5-7 sessions per week
	Summer/Off season Training	None	0-5 days	10 days	20 days	25 days	30+ days
	Coached Freeskiing	75%	60%	45%	30%	20%	15%
	Coached Drills	10%	20%	20%	20%	20%	15%
	Coached Gate Training	10%	10%	25%	35%	40%	45%
	Competition Simulation	5%	10%	10%	15%	20%	25%
	Freeski with friends and family	As much as enjoyable	As much as enjoyable	As much as enjoyable	As much as enjoyable while balancing rest, travel and recovery needs.	As much as enjoyable while balancing rest, travel and recovery needs.	As much as enjoyable with necessary balance of rest, travel and recovery needs.
	Complementary Sports	Participate in many physical activities. Explore individual coordination or balance-based sports. Team sports to build teamwork, ethics, and fair play.	Participate in many sports and activities. Active participation in coordination or balance-based sports. Participation in team sports build teamwork, ethics and fair play.	Continue to participate in many activities and sports. Begin to identify with primary vs. complementary sports.	Continue to participate in complementary sports while identifying clear goals in primary sport.	Use complementary sports and activities for variety and to enhance aerobic conditioning by increasing training volume in all activities.	Use complementary sports and activities for injury prevention, avoiding burnout, and to maintain all aspects of physical fitness.

Physical Fitness Domain

General Concepts	Begin to develop fundamental movement skills through play, fun, novel activities.	Increase play to develop and enhance specific elements of physical fitness in open environments.	Start to incorporate focused dryland training 1-2 days per week. Enhance body awareness, balance, timing of movements and spatial anticipation through games and drills.	Physical fitness is becoming an integral part of the season. 1-3 sessions per week. Increase hours of training with varied volumes and intensity.	Implement periodized training with varying volumes and intensity. Training is now essential to seasonal programming with 2-3 sessions per week and off-season fitness plans.	Multi-year periodized training plans with varying volumes and intensity are essential to prepare for full competition, training loads and long term performance.
Growth and Development (Body Composition)	Body begins to develop into adult-like proportions in terms of how various body parts relate to each other. Muscle mass increases and fine motor skills begin to emerge.	Body continues to develop into adult-like proportions. Rate of growth slows, strength increases and ability to perform fine motor skills increases.	Rate of growth increases again in preparation for adolescence. Growth rate may have adverse effect on agility, balance and coordination. Weight and height increases.	Rate of growth reaches peak (Peak Height Velocity). Bodies reach adult heights, muscles grow rapidly while muscle to fat ratios differ between males and females. Heart rate, cardiac output and respiratory capacity increases leading to greater tolerance for exercise.	Growth rate slows and stops. Bodies are adult in proportion and muscle to fat ratios. Very little change in height from this point forward. Muscular, skeletal, cardio and respiratory functions are fully formed with capacity for heavier exercise or training loads.	Body finishes adolescent growth and development.

