USA Cycling Athlete Competency Statement

Acknowledgments

The Athlete Competency Statement has been developed from previous work started by Sean Drake, Mike Niederpruem, Paula Mara, Ernie Ferrel, Jaci Lackwood, Rebecca Smith, Suzie Tuffey, Jeff Broker, Sean Thompson, Roy Knickman, Craig Griffin, Sharon McDowell, Cindy Whitehead, and Al Gandolfi.

In 2000, USA Cycling revisited the competency issue and gathered the material from the above committee. Information from other cycling organizations such as the Canada Cycling Association as well as other sports such as skiing, tennis and swimming were used to develop a second draft. This second draft was circulated within USA Cycling for comment, review and editing in November 2000. The panel for this review included the National Team coaching staff at the time Des Dickie, Jeff Mace, Craig Griffin, Matt Cramer, Stephane Girard along with Steve Johnson, COO USA Cycling and Sean Petty, Director of Athlete Performance.

Upon completion of the internal review, a third draft was circulated to several coaches and scientists outside of USA Cycling for comment. This review panel consisted of Andrew Coggan, Erik Moen, Al Gandolfi, and Barney King. Following input from this group, changes were made to the document to create a fourth draft.

Following discussion of the fourth draft internally with Sean Petty, Sam Callan and Steve Johnson, the document was sent to the people listed below in late February 2001 for final review before being released to the public. The final review committee consisted of the following coaches and scientists (many of whom are, or were, also competitive cyclists):

Jeff Broker, Ph.D.
Ed Burke, Ph.D.
Chris Carr, Ph.D.
Andrew Coggan, Ph.D.
Matt Cramer
John Crawley, M.S.
Andrew Doyle, Ph.D.
Renee Duprel
Mark Fasczewski
Al Gandolfi
Stephane Girard
Dean Golich
Craig Griffin
Gil Hatton

Mike Heitz
Barney King
Allen Lim, Ph.D.
Sharon McDowell-Larsen, Ph.D.
Erik Moen, PT
Suzie Tuffey, Ph.D.
Danny Van Haute

USA Cycling appreciates the feedback and information provided by the above group. Without their input the document would not have been completed in a timely manner, nor would it have the depth it has.

The competency statement is not intended to be the final word in developing a successful cyclist. USA Cycling recognizes that the document is a dynamic one that will be improved upon with suggestions from coaches "in the field"; however, USA Cycling believes that it is a step in the right direction.

Feedback from coaches utilizing this document will be invaluable. Please direct feedback on the competency statement to coaches@usacycling.org or send comments to:

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Introduction

When an athlete steps onto the podium for a win, it is the culmination of a long road of development that probably began before the athlete took up the sport. Athlete development is a long process that begins early in life and encompasses physical and psychological development. During development, the athlete improves and refines skills and abilities built upon previous mastery of skills and abilities in the same way a baby crawls before it walks and walks before it runs.

USA Cycling has undertaken an effort to define and outline the skills and abilities a cyclist should develop and a time line for learning these skills. The ultimate goal is to have the cyclist move along this track to optimize his/her potential. The competencies include physical, mental, technical and tactical skills relating directly to performance. Other competencies such as health issues and dealing with the media and sponsors are also included since those are important skills for a bike racer to develop. It is understood that cyclists will progress at different rates and that the feedback to the athlete will be valuable in developing a lesson plan for an athlete. Some athletes will develop in some areas faster than other areas.

USA Cycling believes that to develop a strong pipeline of athletes it is necessary to identify the steps of development so that a cyclist can follow a road map. During development, the skills of one level should be mastered before the skills of the next level are tackled. USA Cycling recognizes that athletes will come to the sport at various ages, but this does not mean that the athlete should jump right into the competencies for that age group. Such a move would be akin to taking a first grader and putting her in a calculus class—without the background in algebra and mathematics the student will not succeed. The competencies of the athlete should begin at the lowest level and progress according to mastery of the competencies.

Too often, success is measured by race results alone. We have seen instances where young athletes are able to win simply because of advanced physical maturity; however, once the other athletes catch up with physically, the athlete is no longer winning and has not developed the competencies to make the move to the next level. By building on a base and having markers for skills, the athlete can progress and not have to play "catch up" later. Rankings and results may be useful in seeding athletes, but they are not reliable indicators of skill mastery.

The concept of competency

While an athlete should strive to master a skill, mastery is not needed for competency to be achieved. Competency implies proficiency and the precise use of a skill. Before an athlete can develop more refined skills, the athlete must have competence in the underlying basic skills. For a cyclist to be able to ride a pace line or in a peloton, the cyclist must develop basic bike handling skills.

The skills and abilities in this document identify behaviors and skills that cyclists should possess in order to progress to the highest levels of cycling achievement. By the age of 18, a cyclist should have developed competency in all the areas listed for that age level. While an athlete can struggle with a skill and be successful (no one expects anyone to master all the skills needed to be a successful cyclist), failure to achieve competency in several areas will limit the progress or make the cyclist one-dimensional.

