



Cross Country Training System

Development Phases Domain

	Phases	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6
Elements	Biological Age	Early Childhood	Early Childhood	Pre-puberty before growth spurt	Puberty and growth spurt	Puberty after Growth Spurt	Full Maturation
	Chronological Age	2-6 years old	6-10 years old	Girls: 10-13 Boys: 11-14	Girls: 11-14+ Boys: 12-15	Girls: 12-17 Boys: 14-17	Girls: 16+ Boys: 17+
	Sport or Training Age	1-4 years in sport	1-4 years in sport	4-8 years in sport	5-9 years in sport	6-11 years in sport	10+ years in sport
	Weekly Training	Ski 1-3 day per week	Ski 2-6 days per week or as enjoyable.	2-4 Training sessions per week, year round in addition to other sports and outdoor activities.	3-5 training session per week in season. 2-4 training sessions per week out of season.	5-7 training sessions per week in season, includes some two-a-day sessions. 4-6 training sessions per week out of season.	6-10 training sessions per week includes some two-a-day sessions. 7-12 sessions per week out of season.
	Annual Training Volume				U12: Emphasize daily skiing, U14: 300-400, U16: 450-500	U14: 300-400, U16: 450-500, U18: 550-600	U18: 550-600, U21: 650-725, 22+: 750-800
	Training Emphasis	Emphasis on outdoor recreation. Ski for play, fun and balance. Parents encourage play versus training.	Emphasis on outdoor recreation. Parents emphasize activity versus training.	Emphasize outdoor recreation. Introduce fun competition period.	Emphasize fun training.	Year round training	Year round training
	Complimentary Sports	Participate in many physical activities. Explore individual coordination or balance-based sports. Team sports to build teamwork, ethics and fair play.	Play many sports. 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 Focus	<u>Begin to develop fundamental movement skills through play, fun, novel activities.</u>	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.
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.

Elements	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.	Olympic lifts and lifting exercises are used to supplement periodized endurance training.
	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 mobility, functional strength, balance and coordination during growth spurt. Use flexibility training along with agility, balance and coordination exercises 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

Elements	General Focus	Have fun on snow. Games and play on skis enhance the skier's enjoyment and skill on snow.	Have fun on snow. Games and play on skis enhance the skier's enjoyment and skill on snow.	Further development of previous components. Emphasis on aerobic training and speed play.	Athlete is introduced to structured training including aerobic, anaerobic and strength training. In addition to ski training, athlete is engaged regularly in cross-training activities including balance, coordination, endurance, speed and strength building.	Athlete implements a periodized training program that places stress on the body and subsequent recovery time. Athlete uses low-intensity aerobic, high intensity aerobic and anaerobic training to improve race fitness. Athlete maintains a training log.	All components of training are now periodized and individualized. Masters all techniques and develops personal style.
	Athletic Stance and Balance	Application of general movement competency and mobility for development of skiing skills.	Application of dynamic, multi-plane movements integrated into skiing skills.	Demonstrates effective athletic stance on skis, exhibits natural body mechanics on skis.	Effective body position, balance and weight shift. Demonstrates ability to maintain appropriate balance and stance while skiing in all terrain and under a variety of conditions.	Integrates increased strength, power and body size to achieve stronger skiing technique.	
	Technique	Learning how to run on skis.	Gaining confidence and coordination while running on skis in multiple directions. Ability to balance on both skis while moving downhill.	Able to balance on one ski while skiing gradual downhills. Can herringbone and snowplow. Introduce skate techniques.	Understands concept of changing tempo to suit conditions and terrain in both classic and skate techniques.	Effective use of different techniques to correspond to changing terrain and conditions.	Mastery of all techniques to match courses, conditions and terrain with high speed and power application.

Tactical Domain

Elements	General Focus	Have fun with skiing and gaining confidence on skis. Mileage is gained through an emphasis on fun and skiing with friends.	Tactics are learned through self-discovery by skiing 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 athlete's strengths, discipline and goals.
	Terrain	Skis on flatter, shorter trails to gain confidence in skills.	Skis rolling terrain with moderate changes in pitch and distance.	Is eager to explore all different types of terrain and snow conditions.	Able to ski more challenging terrain with increased distance and more difficult pitches.	Seeks out more challenging terrain with steeper pitches, longer distances and difficult turns.	Confidence and mastery in all types of terrain at high speed.
	Strategies	General athletic skills, fitness and coordination applied to skiing.	Application of complementary sport strategies to develop reaction time and anticipation of movements.	Understands difference between running, classic and skate skiing.	Discusses race strategy and pacing with a coach. Applies different techniques depending on course, conditions and terrain.	Changes techniques smoothly and quickly. Discusses race strategy and pace with a coach.	Athlete is comfortable with race strategy and pacing. Continues to refine technique and tactics with a coach.

