

Peaking for Competitions

A coach or instructor has to plan a peaking strategy so his or her athletes reach their best performance in time for competitions. Taking into consideration the individual characteristics of each athlete, the training conditions, the athlete's motivation, and other factors that influence peaking, the coach or instructor must design a focused program that leads to ultimate performance when it matters most.

Training Conditions for Peaking

Achieving superior athletic performance is the direct outcome of an athlete's adaptation to various types and methods of training. Training is a complex process organized and planned over various phases and implemented sequentially. Throughout these phases of training, and especially during the competitive phase, an athlete reaches certain training states. Peaking for a competition is complex and the athlete cannot realize it on short notice, but attains it in a sequential, cumulative manner. The athlete must make progress through other training states before the state of peaking occurs.

Figure 10.1 displays the evolution of peaking during a monocyclic annual plan. A detailed explanation of each term will bring better understanding of the concept of training states. Degree of training represents the foundation on which to base other training states. As a result of organized and systematic training, the athlete's working capacity, acquisition of skills, and tactical maneuvers all reach high levels. These are reflected through above average results and thus high standards in all tests toward the end of the preparatory phase. An athlete who has reached a high degree of training is, therefore, someone who has achieved a high level of physical preparation and has perfected all the biomotor abilities required by the sport or event. The higher the degree of training, the higher the athlete's effectiveness. When the degree of training is poor, other training states are adversely affected, which lowers the magnitude of athletic shape and, implicitly, peaking. The degree of training may be general, which signifies a high adaptation to different forms of training and specific, meaning that the athlete has adapted to the specific training requirements of a sport. It is on such a solid base or degree of training during the competitive phase that the athlete attains the state of athletic shape. During the competitive phase, athletes are often heard to say that they are in good or bad shape. The state of athletic shape is an extension of the degree of training, during which the athletes may perform and attain results close to their maximum capacity. This paramount training state, which is achieved as a result of specialized training programs, may precede or incorporate the process of peaking for the main competition of the year. The state of athletic shape is the basis from which the athlete initiates peaking.

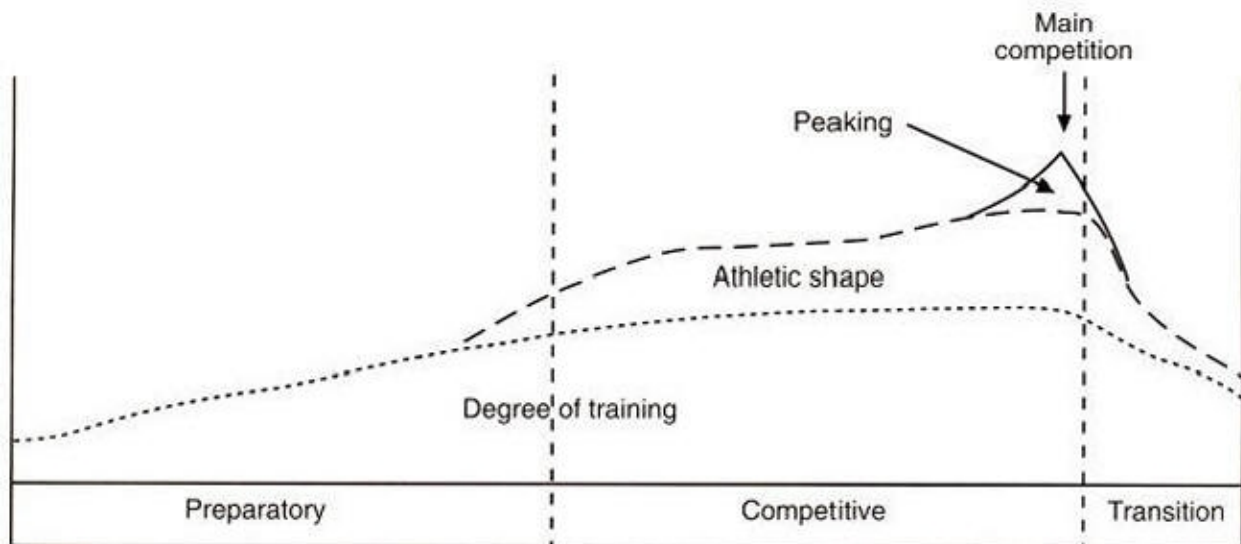


Figure 10.1 Accumulation and elevation of training states throughout training phases in a monocycle

Peaking, as the highlight of athletic shape, results in the athlete's best performance of the year. It is a temporary training state in which physical and psychological efficiencies are maximized and the levels of technical and tactical preparation are optimal. During this state of training, the individual's physiological and anatomical adaptation capacities are also maximum, and neuromuscular coordination is perfect. Peaking is a superior, special biological state characterized by perfect health, an optimal physiological state expressed through quick adaptability to training stimuli, and a good recovery rate following training or competition. The athlete's body reflects a high state of functional synergism (acting together), in which organs and systems channel toward achieving optimum efficiency and the highest possible performance. Concerning the biological characteristics of peaking, they vary according to the specifics of the sport (Table 10.1).

Group of sports	Characteristics
Dominate anaerobic	Capacity to involve all of the athlete's abilities in a short time with a quick recovery
Dominate aerobic	High working capacity based on a high physiological efficiency
Combined-aerobic and anaerobic	Capacity to handle many repeating moments of maximum intensity on the basis of high physiological efficiency

TABLE 10.1 Characteristics of the State of Peaking for Various Groups of Sports

From the psychological point of view, peaking is a state of readiness for action, with an intense emotional arousal (Oxendine 1968). It is also a state of objective and subjective analyzing of all levels of integration and adaptation for the main competition (Serban 1979). The objective aspects of peaking refer to the nervous system's capacity to adapt quickly and effectively to the stress of competition. The subjective aspects, on the other hand, refer to the athlete's self-confidence, level of motivation, and perception of motor and biological synergism.

An important attribute of peaking seems to be the athlete's capacity to tolerate various degrees of frustration that occur before, during, and after competition. To facilitate this, the coach may model many training lessons to create psychological circumstances specific to the main competition. Similarly, taking part in various competitions during the precompetitive and competitive phases enhances the athlete's capacity to cope with frustration. As suggested by figure 10.2, peaking is a special training state characterized by a high CNS adaptation, motor and biological harmony, high motivation, ability to cope with frustration, accepting the implicit risk of competing, and high self-confidence.

Factors Facilitating Peaking

The many complex factors of peaking make it an intricate concept and an ultimate training task. Isolating a singular aspect that would lead to its accomplishment is not possible. You must consider several factors, explained below, and correctly manipulate them to ensure that an athlete is likely to peak adequately for the competition of major interest. It is important to specify that you cannot substitute one factor for another. All factors are essential for optimizing the physical, technical, tactical, and neuropsychological qualities.