The proposed sequence presented in this document is designed to mirror the physical, mental and maturation process of the athlete. Attaining the requisite level of competence and mastering some skills must occur before progressing to the next level or skill group. The ages given for development in this document are approximate and may vary by as much as two years. The relationships between chronological, biological and training age are approximate. We have all seen 14 years old who physically appear to be 16 years old; we also know that emotionally and mentally some 16 year old riders are more like 14 year olds. Additionally, the training age can play a factor: How many years has the athlete been training and how many years has the athlete been training specifically for cycling? A 15 year old just beginning a cycling career may not have learned to ride a pace line while a 13 year who has been training for a year can ride a pace line with competence. It is critical to have the athlete develop the base of skills before progressing to higher, more difficult skills.

Domains of competence for cycling success

Domains are areas of skill, ability, behavior or knowledge necessary for success in cycling. The general domains for cycling are:

- Physical/physiological preparation
- Training/competition behaviors
- Psychological/emotional/social behaviors
- Technical
- Tactical
- Equipment knowledge

Within each domain are specific aspects that need to be met to achieve competency.

Each domain is indispensable in the preparation of the cyclist and relates to performance.

1. The Physical/physiological preparation domain is critical since elite performance demands a foundation of fitness, endurance, strength and power. Also included in this domain are the requisite motor skills. The preparation and progression is age appropriate and includes achieving competency in previous physical development.
2. The Training and Competition domain describes the skills needed in planning training loads, training programs and competition schedules. Periodized training is emphasized. Competition is incorporated into the training plan to increase or decrease training loads according to the athlete's goals.
3. The Psychological/emotional/social behavior domain reflects the social process in development. A person develops within an environment of stable and sound relationships with family and friends. An athlete is no different with coaches and training partners added to the support environment. High level performance includes a mental skills component with specific performance enhancing skills. Many of these skills can be introduced at an early age and developed as the athlete develops. The skills may become more complex as the athlete develops and become more critical to success.
4. The Technical domain includes all aspects of cycling specific demands. Balance, cornering, track stands, descending, etc. are included.
5. The Tactical domain includes developing race strategies for the event or conditions on that course on that day.
6. The Equipment domain reflects that cycling is heavily dependent on equipment that is working properly and well maintained. The athlete should develop competency in selecting equipment especially for different events, demands or courses. Within this domain lies proper maintenance of equipment.

Development

Development is a positive change in the ability of a person over time. Different abilities will develop at different rates. In addition, the rate of development by people of similar ages will vary widely.

Researchers such as Benjamin Bloom, Ph.D. identified three periods of learning that are common in world class performers in the arts and athletics. Phase I, the early years, are characterized by a general introduction to the activity or sport. Phase II takes place during the middle years and are characterized by the development of commitment and improved

skills. Phase III occurs during the later years during which the well-developed skills are utilized to achieve a high level of performance.

Phase I ingrains an appreciation for the sport of cycling and is characterized by an environment of enjoyment, play and gradual learning. Kids like to learn and when they see improvement, they get reinforcement from the improvement itself. The key elements are fun, peer associations, parental support, and the joy of becoming more proficient. Phase I generally begins during early childhood and up to the age of 10.

From the age of 10 to 13, the cyclist and his parents may become more serious about the sport and begin to plan around training and competitions as well as making personal and financial commitments to participate at a higher level. The athlete, hopefully with parental support, will seek more focus in training and competitions.

Phase II occurs between the ages of 13 and 18 and is characterized by more precise development in all domains of performance. At the end of this phase, the athlete should demonstrate a high degree of competency in skills and performance behavior. Competency can only be achieved if prerequisite basic skills have already been acquired. Athletes entering the sport late in this phase may not have enough time to develop the skills needed to integrate into performance. However, athletes coming from other sports may have developed many of the skills and physical capabilities needed to succeed in cycling. Skill development should not overshadow the enjoyment of the sport.

Phase III is maturity and is devoted to mastery and the personalization of the sport not present until that time. To accomplish this phase basic sport skills must be established and automatic.

Skill development is a dynamic process where skill acquisition occurs in spurts, leaps, spikes and plateaus. An athlete might reach a skill level and then plateau for a long period until another burst of development takes place. Young athletes who undergo a growth spurt might go through a stage of awkwardness until motor coordination “catches up” with the growth spurt. Despite these jumps and plateaus, the general trend should be improvement.

Development also involves motor control and movement. Within these systems are subsystems of the individual athlete, the learning or performance environment, and the task. These subsystems interact and influence one another. Since they are linked, they should be considered together.

Development must include physical, psychological, tactical and technical aspects of cycling. Athletes should start with fundamentals and focus on cultivating a love of the sport and move toward specialization later in the process after exposure to the different disciplines within cycling.

The following age categories should be used as guidelines only. As mentioned before, some athletes will develop in some areas at a faster rate than in other areas.

Ethical Considerations

USA Cycling believes that athletes should train and compete according to the rules and ethics of sport. Athletes should abide by all the rules of USA Cycling, the UCI, or the United States Olympic Committee depending on jurisdiction. USA Cycling believes that athletes should avoid the use of banned substances to prevent potential health risks and to abide by the purest rules of sport. An athlete who competes and trains "clean" knows that his/her success comes from preparation, tactics and teamwork rather than something that comes in a pill or needle.