Elements	Endurance	Foundations of endurance is established through sustained activity and play.	Continue to establish foundations of endurance through sustained activity and play. Add duration to activities and games. Manage duration of activity by introducing time-structured games and activities.	Develop aerobic conditioning with scheduled activities along with increased time spent in games and training	High duration, low intensity activities such as running, swimming, biking or hiking are incorporated into the training plan. Include team sports and multi plane activities such as soccer, basketball, ultimate frisbee, etc.	Develop understanding of the inverse relationship between volume and intensity. Maintain a sport specific and training endurance level.	Develop and/or maintain appropriate energy systems for success in discipline.
	Mobility	Explore activities and games that use a variety of body management, locomotory and object control skills.	Introduce and practice mobility exercises through unorganized play and some structured activities.	Introduce range of motion, mobility drills, general exercise preparation and coordination through semi structured play.	Incorporate daily flexibility training. Limit the loss of mobility, functional strength, balance and coordination during growth spurt through multi joint and whole body exercises.	Practice a variety of core stability exercises. Incorporate mobility training specific to the sport or discipline.	Incorporate varied and sport-specific core stability exercises.
	Strength	Explore whole body movements which encourage range-of-motion and exploration of movement options.	Continue with whole body activities and exercises. Introduce more targeted focus on specific body movements.	Implement structured body weight exercises with proper technique to develop overall strength.	Majority of time spent in movement, mobility, warm up and mechanics. Short duration (20 min) in structured strength and power movements. Light resistance work including bands, med balls, etc.	Practice safety and competence with free weight techniques. As technique is mastered, increase external loads with focus on whole body movements while addressing any imbalances.	Master Olympic lifts and supplemental lifting exercises. Utilize eccentric training for overload.
	Power	Fast movements developed by running, jumping and throwing.	Use fun playful activities to enhance body awareness, spatial awareness and object manipulation. Incorporate activities that develop quickness (0-10 sec bursts).	Appropriate volume and intensity of body-weight training. Use dynamic exercises and movements in multiple planes to enhance power movements.	Practice Olympic lifting technique with no weight. Target all major muscle groups with body weight exercises. Add light weights for biologically advanced athletes. Continue jumping exercises and introduce limited plyometric training.	Continue to incorporate full body movements while increasing volume in jumping, etc. Add duration to strength portion of the workout with continued emphasis on mobility, movement, mechanics and warm up.	Strength and Power programs become more planned and periodized. Workouts become more individualized. Still fun but purposeful in developing the needs of the individual athlete.
	Motor Skills	Create a foundation for agility, balance and coordination (ABC) through participation in multiple sports or physical activities.	Increase ABC through fluidity of movement and range-of-motion in simple activities.	Incorporate multi-plane movements that increase ABC and range of motion across all planes of movement. Begin to use focused exercises to target specific movements.	Limit the loss of flexibility, functional strength, balance and coordination during growth spurt. Use mobility training along with agility, balance and coordination through growth spurt.	Use sport specific exercises and more complicated ABC drills to enhance range of motion that target sport specific movements patterns.	Increase difficulty of balance drills for precision of motor control. Increase flexibility exercises consistent with specific demands of the sport.
	Nutrition, Hydration, Recovery	Well rounded nutrition is practiced by parents, child, coaches and club. Proper rest and sleep habits help with recovery and energy management.	Basic athletic and healthy nutrition concepts are addressed by parents, child, coaches and club. Proper rest and sleep habits are formed.	Athlete awareness increases about importance of nutrition. Healthy sleep habits becomes a component of training and physical fitness.	Athlete can identify nutritious from non-nutritious food in their diet. Begin to link nutrition with performance. Hydration is monitored. Introduce cool-down, sleep, rest and recovery as part of the training plan.	Implement plans for a balanced diet to enhance performance. Keep a logbook of all training related activities such as hydration, diet, rest, recovery, sleep, and other factors that contribute to or diminish physical fitness.	Athlete uses diet planning to maximize training and recovery. Utilize physiologic measures and logbook diary to monitor training. Maintains and respects all facets of healthy habits and lifestyle.

Technical Domain

General Focus	Active start - Learning and fun environments	Adventure stage - Skiing all terrain, exploring the mountain	Technical stage - Developing precision of basic skills while learning advanced techniques over a variety of terrain and features	Tactical stage - Application of technical skills to Event/Discipline specific tactics.	Technical and Tactical Stage - Refinement and blending of specific technical and tactical skills.	Mastery and Innovation stage - Event/Discipline specific technical and tactical mastery.
Athletic Stance and Balance	Ski stance is athletically adaptable. Can ski medium radius turns with parallel skis while maintaining balance. Upper body (pelvis and torso) orients down the fall line.	Can balance on the outside ski. Leg rotation is independent of upper body (torso and pelvis) to initiate short radius turns. The body stays perpendicular to terrain changes.	Able to demonstrate a clear balanced weight transfer in transition. Able to initiate turn on either inside or outside ski. Beginning to utilize fore aft pressure throughout the turn. Can maintain ski to snow contact on most terrain.	Utilizes tip pressure at turn initiation to create a carved turn and fall line pressure. Can give self-feedback in regards to rotational balance. Ability to adjust edge angle to required turn radius and maintain a strong outside leg to resist turn forces. Can separate arm action from torso.	Utilizes pressure control along entire length of ski in a smooth, progressive manner. Has reactive ability to move from ski to ski to adjust pressure. Can establish pressure in the fall line or above in certain situations. Can generate speed on flatter slopes.	Aware of the path of the CoM and it's relation to the shortest path in the race course. Can adjust turn radius with edge angle, re-direct and pivot to achieve a combination of shortest line to maintain speed. Can generate speed through leg extension as conditions permit.