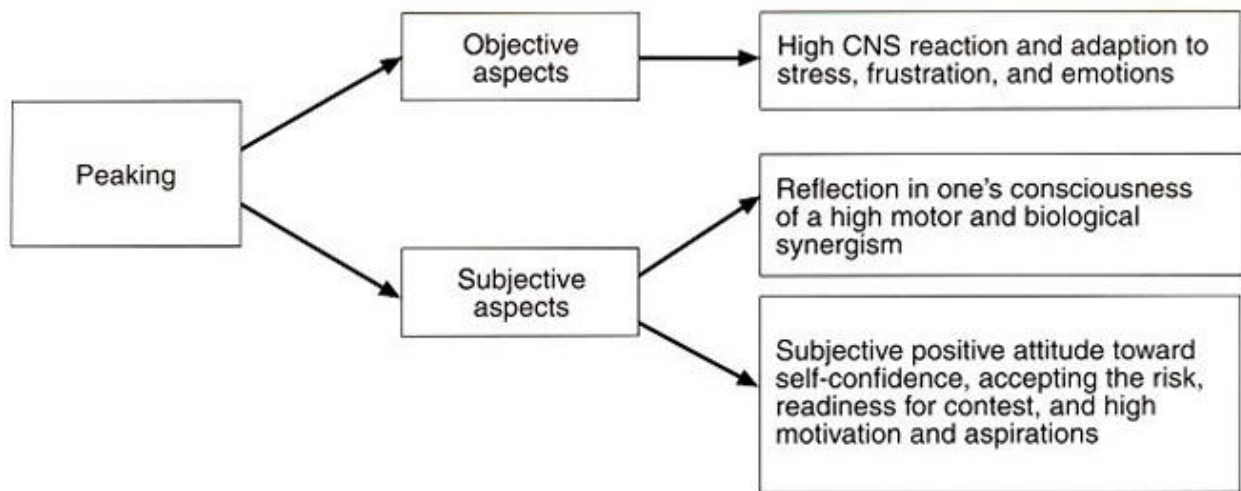


Figure 10.2 Psychological characteristics of peaking

High working potential and **quick recovery** rate are two essential attributes of any athlete who reaches a high training status. An inability to cope with a high volume of work means that high-performance expectations are groundless. Similarly, the athlete's capacity to recover quickly following training symbolizes an optimal adaptability to the specifics of the effort or stimuli in training and competition.

Near-perfect neuromuscular coordination refers strictly to the capacity to perform skills and tactical maneuvers flawlessly, so nothing impairs the performance of a routine or skill. Technical imperfection signifies that a skill was not acquired or automatized properly; therefore the probability of a correct technical and tactical performance is low, which degenerates overall performance.

Supercompensation refers to the effects of work and regeneration on the individual, as a biological foundation for physical and psychological arousal for the main competition of the year. Further information can be found in chapter 1 under training adaptation and detraining.

A correct unloading phase before the main competition of the year is one of the most important factors to facilitate peaking. Manipulating the training volume and intensity is an important training concept that the coach must carefully consider.

Correct unloading is a significant factor for achieving supercompensation before the main competition (figure 10.3). Figure 10.3 illustrates the last five microcycles before the main competition. During the first three cycles, the load in training progressively and carefully increases; whereas during the last two, the coach unloads the program to facilitate supercompensation.

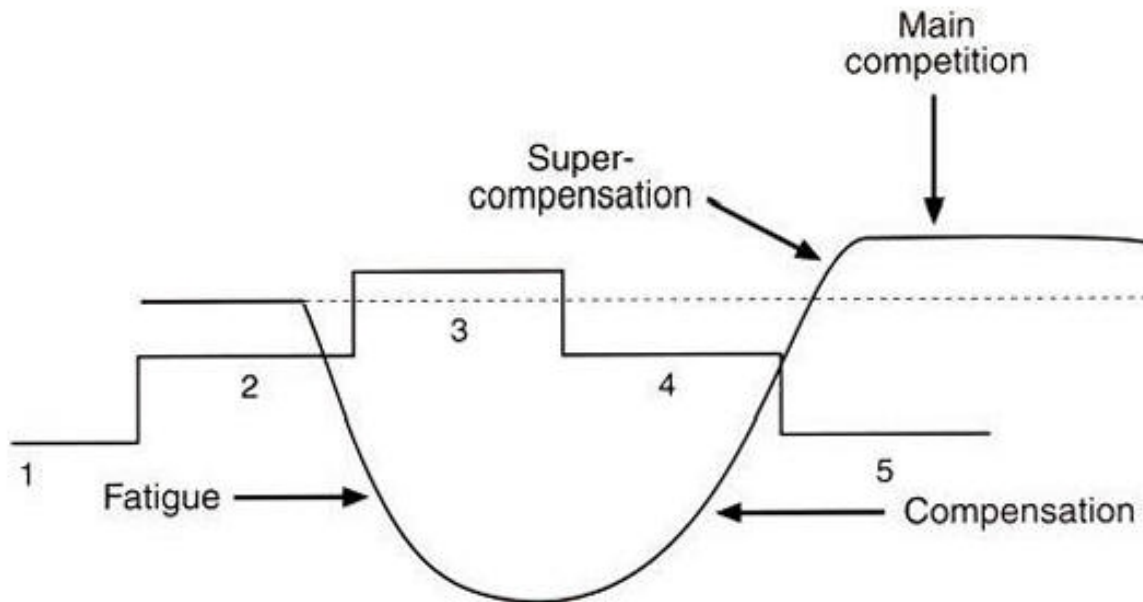


Figure 10.3 Correct unloading before the main competition facilitates supercompensation

Recovery and adequate body regeneration following training and competitions is an important factor that enhances peaking. If athletes do not use recovery techniques consistently, they acquire fatigue that can evolve into physical and neuropsychological exhaustion. Under such circumstances, you should drastically alter performance expectations.

Motivation, arousal, and psychological relaxation are instrumental factors for peaking as well. I suggest that you refer to topics related to specialized psychological information.

Concerning **nervous cell working capacity**, an athlete whose training factors are properly developed for competitions cannot maximize his or her abilities unless the CNS is in an excellent state and consequently possesses a high working capacity. Under optimal conditions, the nervous cell cannot maintain its high working capacity for long. It may be considerably increased only during the last 7 to 10 days before the main competition, which may be the normal outcome of recovery, relaxation, and achieving supercompensation. It is important to mention that an athlete's activities, the performance of skills, are the outcome of muscular activities caused by nervous impulses. As Gandelsman and Smirnov (1970) put it, the force, speed, and maximum number of contractions depend on the nervous cell's working capacity. This capacity depends on the athlete's training state and the cell's level of excitability, which varies dramatically even in a 24-hour span (figure 10.4).