Implementing Competencies

This document seeks to layout the skills that are needed to be a successful cyclist. Athletes come to cycling at various ages and ability levels. In many cases, an athlete might begin competitive cycling at age 11 or 12 while others will not begin until age 20 and others after 30. These competencies in many cases are not age specific; however, in an attempt to develop an athlete pipeline, USA Cycling has assigned ages to many of the developmental phases in order to assist coaches working with young athletes. For coaches working with athletes entering the sport later in life, all competencies should be addressed. For instance, a female cyclist may not begin the sport until age 20 when she is in college. A coach working with her would want to review the competencies in Phase I and teach those skills. However, some psychological issues or competencies might not be valid for that athlete.

Those who are not coaches are encouraged to seek out a USA Cycling licensed coach to work with the athlete in developing many of these areas. USA Cycling licensed coaches will probably need to seek outside materials and assistance in implementing some competencies. For instance, in the areas of sport psychology, a coach would want to seek out a psychologist who could assist him/her with the development of this area. USA Cycling will offer materials to support the competencies over the next few years.

Pre-Competition Phase

While the name of this phase implies that no competition takes place, it is understood that athletes will compete. **However, the focus in the phase should be on the fun and enjoyment of cycling with teaching basic skills and general fitness as the key components**. Typically, athletes in this phase sould be exposed to all the disciplines of cycling for overall development. The focus should be on exposure to the sport and general fitness in all areas to develop general skills and some competition. In terms of chronological age, athletes 15 and under should be considered for the Pre-Competition phase. In terms of athletes who start cycling later in life, this could be considered the first 2 years of cycling experience. Many of the competencies in the pre-competition phase could be associated with USCF Cat 4 and 5 riders and NORBA Beginner level riders. For athletes coming from other sports later in life, some of the conditioning and training could be increased in terms of volume or intensity to match their ability levels.

General Conditioning and Fitness

- Focus on overall development
- Focus on fun rather than high intensity workouts
- Focus on aerobic conditioning
- Participate in other sports to aid in conditioning, especially during off season
- Understands the importance of good flexibility
- Demonstrate proper stretching technique
- Stretch at each workout session
- Learn to ride at a steady pace
- Demonstrates and practices proper weight lifting technique
- Begin weight training with low resistance or body weight*
- Develop leg speed with small gears
- Total training volume 8 –10 hours or less
  - Club rides of 2 hours or less

Training Knowledge

- Understands that a training plan is systematic (periodized)
- Understands the basic principles of periodization
- Understands intensity and recovery
- Understand the difference between “hard” and “easy” days
- Understands the importance of rest
- Begins to understand the relationship between training programs and maturation and development
- Understands the importance of a proper warm up
- Develops a warm up plan for training and competition
- Understands general relationship between HR and intensity

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* Before beginning any strength or resistance training program, please have the athlete consult a physician to determine the athlete’s Tanner age. The Tanner system is designed to assess the physical maturity of the person and has specific traits for each stage. It is recommended that a person not begin a weight training program until Tanner stage 5.

- Understands USA Cycling heart rate training zones
- Adjusts intensity as needed
- Knows basic strength training terminology
- Understands the basic components of a training session
  - Warm up and stretching
  - Review of previously learned skills
  - Learning new skills
  - Practicing new skills
  - Training
  - Cool down and stretching

Psychology

- Develops basic patterns for success in sports and life
- Has fun
- Creates a positive athletic lifestyle
- Develops social skills through cycling
- Balances school and co-curricular activities
- Understands the difference in tense and relaxed muscles
- Performs basic visualization skills
- Expresses individual personality
- Focuses on being an individual and avoid comparisons with others
- Builds honesty, trust and integrity in dealing with others
- Understands that mistakes are a part of sports
- Focuses on things within the athlete's control such as giving a 100% effort
- Keeps competition in proper perspective
- Accepts defeat and learns from it
- Describes relationship between nervousness and performance
- Understands the relationship between relaxation and performance
- Begins developing positive mental attitude
- Understands difference between positive self-talk and attempts to keep self-talk positive
- Is not affected by the misbehavior of others
- Develops a pre-race routine of positive habits
- Develops sound training habits for sound race preparation
- Develops one or two specific cues to help concentration and focus
- Controls arousal level to focus on task
- Successfully participates in group relaxation exercises
- Describes age appropriate perceptions and feelings
- Forms visual images to practice suggested outcomes
- Exhibits a sense of group belonging
- Actively attempts to improve and learn
- Uses imagery with coach in skill acquisition and performance preview/review
- Knows when to use imagery
- Can repeat instructions and translate them into correct actions
- Focuses on task at hand
- Contributes appropriately to team meetings or coach meetings

Comment [SC1]: Not athlete related (re: ST)

- Performs progressive relaxation exercises

Goal Setting

- Understands Goal Setting
- Understands the concept of a dream goal
- Develops measurable and specific goals with a time frame
- Develops short-term, intermediate and long term goals
  - Short term goals 1-3 months
  - Intermediate goals 4-6 months
  - Long term goals 1 year
- Understands that outcome is not always the best measure of a goal
- Develops some goals that are outcome goals such as rankings or titles
- Reviews goals with coach on a frequent basis
- Develop goals based on identified weaknesses
- States 3 desires of participation in cycling, accomplishments or outcomes
- Can differentiate between process (performance) and outcome