Equipment Selection & Preparation Domain

Elements	Skis	Skis on one pair of waxless skis, soft flex, and between nose and forehead in height	Skis on one pair of waxable skis, soft flex, and between nose and forehead in height. The skis are to be properly waxed by the athlete, parent or club leader for every day of skiing.	May use classic and freestyle skis for racing and training. Skis should be selected to fit the skiers' weight and height. The skis are to be properly waxed by the athlete or coach for every day of skiing.	May be using classic and freestyle skis for racing. Skis should be selected to fit the skiers' weight and height according to manufacturer's recommendations. Athlete only needs one pair of skate and one pair of classic skis. Proper fit is the primary concern.	Adheres to USSA and FIS rules for all equipment selection skis. Several pairs of both classic and skate skis prepared for cold, medium or warm conditions. Fit is essential and quality over quantity is emphasized.	Is responsible for having all equipment in perfect working condition and up to World Cup standards at all times.
	Equipment Preparation	Learning the importance of taking care of their equipment and keeping it in safe working order.	Ski preparation should be quick, simple and inexpensive. Learn the importance of keeping wax on the glide zones and keeping the kick zones clean.	Athletes should begin to take more responsibility in preparing their own skis, with guidance from a knowledgeable source. Competition with pure fluorocarbon overlays is discouraged at this age.	Ski preparation becomes more critical as the number of race starts increases. Race skis should be waxed at all times with higher performance waxes used for competitions.	Race skis should be waxed at all times. Race preparation becomes more focused with the addition of race day overlays. Athletes wax their own skis with advice from coaches.	Ski preparation is critical to performance. Several skis are prepared prior to competition. The proper race ski is selected the morning of the competition. Skis are finished with appropriate waxes and structures just before the start.
	Boots	Uses boots that are comfortable and warm.	Uses boots that allow for natural ankle movement, and sufficient warmth.	Uses boots that allow for natural ankle movement	Classic and Freestyle	Classic and Freestyle	Classic and Freestyle
	Poles	Poles should fit snugly under the armpit.	Uses one pair of poles for all techniques.	Uses one pair of poles for all techniques at beginning of this phase. Uses skate or classic specific poles later in this phase of development. Poles should not be above mid shoulder.	Uses classic and skate specific poles.	Uses classic and skate specific poles.	Uses classic and skate specific poles.
	Ancillary Equipment	Learning the importance proper clothing for exercise in cold conditions.	Use proper clothing and learn to be prepared for changing conditions and temperatures. Active, athletic winter clothing becomes more important as well as hydration systems or bottles.	Learning to use roller skis. Primary focus is on safety and technique. Helmet and bright, reflective clothing for roller skiing is mandatory. Proper footwear and appropriate outdoor clothing for all activities.	Roller skis and hill bounding poles for training. Appropriate footwear and clothing during all physical activities. Athlete has a backpack for extra clothing, water bottle and carrier, waxing equipment, etc.	Both classic and skate roller skis are used extensively in training.	

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.
	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

General Focus	Love the sport for Fun	Compete for fun	Compete for skill development	Compete for skill acquisition	Compete for skill mastery	Compete to Win
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Elements	Number of competitions			5-15 race starts	10-20 race starts	20-30 race starts.	
	Competition Type	Competitions only exist in the form of cooperative games or relays on skis.	Local competition: innovate with a fun focus on interclub competition. Age appropriate distances.	Local racing leads to state and divisional championships which may lead to regional events. Age appropriate distances.	Local racing leads to divisional championships which may lead to regional or Junior Nationals. North American experience may be initiated in Canada. Age appropriate distances.	Appropriate level and number of race starts ranging from local to national to international competition. Age appropriate distances.	Seeks to compete at the highest appropriate level including regional FIS, local USSA club races, Continental Cups, European FIS races, Junior World Championships, U23 Championships, World Cups, World Championships and Olympics.
	Organizations	Local youth programming	Local clubs	Local and state organizations	State and USSA Divisional sanctioned events	USSA Regional and National	USSA Regional, National and FIS