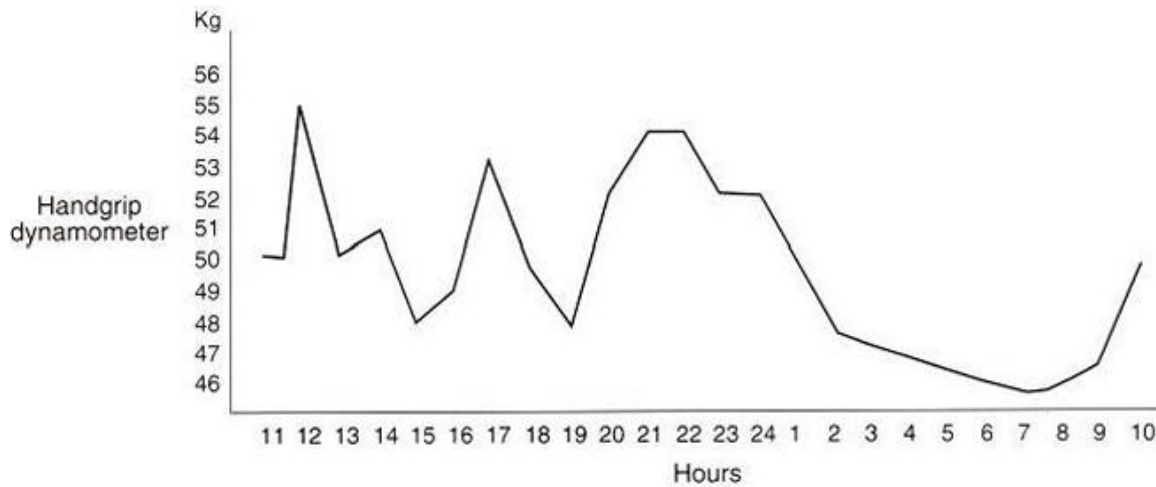


Figure 10.4 Variations of CNS excitability over a 24-hour span (data based on handgrip dynamometer techniques adapted from Ozolin 1971)

A nervous cell cannot maintain its high working capacity for a prolonged time without being strained or fatigued. When training demands reach the nervous cell's limits, or when the athlete drives him- or herself over such limits, the cell's reaction to training or competition stimuli is impaired. The working capacity decreases abruptly as a result of the cell being fatigued. To protect itself from further stimuli, the nervous cell assumes a state of inhibition (Pavlov 1927), restraining its processes. The athlete may continue to train by appealing to his or her willpower, but can progressively drive him or herself to the state of complete exhaustion. Performance is far below normal levels under these circumstances. This is why regeneration microcycles and training lessons are so important.

The dynamics of nervous cell excitability alter according to the timing of the competition. It increases progressively during the days before the competition, reaches its maximum peak during the days of contest, and decreases following competition (figure 10.5). In most cases, excitability levels decrease to the normal values, although it may happen that they fall below normal, signifying a high level of exhaustion. When this occurs, the training program should be light to enhance a full regeneration before commencing a normal load.

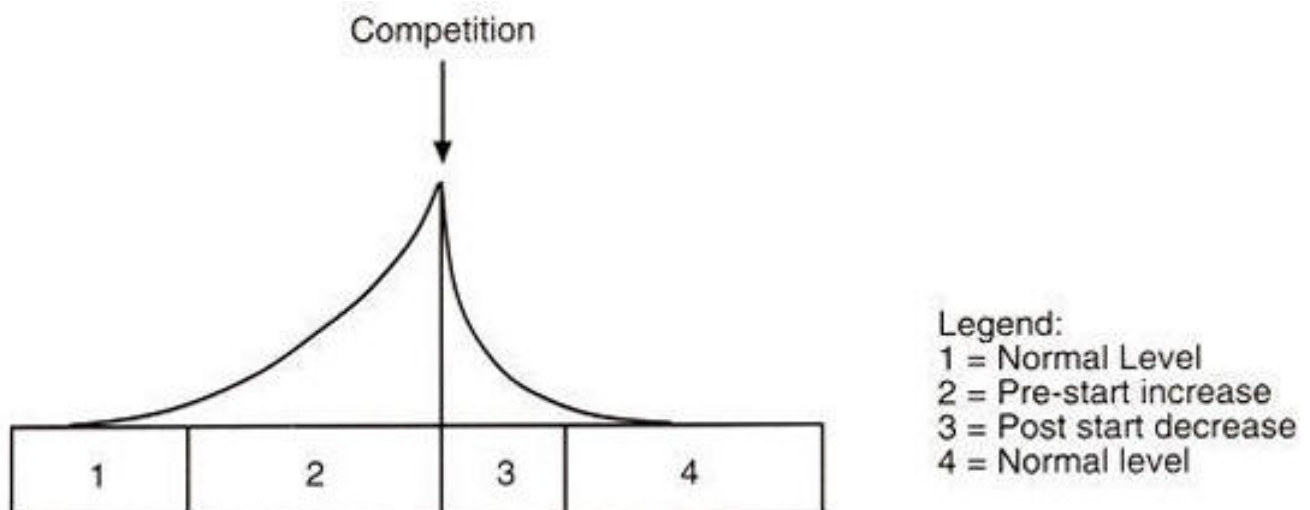


Figure 10.5 Dynamics of CNS excitability level before, during, and after competition (modified from Ozolin 1971)

Athletic peaking, as well as the dynamics of excitability, may be affected by the dynamics of loading the work in training and achieving supercompensation. Figure 10.6a illustrates a situation in which an athlete peaked too early as a result of exaggerated intensive training; a heavy competition schedule during the precompetitive or competitive phase; and specificity of training applied too early in the preparatory phase (exaggeration in the specificity of exercises and training methods). Under such circumstances, the main competition of the year falls in the phase of post-start decrease.

Figure 10.6b illustrates a case in which the athlete achieved the best performance on a later date than the main competition (late peaking). As is often the case, following an important competition, there are several days of relaxation and light training, which enhance supercompensation. The athlete probably did not achieve peaking by the date of the main competition because the coach did not unload properly or supercompensation did not occur.