Health and Safety

- Develop healthy and safe lifestyle
- Always wears a helmet in training and racing
- Avoids use of non-prescription and banned drugs
- Knows in general which drugs are banned
- Understands harmful effects of banned substances
- Practices preventative medicine such as wearing sunscreen or taking medications
- Understands the difference between soreness pain and injury pain
- Has adequate range of motion (ROM) for all joints
- Can recognize potentially dangerous situations
- Understands the concept of Rest, Ice, Compression, Elevation (RICE)
- Undergoes regular health and dental check ups
- Maintains file of health records
- Communicates honestly about possible injuries with parents, coaches and medical personnel
- Recognizes the importance of medical clearance before returning to training following an injury or illness
- Follows medical instructions for illness or injury
- Demonstrates proper safety signals when riding in traffic
- Obeys all traffic laws
- Understands clothing selection for weather conditions and the impact of proper clothing
- Recognizes that food is the energy source for the body
- Eats an athlete friendly diet (high carbohydrate, moderate protein and low fat)
- Understands that poor diet can adversely affect performance
- Knows difference between healthful and unhealthful foods
- Makes wise decisions about pre, during and post race training foods
- Understands the importance of proper hydration during training, competition and rest

- Demonstrates the ability to remain properly hydrated

Monitoring Training

- Develops methods to monitor training
- Keeps a training diary
- Understands the importance of a training log
- Understands the use of heart rate monitors or other technology
- Keeps medical records to assist in monitoring of training and health

Competition

- Knows and abides by rules
- Is familiar with the patterns and general strategy of the event
- Develops proper warm up pattern for the event
- Competes in age appropriate races
- Competes in quantity of events for age and development
- Participates in competitions for the purpose of skill development
- Participates in all events (track, off road, road, etc.) offered for age group
- Understands basic format for each event entered
- Understands basic tactics for each event entered
- Trains using race situations
- Can describe the course after training rides or races

Conduct

- Is punctual for all training sessions and competitions
- Has the necessary equipment for the training session or competition
- All equipment is in proper working order
- Understands being part of a team and how his/her actions and behaviors can affect others
- Listens to recommendations from coach and makes appropriate changes
- Understands team rules and abides by them
- Attentive during teaching from coach
- Stops misbehavior when asked
- Demonstrates good sportsmanship
- Confronts teammates for misbehavior
- Takes increasing responsibility for attendance, preparation and performance
- Develops on going communication with coach
- Demonstrates good time management skills
- Demonstrates good personal organization
- Respects opponents, coaches, officials and teammates
- Contributes to group activities in a positive manner
- Participates in a variety of social, educational and athletic activities
- Cooperates with others

Media Skills

- Recognizes the importance of developing positive relationship with the media
- Thinks about how the statements will be received before speaking
- Speaks positively of competitors during interviews
- Displays sponsor logos prominently
- Mentions sponsors whenever appropriate
- Writes thank you notes to sponsors
- Cleans up and puts on fresh jersey or jacket (with sponsor logos) before media or podium presentation
- Able to make eye contact with interviewer or crowd
- Interacts positively with sponsors, media and fans
- Recognizes effects of poor communication

General Technical Skills

- Focuses on skill development and relaxation
- Develops basic skills needed for cycling
- Correct bike fit and position
- Basics of the pedal stroke and proper pedaling mechanics
- Demonstrates proper mounting and dismounting of bike
- Demonstrates balancing on bike
- Demonstrates proper out of saddle riding technique
- Knowledgeable of gears and gear selection based on event, course, etc
- Develops gear shifting skills
- Demonstrates ability to ride safely in an aerodynamic position
- Demonstrates ability to ride in a peloton or group
- Demonstrates riding a straight line
- Demonstrates proper cornering techniques
- Demonstrates balance when looking over either shoulder or behind them
- Practices proper falling technique through training on mats or grassy surface to reduce injury risk
- Demonstrates ability to use front and rear brakes properly
- Understands the effects of using the front or rear brakes (or both)
- Demonstrates emergency braking methods
- Participates in touching drills with a partner
- Participates in bumping drills with a partner
- Participates in small group pace lines and echelons
- Performs a pace line ride with at least 5 riders
- Participates in 2x2 riding
- Demonstrates ability to ride with no hands in a controlled manner
- Demonstrates proper mass start clip in technique
- Demonstrates proper standing start
- Demonstrates safe drafting technique
- Demonstrates drinking from water bottle and hydration system while riding
- Demonstrates eating while riding
- Demonstrates basic cleaning and bike repairs

- Demonstrates getting a wheel change from neutral support

Discipline specific competencies

Road

Tactics

- Understands basic team concepts and tactics
- Understands how to assist teammates
- Understands how to utilize teammates
- Maintains contact with peloton
- Stays close to front of peloton