Elements	Skills (Rotary, Edging and Pressure)	Movements are varied, such as; wedge, parallel, converging & diverging steps, skating, etc. leading to outside ski dominance. Able to move from foot to foot and jump off both feet. Can turn both legs in same direction.	Skier demonstrates outside ski dominance throughout the turn, and becomes aware of the skier orientation on the snow. Skier demonstrates rotary, edging and pressure skills individually and within a ski turn.	Skier is able to edge ski in different phases of the turn. Edging is achieved by angulation and/or inclination as turn radius and speeds change. Rotation comes from the hip socket.	Round turns are enhanced through fore/aft pressure regulation and progressive edging. Rotation comes from the hip and can be combined or separated with edge release skills.	Able to modulate pressure and adjust edge angle for all turn shapes while maintaining a high tuck in most speed event turns with minimal speed loss.	Able to adjust pressure in the turn to maximize speed in non fall-line sets. Mastering fore/aft pressure control to minimize speed loss and maximize speed gains.
	Turn Strategies	Able to make short, medium and long radius turn relative to the skier's physical size.	Turn size and shape is dictated by the skier. Activities emphasize a wide variety of turn shapes and sizes. Athlete is able to make short, fast rhythmical turns.	Ability to maintain turn shape in a variety of turn sizes. Explore turn size allowing for smooth arc to arc execution.	Can ski medium terrain with pressure in the fall line and learning to apply fall line pressure in steep terrain with minimal speed loss. Skier understands the relevance of skidding vs. non-skidding skis.	Linking turns of a variety of sizes and shapes on all terrain and conditions while maintaining speed. Able to limit speed loss during high speed skidding (stivot) maneuvers.	Can adjust turn radius during a turn through independent leg rotation and edging. Able to maintain and gain speed for out of fall line sets. There is flow from turn to turn when rhythm changes in the race course.
	Coordination of Movements	Leg rotation is simultaneous while maintaining a parallel relationship between the skis. Can skid down the slope on the uphill edges while maintaining parallel skis. Can flex and extend the lower body proactively and reactively in certain situations.	Leg rotation is smooth that may be complimented with leg flexion and extension movements. Lower body rotation starts to show separation from upper body. Upper body shows discipline complimented with an arm carriage that may facilitate contributory pole action.	Turn initiation movements appear to start in the ankles and move up the kinematic chain. Upper/lower body separation is demonstrated by a stable upper body biased down the hill or race line. Optimal ski to snow pressure is maintained through gross and micro leg movements.	Upper body remains quiet in space resulting from an equal and opposite contribution relative to the lower body. Arm action is independent of torso. Moving into and out of tuck does not influence ski to snow pressure.	As situations dictate, legs can act independently to generate edging, rotation and pressure. Smooth translation of fore/aft movements throughout the turn.	Instinctively adapts turn initiation strategies to changing race situations. Has mastery of each skeletal joint's movements in multiple planes. Can manipulate these degrees of freedom as needed to influence ski to snow pressure.