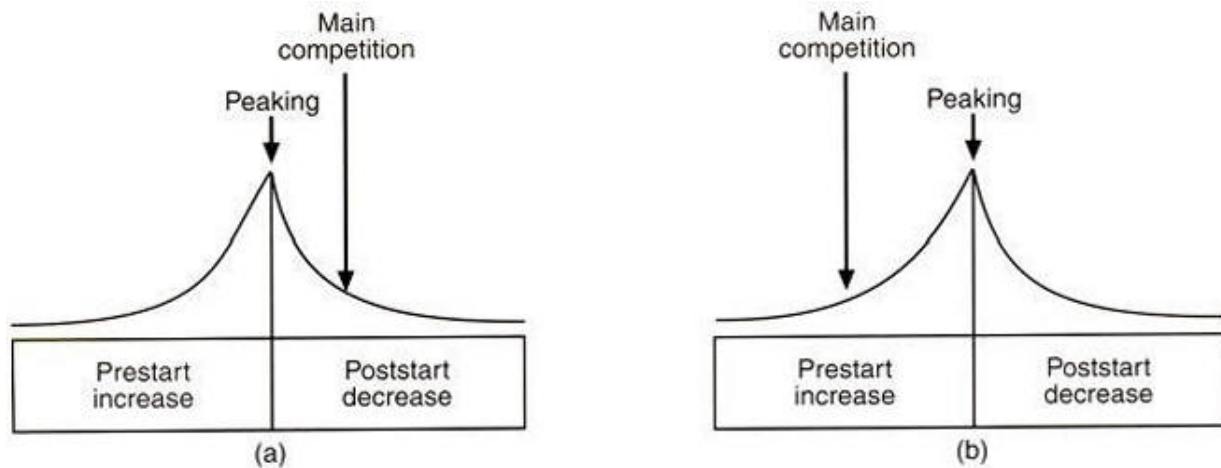


Figure 10.6 Early peaking (a) and late peaking (b)

The competition schedule is an important factor for periodization and, therefore, for peaking. I explain methods of selecting and planning competitions at the end of this chapter.

The number of peaks per competitive phase is also determines peaking. The outcome of all factors facilitating or affecting peaking is not a steady, horizontal line. Consequently, the curve of athletic shape, which is a plateau on which peaking builds, is undulatory. The ups and downs of the curve depend on each factor separately. Peaking, or the peak performance of the year, takes place when the coach integrates all these factors properly. Throughout the competitive phase there may be two to four important competitions, which are not spread evenly or in order of importance. The curve of peaking (figure 10.7) may therefore alter according to such a schedule. However, from this figure, you may conclude that peaking was facilitated for only three important competitions and all others were secondary. Although the athlete performed a short unloading phase to enhance supercompensation, the integration of all factors facilitating peaking was performed only for the three top competitions. From the point of view of the nervous cell working capacity and excitability, it would be impossible to peak for most competitions. Such an approach might lead to exhaustion; Pavlov (1927) calls it inhibition of protection. Under such circumstances, the cell protects itself from complete

exhaustion by not reacting to external or competition stimuli. Consequently, any expectation of outstanding performance toward the end of the competitive phase may be unrealistic.

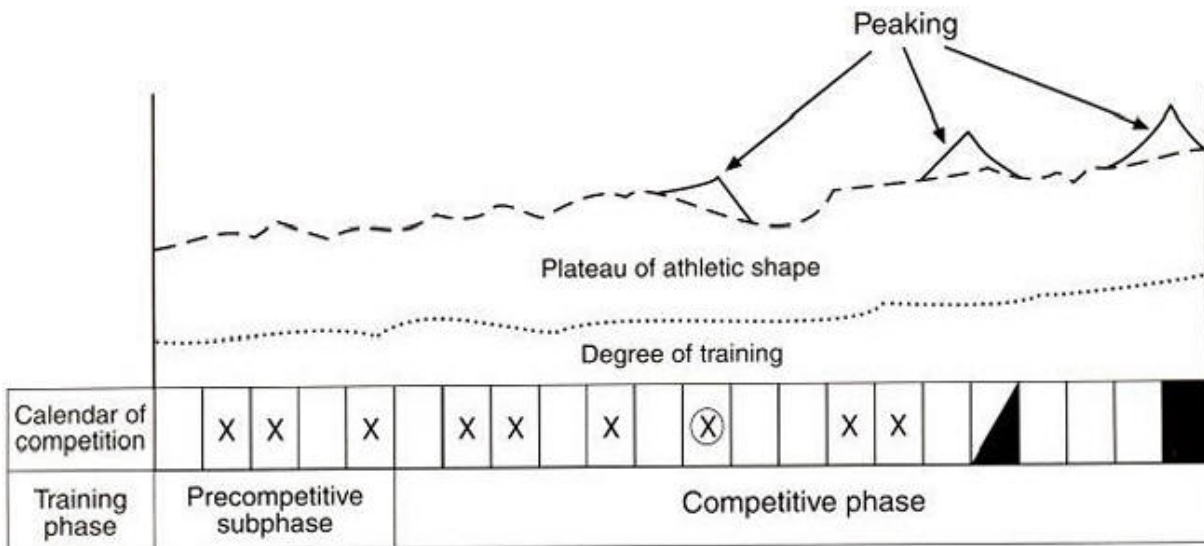


Figure 10.7 Calendar of competitions and the curves of athletic shape and peaking

Studies regarding means and techniques for long-term planning (Bompa 1968a; Ghibu 1978) revealed some precise data about peaking. Researchers believe that 7 to 10 competitions are sufficient to reach a high state of readiness for major or official competitions. Also, in an annual training plan (monocycle), most elite-class athletes require 32 to 36 micro cycles to reach peak performance of the year. You may use this estimation, though only a general guideline, when planning for the main competition of the year. Similarly, assuming that an athlete participates in a program of daily training lessons, Ghibu advocates that an athlete may reach peaking after enduring 65 to 80% of the total days of training. Athletes may not, therefore, reach peaking quickly, but following a hard and prolonged effort. This claim would indicate that, on the average, an athlete may require approximately 200 days of training before reaching an adequate physical and psychological capacity for peaking. The greater the number of important competitions or peaks per year, the fewer the number of training days. If you properly plan two to four peaks per year, however, this should not represent a hindrance, because athletes may achieve peaking sequentially.

To accomplish high performances every year, you must also increase the degree of training. You could realize this by elevating the physical aspect of training from year to year. With such a solid foundation, an athlete may reach a higher plateau of athletic shape from which to attain higher peak performances. To ignore such an approach leads to a plateau off of an athlete's performances, rather than continual improvements.