Time Trial

Tactics

- Rides solo

Cross country mountain bike

Tactics

- Always finishes races

Technical

- Demonstrates balance through weight shifting
- Demonstrates knowledge of dismount/remount where required
- Demonstrates lifting bike over obstacles
- Develops technique to ride varied terrain within abilities

Downhill

Technical

- Understands bike/person interaction
- Develops technique to ride varied terrain within abilities
- Learns to dismount/remount where required
- Demonstrates ability to carry bike where necessary

Endurance track

- Understands and demonstrates track etiquette
- Knows what each of the painted lines on the track means

Technical

- Demonstrates ability to maneuver over entire track at all speeds
- Demonstrates ability to maintain a steady speed
- Demonstrates agility by pedaling at 135 rpm for 5 minutes within bouncing in saddle
- Demonstrates ability to accomplish a start using correct form

Sprint track

- Understands and demonstrates track etiquette
- Knows what each of the painted lines on the track means

Technical

- Demonstrates proper starting gate technique
- Demonstrates ability to maneuver over entire track at all speeds
- Demonstrates smooth start with shoulders square to the direction of travel
- Demonstrates proper start position of crank (2 o'clock position for right leg or 11 o'clock for left leg --depending on preferred leg)
- Demonstrates ability to maintain a steady speed

Early Competition Phase

This phase covers the ages of 16 to 18 years of age or those who have been cycling for more than 2 years. Many of the competencies in this phase could be associated with USCF Cat 3 and NORBA Sport level riders. During this phase, competition becomes a greater focus of the cyclist's life. During this phase, athletes should continue to participate in all disciplines. Near the end of this phase, the cyclist should begin to specialize in terms of discipline and events. However, training and participating in other disciplines should continue to be integrated into the training and racing program. Endurance track racers and cross country mountain bike racers should continue to train on the road and participate in some road racing to enhance fitness.

General Conditioning and Fitness

- Applies the principle of periodization to fitness program
- Develops training plan that identifies important races and allows for proper preparation, taper, and recovery and an in season rest/recovery period
- Participates in other sports but has an in season focus on cycling
- Develops aerobic base for endurance disciplines
- Improves sprint abilities
- Develops anaerobic power for events
- Incorporates strength training into training cycle
- Demonstrates proper lifting techniques for free weights and machine weights
- Incorporates a flexibility program in training
- Training volume 12 –16 hours per week
  - Training includes structured and unstructured intervals
  - Incorporates LT workouts as race pace workouts once per week during proper training period
  - Increases intensity workouts to 2 per week at age 17-18
  - Starts LT as "race pace workouts 1x/week during proper training period
  - Training volume up to 12 hr/week for ages 15-16;
    - 2 long group rides: 1.5 to 2.5 hours. 1 race pace workout, 2 technical workouts for off road (one single track, 1 OT or BMX)
  - Starts racing at 15 in Junior Olympic races
  - Attends USA Cycling development camps
  - Races cyclocross and road
  - Learns to work with mechanic in explaining what is not working
  - Training volume of up to 16 hr/week for 17-18 year old riders

- Typical 17-18 endurance schedule (total not to exceed 16 hours): 2 long group rides (2-4 hours); 1-2 LT/VO2 workouts (one can be a race); 1 gym workout; 1 race (CX, road)

Training Knowledge

- Develops periodized year round training plan for physical, psychological, technique and strategy
- Chooses "peaking" events and schedules training and other racing accordingly
- Develops the ability to ride at an even pace
- Understands the terms:
  - Overload
  - Recovery
  - Rest interval
  - Anaerobic power
  - Anaerobic capacity
  - Aerobic power
  - Work interval intensity
  - Work interval duration
  - Rest interval intensity
  - Rest interval duration
  - Sets
  - Repetitions
  - Work:rest ratio
- Understands potential for injury reduction through strength training
- Understands the importance of weight training
- Introduces low impact plyometrics at age 17
- Understands the concept of overreaching
- Understands the concept of overtraining and recognizes common overtraining signs
- Demonstrates ability to alter training plan to avoid overtraining
- Understands how training changes through the phases of periodization
- Demonstrates proper post-training and post-race recovery
- Understands the importance of physiological markers and their impact on training and performance
- Participates in laboratory testing for physiological markers where available
- Works closely with coach to develop training plan (increasing athlete input as the athlete matures)
- Can explain the differences between aerobic and anaerobic energy systems
- Knows major muscle groups involved in cycling
- Understands the terms:
  - Adaptation
  - Hypertrophy
  - Calculated 1 RM
  - % 1 RM
- Understands impact of weather and terrain on daily training loads or pace
- Recognizes that training increases energy (food) demands
- Can identify training sets and energy system that is trained

- Develops off season training plan to include rollers, strength training and some cross training
- Devotes appropriate time to strength development as well as weakness improvement