Tactical Domain

Elements	Terrain	Have fun with skiing and gaining confidence on skis. Mileage around the mountain is maximized with an emphasis on fun, freeskiing with friends.	Tactics are learned through self-discovery by skiing around the mountain and adapting to different terrain. Respects and skis challenging terrain or difficult snow conditions.	Gaining comfort in applying various tactics in order to ski terrain using different strategies to achieve differing results.	High intensity and more complex movement patterns are mastered. Dynamic and complex movement patterns are emphasized to achieve a desired outcome on specific terrain and features.	Refine event specific technical and tactical skills to achieve desired outcome. Integrate the increased strength, power and body size to achieve more complex movements and precision of skill application.	Mastery of tactical strategies based on the individual's style, discipline and goals.
	Tech/GS and Slalom	Focus on drill courses & skill/obstacle courses. Limited normal GS courses. SL with stubbies and/or cones and other imaginative type sets are utilized for increasing skillfulness.	Continue drill course focus around skill development. Begins to work on tucking in GS turns.	Demonstrates understanding of GS line, appropriate to ability. Slalom gate clearing does not disrupt balanced turn mechanics	Slalom gate clearing demonstrates a separation of the clearing arm from the skier's torso.	Athlete is able to use many methods to clear the slalom gate. Methods match course segments, delay gates, vertical combinations, etc.	Athlete has mastered all methods to clear the slalom gate in all situations.
	Speed/DH and SG	Elementary tuck practiced on cat tracks and low angle groomed runs.	Refining tuck on increasingly steeper terrain. Focus is on body position and balance while in a tucked position.	Executes SG speed turns in a tuck. SG speed and turn duration is practiced.	Can smoothly transition between tuck positions. Turns in a tuck position are smooth with appropriate edge pressure allowing the skier to glide as much as possible.	Becomes aware of ski to snow interaction to minimize speed loss. Can transition through tuck positions through a variety of terrain, turns and jumps.	Understand and applies strategic planning to the race course specific to risk management. Knows when control is needed and when to take tactical risks.
		Able to jump with both feet.	Jumping of any type is considered exciting	Athlete seeks out jumps during free skiing. Athlete learns jump progression for speed events.	Executes jumps with a balanced stance in a tuck while landing with ski parallel to the landing slope.	Jumps at speed can be managed through different types of terrain including traverses, turns or straight jumps.	Jumps at speed are aerodynamic and precise.
	Course sets	Most skiing time should be on easier terrain, such that the athlete can learn/practice sound technique, not learn defensive technique encouraged by steeper terrain.	Round turns are utilized in GS and slalom. Able to link turns of variable turn size and radius.	Skis a variety of training courses that introduce line and tactics through self-discovery. Introduce more tactical focused drill courses. Skis slalom and GS training courses that have variety.	Skis a variety of training courses that introduce line and tactics through self-discovery. Introduce more tactical focused drill courses. Skis slalom and GS training courses that have variety.	Can read course sets requiring speed control and where speed is gained. Mastered all but the most difficult course set. Developing an understanding risk management as related to terrain and course set.	Mastery of all course sets.
Competition Strategies	Focus on skill development through use of SkillsQuest Phase 1 Programs and tournaments.	Focus on skill development as a competition. Inter-club events and a possible local state competition. Fun comps such as dual, obstacle and kombi formats.	Racing more GS & SL added to a continuation of dual racing, obstacle courses and skill competitions.	Trains and competes in all events. Continue drill based courses to teach technical and/or tactical topics	The yearly training plan demonstrates a balance between all disciplines.	Yearly training plan based on athlete yearly and multi-yearly goals.	