Methods of Identifying Peaking

Identifying peaking is difficult and controversial. One of the most objective criteria seems to be the dynamics of the athlete's performances (Matveyev, Kalinin, and Ozolin 1974). Researchers used athletes from sprinting and mid-distance running as subjects (N = 2,300) for a longitudinal study about establishing zones of calculation for peaking. Considering the past year's personal best performance as a reference point (or 100%), the first zone, or the zone of high results, consisted of performances not less than 2.0% lower than the reference point. Medium results were those within 2 to 3.5% deviation of best performance. Low performances

within 3.5 to 5% deviation were in the third zone. Finally, the last or fourth zone consisted of poor results, or performances with a deviation of more than 5% from the previous year's best. The authors concluded that when an athlete can achieve performances within 2% (first zone) of best, then he or she is in high athletic shape, close to a peak performance. From this point on, athletes easily facilitate peaking and achieve outstanding performances.

When athletes achieve performances in the first zone, the adaptation to training is complete. The reaction to training stimuli will be consistent and, as a result, the heart rate taken early in the morning will reach consistently low levels. You may consider additional objective data to make a more precise estimation of training states. Ghibu et al. (1978) suggest the following tests: urine biochemical test; tonometry (an indirect estimation of the intraocular pressure from determining the resistance of the eyeball to indentation by an applied force); handgrip dynamometer test; electrocardiography in resting conditions; aerobic or anaerobic power test; and the interval of the systolic tension. Obviously, qualified personnel must perform such specialized tests. Data from various training phases, especially during the competitive phase, are collected and compared. When all scores are superior, the coach is advised that the athlete is in a good training state.

You can also identify peaking by interpreting subjective data, namely the athlete's feelings. These include such things as being alert and optimistic, having a good appetite, getting deep and resting sleep, high willingness in training and competitions, and ease in everything the athlete does.

It is important that the coach also be in good shape. The coach's behavior, optimism, confidence, enthusiasm, encouragement, and cheerfulness are important prerequisites for an athlete's peaking, especially when the relationship between them is close. The coach's role is not only in the training activity, but also in the responsibility of bringing the athlete to high psychological shape. A coach must be psychologically well balanced and calm, with the ability to hide his or her emotions before a competition. Well-controlled behavior has a tremendous impact on the athlete. Similarly, the coach must strive to neutralize all the stressors that might affect an athlete's performance, such as peers, family, job, and intra-group conflicts.

Maintaining a Peak

There exists a high diversity of opinions among coaches and athletes regarding this paramount training aspect, because precise research data scarcely exists. Falsehoods such as "an athlete can peak only once a year" and "an athlete can peak for one day only" are still imprinted in some people's minds. Because the phases of athletic shape and peaking both depend on many physiological, psychological, and sociological factors, it is difficult to make precise statements regarding their duration. It is, therefore, safe to say that the duration of peaking is individualized. The individual training program each athlete follows and the duration and type of training performed during the preparatory phase have substantial influence on the duration of peaking. The longer and more solid the preparatory phase, the higher the probability of prolonging the athletic shape and peaking.

It is difficult to separate peaking from the athletic shape when discussing this topic. As already explained, athletic shape is a high plateau during which the athlete has a high working and psychological capacity. The highlight of this plateau is zone one, in which an athlete's performances are within 2% of the previous peak performance. Assuming that the coach led and organized an adequate training program, the duration of zone one may be between 1 and

2.5 months. During this time, the athlete may facilitate two or three peaks, in which he or she achieves high or even record performances. Researchers suggest that the duration of peaking may be up to 7 to 10 days because the nervous cell can maintain optimal working capacity that long (Ozolin 1971). Following each peaking for a top competition, a short phase of regeneration is strongly desirable, followed by training. Failure to do this will likely reduce the duration of zone one. This approach is a reminder that there is a need to alternate stress with regeneration, an interplay of dramatic importance in training.

The duration of peaking, as well as zone one, may be affected by the number of starts or competitions the athlete experiences. The longer the phase with weekly competitions, the lower the probability of duplicating high results. Many competitions do not necessarily lead to good and progressively higher performances. Often, there is a contrary effect, and results decrease toward the end of a competitive phase, when championship competitions are usually planned. A critical phase often begins after the eighth micro cycle with competitions. This does not necessarily mean that performance is compromised toward the end of the competitive phase. On the contrary, it should draw the coach's attention to the need for better alternation of stressful exercises with regeneration activities. In addition, it should bring the coach's attention to the methods and means of selecting and planning competitions during pre- and competitive phases. This should be significant to some college coaches, especially for team sports, in which the competition schedule is loaded with many games, even during the preparatory phase.

An important method to ensure adequate peaking is to prolong zone one and consequently the ability to peak. You can use the peaking index (please refer to chapter 6) to diminish the stress on athletes. Alternating important competitions with secondary one enhances the undulatory shape of the peaking curve, which substitutes stress with regeneration. Similarly, a rational approach to planning competitions is to end a competitive macrocycle with an important competition, which ensures a progression in the arrangement of competitions. For planning the competitions, the grouping approach permits alternating training phases with competition periods and prolongs athletic shape.

The time required to reach zone one is an important factor for peaking. Although this might differ according to each athlete's abilities, the average time an athlete needs to elevate the capacity from a precompetitive level to the aptitude of zone one is four to six microcycles. You may not see dramatic increases during the first three or four microcycles, because hard work that stresses intensity results in a high level of fatigue, which restricts the achievement of good performances. Following the last one or two micro cycles, however, when the athlete has adapted to the training load and a slight decrease in the stress of training allows supercompensation to occur, higher performance is feasible. Although the duration of this transitory phase from lower performances to zone one varies according to many factors, it also varies according to the specifics of each sport and the coach's approach to training. Thus, Ghibu et al. (1978) suggest the following duration: gymnastics and water polo, six microcycles; track and field, rowing, swimming and wrestling, approximately four microcycles.

Peaking Obstacles

Peaking is the natural and highly desirable outcome of several months of hard work and a properly planned training program. As described, many factors facilitate training states; however, there are several factors that may adversely affect peaking. It is a coach's responsibility to be aware of these factors and be able to control them, which will eliminate the

obstacles and enhance peaking.

Organizing Competitions

Before taking part in a competition, both the athlete and the coach are expecting normal, standard conditions. It may often be that an athlete idealizes everything in his or her mind and expects perfect circumstances. Consequently, every unforeseen change in the conditions the athlete experiences at the competition may affect his or her peaking and performance. Natural factors such as a strong wind or heavy rain may disturb athletes who are not familiar with them. In sports such as cycling, canoeing, and rowing, strong winds could impede an athlete's performance. Big waves developed by the wind substantially affect the performance of rowers and canoers, especially those with improper technique. Heavy rain affects the performance of cyclists and walkers, as well as team sport athletes who find ball control impaired when playing on a wet or muddy field.