Psychology

- Controls breathing patterns at difficult times
- Recognizes that chance of success is improved through adherence to training program
- Understands the use of imagery and breathing regulation to calm the mind and body
- Demonstrates ability to use imagery and breathing regulation to calm the mind and body
- Incorporates relaxation techniques in daily activities
- Refines pre-race routine or plan
- Incorporates relaxation techniques into pre-race program
- Organizes stress free environments before and after races
- Develops methods for dealing with unforeseen events during racing or training
- Identifies and uses attentional cues in training and competition
- Has elemental fear coping skills
- Uses mental skills to enhance and/or facilitate quality of training
- Consistently uses positive self-talk
- Develops mental skills on race focus
- Understands individual commitment to sport
- Recognizes psychological markers of overtraining
- Develops courage to face difficult tasks or challenges
- Develops balance between training, school and other obligations
- Accepts responsibility for actions and outcomes
- Demonstrates ability to accept constructive criticism
- Develops intrinsic motivation
- Understands Optimal Mental and Physical State and how to get into that state
- Communicates with mechanic about bike issues
- Tolerates discomfort in training
- Assesses strengths and weaknesses of competitors and self during competition and training
- Reframes situations of perceived pressure in a more relaxed manner
- Understands how negative talk can affect self-esteem
- Develops strategies for dealing with peer pressure
- Demonstrates intrinsic motivation by showing intensity in training and being attentive during training
- Imagery becomes more developed
- Performs progressive relaxation exercises

Goal Setting

- Sets a goal for each training session
- Devises a plan to meet each goal
- Develops outcome or performance goals but understand that these goals are not always within the control of the athlete
- Sets goals for all areas (technical, fitness, psychological, etc)

- Sets some outcome based goals

Health and Safety

- Incorporates healthy lifestyle into daily activities
- Knows 5 Levels of Pain
- Understands the difference between an acute and chronic injuries
- Recognizes injuries and their importance
- Demonstrates ability to follow self-management of acute injuries
- Demonstrates the ability to care for minor cuts, abrasions, saddle sores, etc.
- Understands the importance of injury rehabilitation
- Recognizes situations that might lead to over use injuries or chronic pain
- Participates (when necessary) in an injury rehabilitation program under the supervision of a medical professional (doctor, physical therapist, etc.)
- Understands basic nutrition (carbohydrate, protein and fat) and its relationship to the athletic diet
- Demonstrates the ability to choose a healthy diet
- Makes wise eating decision away from home (especially on foreign soil)
- Demonstrates the ability to choose appropriate training ride and race foods
- Demonstrates the ability to choose proper post-training and post-racing foods
- Recognizes that training places an increased demand on energy intake
- Understands the use of nutritional supplements and which ones are beneficial
- Understands the use and limitations of supplements
- Understands the differences between: water, sport drinks and recovery drinks
- Recognizes the signs of an eating disorder

Monitoring Training

- Increases detail in training log
- Makes note of overtraining signs and symptoms
- Records lab test results
- Includes imagery in training log

Competition

- Plans competitions to fit into schedule
- Develops race plan for breakaways, attacks, sprints, etc
- Develops ability to evaluate race afterwards and adjust goals based on evaluation
- Demonstrates adjustment in tactics in a dynamic situation
- Analyzes tactics and strategy for strengths and weaknesses
- Plans a strategy for a race with coach
- Takes advantage of mental lapses by opponents
- Uses course profile and position to gain tactical advantage
- Abides by all rules

Conduct

- Becomes an ambassador for the sport
- Understands and participates in all drug testing procedures as required
- Can name all categories of banned substances

- Accepts role model and leadership responsibilities

Media Skills

- Recognizes appropriate and inappropriate statements
- Demonstrates the ability to speak clearly and answer questions in complete sentences
- Answers questions in clear, coherent and concise manner
- Awareness that the athlete represents not only him/herself but the family, team, sport and country
- Wears team/sponsor clothing for media and at media opportunities
- Represents team/sponsors in a positive manner
- Writes an effective press release
- Demonstrates ability to give a post-race speech to a crowd after a win or a loss
- Thanks sponsors, race director, staff and volunteers after a race
- Recognizes that nothing is really "off the record"
- Recognizes that personal questions do not have to be answered
- Verbalizes about cycling in general terms
- Projects positive attitude about racing and training
- Demonstrates ability to speak publicly: posture, eye contact, speak clear and succinct
- Understands importance of personal appearance and dress at all times

General Technical Skills

- Demonstrates proper feed zone technique
- Demonstrates proper selection of clothing for weather conditions
- Understands the components of the bike and their function
- Demonstrates ability to ride a pace line with 10 riders
- Demonstrates ability to ride single and double echelons with proper rotation
- Identifies proper bike fit
- Demonstrates climbing skills and posture
- Demonstrates descending skills and posture
- Demonstrates a safe aero position
- Demonstrates "bunny hop" position and technique
- Demonstrates high speed cornering
- Improves proper sprint technique
- Continues to improve fundamentals
- Rides in larger packs
- Identifies strengths and weaknesses
- Uses drills to improve technical weaknesses

Discipline specific skills

Road

- Understands role within team

Technical

- Demonstrates proper lead outs and blocking
- Demonstrates proper posture for sprint, climb and descent

Tactical

- Understands basics of breaks
- Understands basics of how to attack to gain time on a race leader or to assist a teammate
- Understands how to neutralize the attack of an opponent
- Finds proper position in pack based on wind and speed
- Identifies where to attack to get a gap
- Knows where to work and where not to work in a race