Equipment Selection & Preparation Domain

Elements	General Focus	Learn about function and variations between types of equipment.	Learn about function and variations between types of equipment.	Learn USSA rules for all equipment selection	Adhere to USSA rules for all equipment selection. Learn upcoming FIS rules.	Adhere to USSA and FIS rules for all equipment selection	Adhere to USSA and FIS rules for all equipment selection. Equipment testing including skis, boots, plates, bindings and poles is recommended to maximize performance
	Skis	Chest high with a variation based on height, weight and ski level. One pair of all mountain skis is adequate.	1 pair of skis is sufficient for this group. Head height with a variation based on height, weight, and skill level. Introduce ski preparation	Slalom, GS and super G skis. Develop tuning skills	Slalom, GS and super G skis. Refine turning skills	Slalom, GS and Super G skis with training skis. Tuning skills continue to improve. Insight into waxing and grinding necessary for speed skiers	Race and training skis for all disciplines. Professional support or consultation is recommended for preparation
	Boots	Proper boot fit with soft forward flex for ankle movement to facilitate a balanced athletic stance	Proper boot fit with soft forward flex for ankle movement to facilitate a balanced athletic stance	Proper boot fit and flex are critical for performance. Boots facilitate interaction with the ski.	Proper boot fit and flex are critical for performance. Boots facilitate interaction with the ski. Performance considerations may include flex, cant, forward lean, ramp angle, and foot beds.	Proper boot fit and flex are critical for performance. Boots facilitate interaction with the ski. Performance considerations may include flex, cant, forward lean, ramp angle, and foot beds.	Discipline specific boots may be necessary to maximize performance
	Protection	Helmet required at all times	Helmet required. Older athletes may need shin/arm protection	Head, arm, hand, shoulder, back, teeth (mouth guard) and shin protection recommended based on event	Head, arm, hand, shoulder, back, teeth (mouth guard) and shin protection recommended based on event	Head, arm, hand, shoulder, back, teeth (mouth guard) and shin protection recommended based on event	Head, arm, hand, shoulder, back, teeth (mouth guard) and shin protection recommended based on event
	Poles	Optional-introduce at older levels as skill level develops	Standard length = forearm horizontal with pole tip in snow	GS-standard length. SL-pole guard for blocking and protection, pole may be slightly shorter	GS-standard length. SL-pole guard for blocking and protection, pole may be slightly shorter	GS-standard length. SL-pole guard for blocking and protection, pole may be slightly shorter.	GS-standard length. SL-pole guard for blocking and protection, pole may be slightly shorter. Custom pole sizing and contouring for individuals

Mental Training Domain

Elements	Goal Setting	Define what a goal is. Remember, sport related activities and experiences are designed for enjoyment. End sessions by summarizing tasks and activities accomplished.	Clarify how to set goals. Describe which sport related activities and experiences cause enjoyment. Collaborate with supportive individuals and groups who can help interpret and organize the goal setting process.	Identify the 'why' for sport participation and deconstruct into goals. Outline each factor linked to training and competition to identify controllables. Utilize reflection of past experiences to build awareness of effects on performance. Collaborate with individuals and groups that support and align with stated goals.	Examine the 'why' for participation and deconstruct into long term goals. Align and apply challenging process goals for factors linked to training and competition. Create a reflective practice to evaluate past experiences, refine process goals and compose routines. Collaborate with individuals and groups that support and align with stated goals.	Clearly understand and define the 'why' for sport participation. Set process and performance goals prior to seasonal activities. Use a reflective practice to assess and refine goals. Form support structures that effectively encourage and assist goal attainment strategies.	Demonstrate a clear purpose and systematic approach to setting and achieving challenging goals for all factors linked to training and competition. Engage a support network to help schedule and prioritize periodization plans.
	Team, Training & Competition	Engage with all team members to learn and model fair and generous behavior. Perform game play that facilitates enjoyment of the sport.	Engage with all team members to demonstrate fair and generous behavior. Perform training exercises that facilitate fun and skill acquisition. Perform in competitions to have fun, acquire skills, and to learn teamwork and sportsmanship.	Engage with and support team members who share similar motivations. Perform training exercises that facilitate overall skill development and goal achievement. Perform in competitions to further develop skills, engage with others and achieve process goals.	Engage with and support team members who share similar motivations. Perform training exercises that facilitate focused skill acquisition and goal achievement. Perform in competitions to demonstrate and distinguish skills in support of performance goals.	Collaborate with team members who share similar motivations and behaviors. Perform training exercises that facilitate mastery of skills. Perform in competitions to demonstrate the mastery of factors linked to goal achievement and performance outcomes.	Challenge team members to share a common motivation for high performance and support one another with training and competing to one's potential.
	Self-Talk	Model verbal cues that generate fun and fair play. Encourage games that highlight positive self talk and positive attitudes.	Describe which thoughts support confidence and motivation. Learn to use an internal dialogue that generates confidence and motivation.	Interpret recurring thoughts that arise during performance related experiences. Identify self talk patterns and their affect on attitude and intensity levels. Assign verbal cues and scripts that support sustained focus and/or a shift in focus.	Develop a supportive internal dialogue that generates confidence, motivation and grit to achieve goals. Use self talk to regulate intensity levels and maintain or shift focus	Continue to monitor and evaluate self talk during performance related experiences. Incorporate self talk into routines and process goals.	Master use of self talk strategies to meet the demands of the moment.