The snow's quality influences a skier's final performance substantially. In cross-country skiing, a peak performance depends on the quality of snow and, consequently, the skill and experience of waxing skis according to the terrain and state of the snow. Similarly, all athletes are affected by extreme environmental temperature, climate, and altitude. The answer to these problems is model training, to prepare and train athletes under such conditions so they do not drastically affect peaking. Of no less impact are changes in the initial draw, biased officiating, and an adverse audience. Exposing athletes to competitions that duplicate the social climate of the main competition is a prerequisite to peak performance, if it differs significantly from what they normally experience.

An Athlete's States

The coach can observe and, therefore, have direct control over an athlete only during training hours. Although it is a coach's responsibility to positively influence an athlete's unseen training or the time an athlete is on his or her own, it is not unusual to find behaviors and lifestyles that contradict athletic moral standards. Negative behavior does affect an individual's working capacity and, therefore, peaking as well. Such things as inadequate sleep, use of alcohol, smoking, and poor diet reduce an athlete's recovery rate, which adversely affects training states. Similarly, social dissatisfaction with family, coach, peers, and school or work, reflects negatively in a person's attitude during training and competitions, resulting in inappropriate performances. In sports that require some risk or strong initiative, a fear of competitions or accidents decreases self-control and leads to an inferiority complex. This can often restrict an athlete's ability to perform. The coach should, therefore, observe an athlete and collect information from close associates to make all possible attempts to correct such negative attitudes and behaviors.

Training and the Coach

Training programs that are improperly planned with too high intensity, quick increases of intensity, or too many scheduled competitions are not only stressing but also impair adequate peaking. This is even more obvious when the competitive phase is long. Under such circumstances, maintaining zone one and a correct peaking for the main competition, which is usually at the end of the phase, is almost impossible. To overlook the needs of alternating work with regeneration may not only reduce the ability to peak but also lead to injuries. If an athlete is continually exposed to many such stressors, the probability of reaching the state of overtraining will increase.

A coach's knowledge, attitude, and behavior, as well as his or her ability to disguise personal emotions and frustrations also affect an athlete's performance. A lack of confidence in the coach's abilities and knowledge, especially if present before the main competition, adversely affects an athlete's performance and, therefore, peaking for that contest. The remedy for such problems is simple: further personal training knowledge, improve self-control, or be honest and advise the athlete to look for a superior coach.

Athletic Competition

It is obvious that the main goals of an athlete's training are to take part in competitions, challenge other athletes for a top spot in the competition hierarchy, and achieve a high level of performance. However, the importance of competitions extends beyond these goals, because they are the most important and specific means of assessing an athlete's progress. Many coaches maintain that participation in competitions elevates an athlete's preparation level. Although this is true to a certain extent, a coach should not expect to achieve a degree of training and correct peaking through competition only, as coaches often attempt in some professional sports. Participation in competitions, especially during the precompetitive phase when exhibition contests are planned, does assist athletes to reach a high state of readiness for the main competition of the year. During such competitions, they have the opportunity to test all training factors in the most specific way. To consider the competition as the only means of improvement, however, lessens the philosophy of training and consequently disturbs the main cycle of activity, which is training, unloading, competition, and regeneration (figure 10.8).

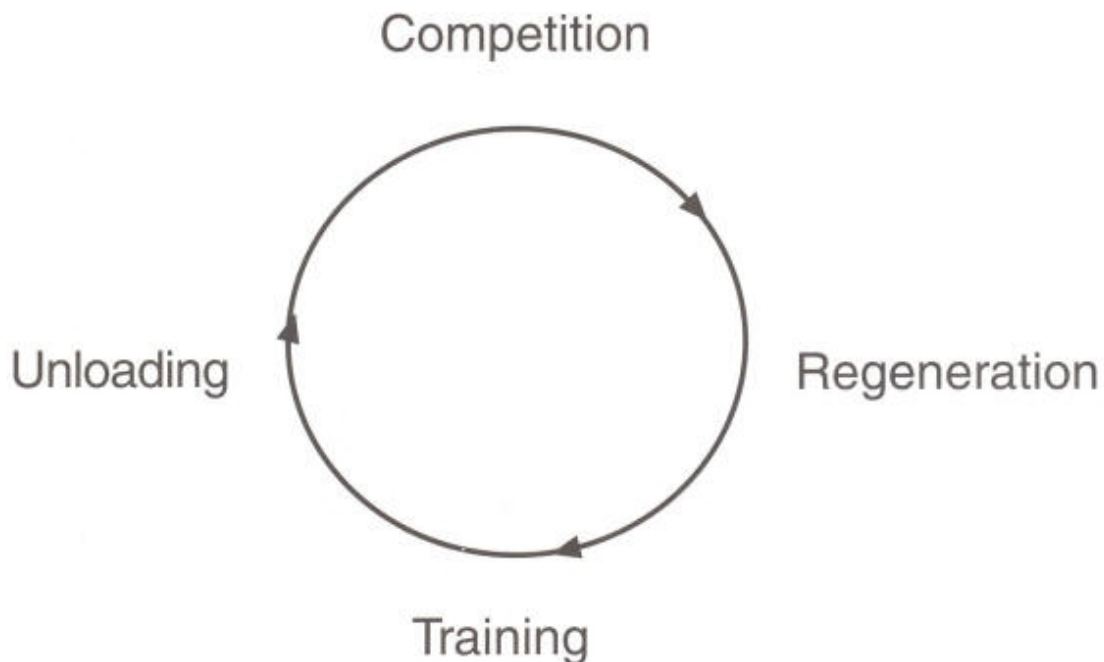


Figure 10.8 Cycle of activities in training

Often coaches become captivated by participating in many exhibition competitions and overlook proper training. They stress intensity at the expense of volume, and as a result the athletes peak much earlier than originally planned. A natural consequence is a poor show toward the end of the competitive phase when the main competitions are planned. Remember that training accumulation during the preparatory phase is not a bottomless bag. On the

contrary, the bag must be continually replenished so that adequate physical and psychological support will last until the end of the competitive phase.

An important outcome of participation in competitions, especially for prospective athletes, is gaining competitive experience. All competitions included in an annual plan are subordinate to and must enhance achieving the main performance objective of the year, which is usually accomplished during the main competition. Selecting and planning competitions are therefore arts of their own.