Time Trial

Technical

- Demonstrates proper start technique
- Demonstrates shifting gears and braking from aero position
- Demonstrates proper turn around

Tactical

- Establishes race pace based on heart rate, speed, gearing, cadence or effort
- Adjusts tactics for weather, course or athlete strengths

Cross country mountain bike

Technical

- Improves skills over rough terrain
- Improves speed of dismounts and remounts
- Rides over obstacles while maintaining control
- Maintains technique when fatigued
- Improves speed of on course repairs (fixing a chain, changing a flat, etc)
- Improves speed and technique on rocks, roots, drop-off, uphill and downhill switchbacks
- Uses BMX and Observed Trials to develop balance and jumping skills

Tactical

- Improves start to get good position early
- Understands how to improve your position in a race based on knowledge of strengths
- Learns where to drink on course
- Watches and anticipates course changes

Downhill

- Begins to visualize the more technical areas of the course
- Memorizes terrain, lines: walk course for improved memorization
- Finds challenging terrain
- Demonstrates basic brake adjustment
- Uses track sprint and sprinting to improve power
- Describes how bike “feels”

- Explains to mechanic what is not working
- Demonstrates proper tire selection and pressure based on conditions and abilities
- Switches to higher intensity training: VO_2 and anaerobic workouts
- Weight training: circuit and classic
- On bike training becomes more specific and more time is spent on DH bike
- Volume: up to 16 hours/week (example below)
  - 1-2 endurance rides per week (1.5 to 2.0 hours)
  - 2-3 VO2, anaerobic or sprint workouts: 2 specific and 1 general (on road)
  - 2-3 technical workouts

Technical

- Understands that technique is a key to success
- Improves lines through the course
- Adjusts equipment for course and conditions
- Rides over obstacles and maintain control
- Work on technique on rocks, roots, drop-off, uphill and downhill switchbacks)
- Uses BMX and Observed Trials to develop balance and jumping skills and for technique development

Endurance track

- Training capacity 15 to 16 years old: Males 14 hr/week; Females 11 hr/week
- Training capacity 17 to 18 years old: Males 16 hr/week; Female 14 hr/week
- Rides a schedule within 0.3 seconds per lap

Technical

- Demonstrates proper start technique including blocks
- Demonstrates ability to start and accelerate to desired speed
- Improves all track skills
- Develops ability to ride a smooth line on track
- Demonstrates timing and coordination when executing sprints
- Demonstrates agility by riding at 135 rpm for 7 minutes without bouncing in saddle

Tactical

- Understands scoring system for races
- Assesses scoring system (points race) during race
- Understands and determines pace schedule based on ability and climatic conditions
- Adjusts to feedback and applies strategies as race develops

- TEAM PURSUIT
  - See skills for endurance track
  - Understands and determines pace schedule based on self, teammates and climatic conditions
  - Communicates effectively with teammates during training and competition

Sprint track

Technical

- Demonstrates ability to ride comfortably at top of the banking
- Demonstrates ability to sprint out of the saddle in the banking
- Demonstrates jumping and sprinting with other riders
- Demonstrates proper leading out for a sprint
- Demonstrates proper technique for coming off a wheel in a sprint

Late Competition Phase

The Late Competition Phase begins at age 18 or after 4 years of cycling. The competencies of this section could be applied to USCF Cat 1, 2 and Pro and NORBA Expert riders. The focus in this phase is preparing the athlete for top level competition nationally and internationally. Many of the skills developed in this phase are aimed at making bicycle racing a key component of the athlete's life, and in the cases of the top younger riders, development must continue toward a long-term professional career.

General Conditioning and Fitness

- Begins specialization with training focus on primary event(s)
- Structures training for all energy systems
- Conducts proper warm up, cool down and flexibility programs
- Understands the adverse effects of significant weight loss or gain on training and performance
- Cross trains during off season (including rollers)
- Demonstrates ability to ride for 5 to 7 hours for endurance athletes
- Total volume for endurance athletes: 15-30 hours/week

Training Knowledge

- Participates in regular laboratory based testing
- Understands results and meaning of test results
- Understands impact of blood parameters on training and performance
- Uses test results to adjust training zones and loads
- Understands the different body speeds as they relate to training zones
- Understands how to use power measuring devices (PowerTap, SRM) in training
- Refines training to optimize general training and event specific training
- Adjusts training for injury or illness
- Periodizes training to include schedule of training, recovery and racing
- Periodizes training to include strength training

Psychology

- Winning excellence as a goal becomes more important
- Athlete is 100% dedicated to the sport
- Demonstrates self-reliance and autonomy
- Demonstrates ability to think independently
- Continues to develop good relations with coaches and teammates
- Refines visualization skills for a race from start to finish
- Visualization technique is on "auto-pilot"
- Learns and explores alternative arousal control methods
- Can consistently attain Optimal Mental state prior to competition
- Is able to manage emotions in training and competition
- Implements effective concentration strategies
- Can process and make decisions under stress

Goal Setting

- Sets goals that reflect development in all areas: technique, strategy, tactics, fitness, etc.
- Goals include some outcome goals (such as making a national team or scoring points in a World Cup event)
- Understands that some outcomes are beyond his/her control