E/E	Mental Imagery	Recall past activities that fostered enjoyment and successful performance of skills.	Visualize the sport environment and how to perform sport related skills. Visualize how to perform training exercises, and in competition, before executing	Identify the benefits of mental imagery. Imagine past successes and future achievements that generate confidence, motivation and grit to achieve goals.	Imagine past performance related experiences to evaluate cause/effect. Use imagery to generate confidence, motivation and grit to achieve goals. Imagine future scenarios to effectively plan and prepare for training and competition.	Continue to develop imagery skills. Master use of imagery for training purposes and pre-performance routines.	Master use of imagery to meet performance needs in all situations.
	Intensity	Learn to take a deep breath before attempting a specific skill, activity or exercise.	Identify when intensity levels increase. Practice taking deep breaths to regulate increased levels of intensity.	Evaluate intensity levels during past performance related experiences to determine causality and effectiveness. Perform mindful breathing techniques and engage in supportive self talk to either increase or decrease intensity levels to maximize performance output.	Continue to develop mindful breathing skills and integrate with supportive self talk. Adjust habits and routines to generate effective intensity levels.	Establish breath control and generate consistency of intensity levels during performance related experiences.	Master all techniques for managing intensity levels to meet the demands of the moment in all situations.
	Focus	Learn attentive body language and non-verbal cues to focus attention on a specific skill, activity or exercise.	Practice body language and non-verbal cues to increase sustained focus during training sessions.	Learn mindful practices to strengthen the ability to focus, refocus and shift attention on demand. Formulate cues that support adherence to goals and focusing on the right thing at the right time	Determine where focused attention should be at any given time for all factors linked to training and competition. Continue to develop mindfulness to strengthen the ability to focus, refocus and shift attention on demand. Formulate cues that support routines, process goals and focusing on the right thing at the right time	Continue to evaluate where focused attention should be at any given time to support process goals. Incorporate mindful practices into daily routines in and away from training and competition	Demonstrate a mindful awareness and engagement to focus on the present moment to meet performance demands in all situations.

Competition Domain

Elements	General Focus	Enjoy the sport for Fun	Compete for fun	Compete for skill development	Compete for skill acquisition	Compete for skill mastery	Compete to Win
	Competition Types	Local or Club games and activities.	Club based local events that are innovative with focus on fun and skill progression. Some informal interclub competitions	Local racing leads to state and divisional championships in later ages of this phase which may lead to regional events.	Local racing leads to state and divisional championships which may lead to regional events and Junior Championships	Appropriate level and number of race starts ranging from local to national and international competition. Focus on head-to-head performance with Junior Championship track athletes. May race "up" for experience or "down" for rehearsal.	Regional FIS Series, FIS U, NOR-AM and European FIS races. Olympics, World Cup, World Ski Championships, World Junior Championships, European Cup, NCAA.
	Disciplines	Club based team games and activities: Interclub events/festivals, NASTAR, Intro to SkillsQuest in later ages.	Participate in U10 disciplines (GS, SL, Kombi), SkillsQuest and NASTAR	Compete in U12 disciplines (GS, SL, Children's SG, Kombi), SkillQuest and NASTAR	Compete in U14 disciplines (GS, SL, SG, Children's DH), SkillsQuest and NASTAR	U16s compete in all disciplines. Primary focus on Tech (SL and GS) with limited SG.	Compete in all disciplines with primary focus on SL and GS. Some exposure to SG and DH increasing through the phase if experience, expertise and motivation dictates.
	Race Season and Volume	None	Emphasize training time over events. 10 or less event days per season	Jan-April, 10-15 starts	Dec-April, 10-20 starts	Nov-April, max of 40 starts	Nov-April, max of 55 starts
	Race to Training Ratio			1 race for every 6 training days	1 race for every 5 training days	1 race for every 4 training days	1 race for every 3 training days. Volumes may vary depending on discipline(s).