A competition is the real testing ground for athletes' preparation. During a contest, athletes can test their improvement levels on a given date, consolidate technique, and test tactics against direct opponents. At the same time, they can learn how to spend energy effectively and improve psychological traits such as willpower and perseverance. It is important, however, that the coach plans the specific objectives athletes are to achieve before participating in any competition. Orient and determine the objectives according to the type and characteristics of the competition in which athletes take part.

Classification and Characteristics of Competitions

We can classify most competitions into two groups: official or main and preparatory or exhibition.

Consider the official or main competitions as determining qualification or defining the final standing in a championship. They are of paramount importance, and customarily athletes strive to achieve a high or the highest possible performance. In heats or qualifying rounds, highest performance is not always necessary for further levels of competition. Main competitions may serve as a guideline to segregate the annual plan into macrocycles, especially for individual sports.

The preparatory or exhibition competitions are customarily planned to test and attain feedback from athletes or teams regarding certain aspects of training. Such competitions are an integral part of a micro cycle and, therefore, the coach should not alter or unload his or her normal training plan. Although victory should not be the only objective, such competitions can help athletes arrive at an adequate state of readiness before the official competitions. This is possible because during such competitions they may endure maximal intensity, deplete energy reserves, surpass physical and psychological capacities, overcome emotion, and acquire experience against known and unknown opponents. Consequently, all competitions in athletics have the following characteristics and orientations.

Victory in a competition captivates each athlete from early involvement in training. To be a victor in a competition requires long hours of hard work. Talent in athletics is an important asset, but hard work is a requirement. There are no shortcuts for hard work in the pursuit of becoming a winner.

Records, which you can closely link to victory, are the dream of many athletes. When athletes surpass their own and others' previously scored records, it means that under specific, ideal conditions they have defeated their weaknesses both physiologically and psychologically. Although records are not always beaten as a coach plans in a particular phase, such competitions are usually organized during the middle of the competitive phase.

Organize no such meets within 2 or 3 weeks of the main competition of the year, because they exhaust athletes' physical and psychological capabilities.

Test competitions are organized with the scope of verifying athletes' potential and qualities on a given date. The objectives of such competitions are to test the athletes physically and psychologically and to validate their technique or tactical maneuvers. In team sports, because such competitions are informal, the coach may decide to stop the game from time to time and suggest tactics to test against opponents.

Adjustment to specific conditions of future competitions plays an important role in athletes' abilities to perform adequately. The coach may, therefore, choose to compete in a place that would familiarize the athletes with facilities and the quality of the equipment they will experience in a future major competition. Such a competition may be an exhibition; therefore, the coach should stress adaptation and adjustment to the specifics of the facilities rather than victory .

Planning the Competition

The competition schedule is usually set by the sport governing bodies, and in their decision they are concerned with the championship or league competitions only. The coach may, however, decide to select preparatory or exhibition contests also, according to the time available and specific objectives. Selecting and planning competitions are paramount processes in training that can enhance or adversely affect peaking for the major contests.

Misinterpretations often exist about selection procedures and the coach's role in the decision-making process. Some coaches follow the belief that athletes have to participate in every available competition with all possible effort. Obviously, in such a case athletes constantly experience stressful activities that might not lead to an optimal season climax. Similarly, such a heavy game or contest schedule requires many regeneration dates, which disturbs the normal course of training. The intense psychological stress athletes require to reach an adequate state of arousal for each competition is also a concern. Neglecting these two aspects may facilitate undesirable consequences, reflected through poor peaking for the main competition of the year.

Another unusual procedure for selecting competitions is coaches telling the athletes to make the decision. In most cases, the athletes obviously do not have the knowledge to use the proper methodological guideline for selecting and planning a competition. Consequently, the leadership should come from the coach who may decide to employ one of the two methods of planning the competition calendar for the annual plan: the grouping or the cyclic approach.

The grouping approach refers to the method of planning 2 or 3 weeks in a row, during which the athletes take part in tournaments or competitions, participating in several events or races per weekend. As illustrated by figure 10.9, such a phase is usually followed by a macrocycle of training only, allowing the athletes to train for another 2 or 3 weeks of group competitions.

Training phase	Competitive phase																													
	May					June				July					August				September											
	1	8	15	22	29	5	12	19	26	3	10	17	24	31	7	14	21	28	4	11	18	25								
Macrocycles	6					7				8					9				10					11						
Calendar of competitions				X	X					X	X	X																		

Figure 10.9 Planning the competitions based on the grouping approach

The hypothetical example illustrated by figure 10.9 suggests that at the end of May the athlete or team takes part in a group of competitions spread over 2 weeks. In each case, it may be that the coach organizes races or games over 2 or 3 days during each weekend. The first microcycle following these competitions is a lower intensity cycle with one peak at the end. The first part of the cycle (2-3 days) is dedicated to regeneration, with low-intensity non-stressful training lessons. The next two and a half microcycles are planned for hard training, followed by a short unloading phase of 2 or 3 days, and again three weeks of competitions. August 21 is the qualifying (regional) competition for the main championships of the year held during the weekend of September 25. For training, the macrocycles preceding the qualifying and final championships follow the same pattern as the previous ones.

The grouping approach is most suited to individual sports, in which the only two official competitions are planned in a manner similar to the previous example. For team sports, use such an approach only for national championships and international competitions, in which the grouping concept is a typical model training for an official international tournament. Use the cyclic approach for both individual and team sports. The term refers to competitions that are planned in a repetitive, cyclic manner (figure 10.10).

Training phase	Competitive phase																										
	May					June				July					August				September								
	1	8	15	22	29	5	12	19	26	3	10	17	24	31	7	14	21	28	4	11	18	25					
Macrocycles	7					8				9					10				11								
Calendar of competitions		X		X		X	X	X	X	X	X	X	X	X	X	X											

Figure 10.10 Cyclic approach for a team sport

The competition during macro cycles 8 and 9 are league games planned for each weekend. Then at the end of macrocycles 10 and 11, the regional and final championships are planned. Because each micro cycle ends with a game, you may structure each with one peak only, which usually should be on Tuesday or Wednesday. One or two days before the game, there is a progressive unloading phase to enhance supercompensation for the day of the game. For individual sports in which there are no league competitions, consider the cyclic approach for only the qualifying and finals (main competition of the year), as in figure 10.11. In such a case, the coach may decide to take part in other competitions organized by various clubs. Assuming that there are several competitions to choose from, the coach would plan to take part only in

plan that you must then duplicate for the Olympic year. This is an important concept that the national federation should consider and follow.

When there is a long period between the last competition and a major competition, such as the national championships, Olympic Games, world championships, and so on, you can organize a special macro cycle (table 10.2). The goals you assign for each micro cycle are important because good planning facilitates decent training and a good peaking strategy to achieve the best performance.