Health and Safety

- Participates in regular blood chemistry profiles to assess significant blood factors for health (white cell count, iron, etc)
- Undergoes general physical from physician at least once a year (following season preferably)
- Undergoes medical testing as required by UCI
- Maintains athlete friendly diet
- Undergo annual musculoskeletal by qualifier medical practitioner following the racing season for assessment of range of motion, muscular imbalances, etc.
- Maintains safe riding conditions and follows safety rules

Monitoring Training

- Maintains training diary
- Utilizes technology where possible and practical
  - Heart Rate Monitors
  - Power measuring devices (PowerTap®, SRM, etc)
  - Computer based training logs

Competition

- Competes in age and level appropriate races
- Finishes NRC and UCI races
- Demonstrates ability to evaluate race and adjust strategy accordingly
- Conducts post race self-evaluation of tactics
- Ability to map out a pre-race strategy
- Maintains mental focus to take advantage of opponents' mental lapses
- Avoids medications with banned substances

Conduct

- Understands demands placed upon him/her by sponsors

Media Skills

- Improves on previous competencies

General Technical Skills

- Continues to develop general bike handling skills at faster speeds
- Refines aerodynamic positioning
- Refines pace for training and racing to meet demands
- Refines gear selection for demands of the event
- Chooses equipment to meet event, venue and course demands

- Includes event specific skills

Discipline specific skills

Road

Tactical

- Develops more complex team tactics
- Develops patience
- Demonstrates ability to read the race constantly
- Refines role within the team framework
- Develops strategies for conserving energy
- Develops tactics to limit losses in stage race

Technical

- Improves cornering at high speeds
- Improves descending at high speeds
- Improves sprint with lead out
- Improves ability to lead out a sprinter
- Refines pack riding, echelon and pace line at high speed
- Improves wheel/bike changes

Time Trial

- Refines sense of pace as high as possible
- Chooses equipment appropriate to course and strengths
- Refines training to meet course demands

Cross country mountain bike

Tactical

- Understands the importance of a good start
- Establishes position near front early
- Refines ability to know competition and alter strategy as needed
- Makes decisions when fatigued during race
- Refines ability to make tactical adjustments during the race

Technical

- Refines ability to adapt to changing conditions
- Refines descending skills
- Refines climbing skills
- Refines technical skills at higher speeds
- Minimizes technical deficiencies
- Optimizes technical strengths
- Anticipates courses changes
- Learns how to select tires for course conditions
- Learns how to adjust suspension for course conditions

Downhill

- Intervals: general or specific

Tactical

- Refines pre-race planning based on course and athlete strengths
- Refines visualization skills for mental practice runs
- Pushes the limits

Technical

- Proper equipment selection and adjustment for course demands
- Refines technical skills at high speed
- Able to transition from technical sections to acceleration
- Trains to improve speed and efficiency with skills
- Develops lines in race
- Better rider-bike interaction
- Improves tire choice based on conditions
- Improves suspension adjustment based on conditions
- Learns to adjust bike geometry for course

Endurance track

Tactical

- Continues to develop tactics
- Develops pre-race tactics based on strengths and weaknesses
- Develops ability to assess race situations constantly
- Monitors points or position closely
- Develops ability to think and make decisions when fatigued
-

Technical

- Ability to position or maintain position in a pack
- Improves exchanges in TP and Madison at high speed
- Rides 130 rpm in aerodynamic position for 10 minutes

Sprint track

Tactical

- Refines tactics based on strengths

Technical

- Refines start

Five Levels of Pain (from US Tennis)

ONE	Discomfort or mild pain but resolves with warm up or continued training
TWO	Mild pain during training not resolved with warm up or training that resolves within 24 hours
THREE	Mild to moderate pain during and after training that continues for 48+ hours
FOUR	Mild to moderate pain that continues during and after training and does not respond to specific warm up activities
FIVE	Moderate to severe pain that impairs training or impairs technique

Basic Strength Training Terminology[1]

Strength: the force a muscle or muscle group can apply against a resistance.

Repetition: the number of work intervals in a set

Set: the total number of repetitions performed before taking a rest interval.

Rest interval: the amount of time of recovery during exercise.

One Repetition maximum (1RM): the maximal load that a muscle group can lift in one attempt. An alternative is the maximal load that can be lifting in a set number of attempts. In the latter, a 8RM would be the amount of weight that could be lifted 8 times but not a 9th time.

Plyometrics: drills or exercises linking sheer strength and scope of movement to produce an explosive-reactive type of movement. The term often refers to jumping drills and depth jumping, but plyometrics can include any drills or exercises using the stretch reflex to produce an explosive reaction.

Slow twitch fiber: a muscle fiber characterized by slow contraction time, low anaerobic capacity and high aerobic capacity, all making the fiber suited for low power output activities.

Fast twitch fiber: a muscle fiber characterized by fast contraction time, high anaerobic capacity, and low aerobic capacity, all making the fiber suited for high power output activities.

[1] All definitions are from Bompa, Tudor,. Periodization: Theory and Methodology of Training (4th edition). Human Kinetics, Champaign, IL. 1999.