Table 10.2 illustrates a normal macrocycle, consisting of 5 micro cycles in this example, and a condensed one, in which the time between the two competitions is just 3 weeks. In the condensed cycle, assign each training objective a number of days rather than weeks.

TABLE 10.2 Objectives for a Macrocycle Before the Major Competition of the Year

Macrocycle's objectives	Normal (5 weeks)	Condensed (3 weeks)
Active recovery	1	3
Loading	2	7
Unloading	1	7
Competition	1	4

Event Frequency

Individual characteristics, experience, age, and sport characteristics are among the determining factors when deciding on the frequency and number of competitions to include in the annual plan. Another important factor to consider is the duration of the competitive phase: the longer the phase, the greater the number of competitions. Consider the characteristics of the sport as the paramount guideline when deciding the number and frequency of competitions. Athletes participating in sports of short duration (Le., sprinting, jumping, diving) in which the physical demand is lower, experience a higher recovery rate. Consequently, the frequency and implicitly the number of starts (races, events) could be high. Ozolin (1971) suggests that in such sports, elite athletes may take part in 40 to 50 starts per year. On the other hand, sports demanding high energy and nervous expenditure, in which endurance, strength, and muscular endurance are either dominant or an important component of training (Le., swimming, mid- and long-distance running, cross-country skiing, rowing, cycling, boxing, wrestling, etc.), the number of competitions should be much lower, 15 to 25 (table 10.3). Athletes participating in team sports often take part in more than 30 games per year. Concerning frequency, consider the time the athlete requires for recovery, which in the case of the latest group is long.

TABLE 10.3 Suggested Number of Competitions Per Year in Athletics

Event	Beginners and prospective athletes		Elite athletes	
	Winter	Summer	Winter	Summer
Sprinters, hurdlers, jumpers, and throwers				
Specialized event	3-4	12-16	3-5	16-20
Other events/sports	2-3	4-6	1-3	3-5
Mid-distance				
800-1,500m	—	4-8	2-3	10-16
Shorter distances	2-3	8-10	2-4	8-10
Distance running and walking				
Marathon	—	1	—	2-3
50K walk	—	6-8	—	8-10
Combined events				
Decathlon	—	1-2	—	2-3
Heptathlon	—	2	—	2-4
Individual events	2-4	10-12	3-5	12-16

During the competitive phase, enter the athletes in two to four main competitions, which in most cases are qualifying meets for the main contest of the year and the main competition. In addition, include competitions of lesser importance in the calendar of competitions. As suggested by table 10.4, however, plan a short period of training between the preparatory (exhibition) competitions for the pre competitive sub-phase and the main competitions.

TABLE 10.4 Guiding Objectives for the Competitive Subphase

Training phase	Competitive phase			
	Subphases	Precompetition	Spec. prep. for league comp.	League/official competition
Objectives	Improve performance Gain competitive experience Determine main strengths and weaknesses Test technique and tactics under competitive circumstances	Correct deficiencies shown during the precompetition subphase Alter techniques and methods to improve athletes' competitive effectiveness	Reach high athletic potentials Prepare for qualifying competitions	Take part successfully in the main competition
Means of implementation	Competitions of progressively increasing difficulty Increase density of competitions Decrease slightly the volume of training	Extensive training Increase volume Some competitions without affecting training	Reduce volume and increase intensity according to the needs of the sport Take part in more demanding competitions	Special preparation for the main competition

It is not necessary to organize a competition only in a specialized sport or event. Often,

especially during the preparatory phase, you could organize special competitions to enhance general physical development. Plan such competitions mostly for beginners and prospective athletes who have not properly acquired technique. Often, coaches organize such competitions for elite athletes as well. In Eastern Europe it is common to see gymnasts and weightlifters competing in a 30-meter dash and standing high jump and rowers, cyclists, and canoeists competing in cross-country skiing, and so on. There is a psychological as well as a physical advantage to such competitions. When athletes are competing in activities that are part of their training or have similarities to their event, they are more motivated to work hard for improvement in their general or specific physical preparation.

Concerning participation in the interval between competitions, Bompa (1970) and Harre (1982) recommend that a coach consider the following aspects:

- An athlete should take part in a competition only when he or she is capable of achieving set objectives for each training factor: physical, technical, tactical, and psychological.
- The coach should select each competition carefully, in an order that increases the difficulty progressively.
- Unchallenging competitions do not motivate an athlete.
- Do not avoid opponents with superior capabilities.
- Too many competitions, especially road trips, diminish the coach's possibility to properly dose competitions and training. The result will be a decrease in the athlete's physical and especially psychological potential.
- Correct planning of the competition schedule should ensure the best peaking for the main competition.
- The main competition of the year is the only one that establishes an athlete's hierarchy in a sport. The others (except for league games) are just progressive steps that bring the athlete to that level.

Training phase	Competitive phase			
Subphases	Competition	Spec. prep. for league comp.	League/official competition	Special preparation
Objectives	Improve performance Gain competitive experience Determine main strengths and weaknesses Test technique and tactics under competitive circumstances	Correct deficiencies shown during the precompetition subphase Alter techniques and methods to improve athletes' competitive effectiveness	Reach high athletic potentials Prepare for qualifying competitions	Take part successfully in the main competition
Means of implementation	Competitions of progressively increasing difficulty Increase density of competitions Decrease slightly the volume of training	Extensive training Increase volume Some competitions without affecting training	Reduce volume and increase intensity according to the needs of the sport Take part in more demanding competitions	Special preparation for the main competition

TABLE 10.4 Guiding Objectives for the Competitive Subphase

Summary of Major Concepts

Many coaches and athletes consider peaking and the ability to reach a peak performance for a competition a heavenly favor. The ability to peak for a competition represents nothing more than a strategy you design, manipulating training to reach physical and psychological supercompensation before an important meet. When these two elements of supercompensation occur, then peak performance is a normal outcome.

The ups and downs of athletic performance often depend on the training an athlete performs during the preparatory phase, the ratio between volume and intensity of training, and the number of competitions in which an athlete takes part. Do not exaggerate the number of competitions, especially

with the young athletes. Do not wear them down too early!

The following sequencing is essential for an athlete's ability to peak for competitions:

- You train to compete.
- You regenerate and recover before starting to train again.
- You train for the next competition.
- You manipulate training to supercompensate and reach a peak performance during the next competition.

Pay maximum attention to these training activities throughout the competitive phase.

FROM: PERIODIZATION--Theory and Methodology of Training by Tudor O. Bompa, PhD