

A COACH'S RESPONSIBILITY: LEARNING HOW TO PREPARE ATHLETES FOR PEAK PERFORMANCE

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Abstract- The coaching profession is ever-changing and coaches at each level of sport competition need to know more than just the Xs and Os in order to be successful. As the primary individuals tasked with developing athletes and helping them achieve their goals, coaches should acquire a working knowledge of all areas affiliated with performance enhancement. Specifically, the disciplines of sports administration, sports medicine, strength and conditioning, and sports psychology can assist coaches while physically and mentally training their athletes. This article illustrates six primary components of these disciplines: risk management, injury prevention, communication, nutrition, goal setting, and athlete development. It is imperative coaches gain a familiarity with these aforementioned components in order to teach athletes about skill development and prepare them to achieve peak performance.

Key words: athlete development, coaching, peak performance, training, sport

Introduction

Since the beginning of sport competition, athletes have sought to acquire the skills and knowledge of sport in order to become "champions." As sport evolved into organized activity, coaches began working more closely with athletes on sport skill development. Education and training programs have been created, over the past 30 years, in an effort to assist coaches and athletes with the development of methods and strategies for achieving peak performance. When designing a coaching education program, however, one must ask what do coaches need to know; what are the essential elements of athletic coaching?

In the 1960s, Dr. Thomas P. Rosandich, founder of the United States Sports Academy, outlined what he called the American Training Patterns (personal communication, April 2010) which focused on physical components of training; namely, speed, skill, stamina, strength, and suppleness (i.e., flexibility). Over time, our knowledge of how to train these five components has become more comprehensive and has been expanded into other disciplines as coaches continue striving to develop exceptional athletes (i.e., "champions"). Though early emphasis in coaching focused on athletic performance enhancement and basic physiology, other disciplines of human performance eventually became components of training athletes. The purpose of this article is to examine the aforementioned components and introduce the world to the United States Sports Academy's newly revised American Coaching Patterns. American Coaching Patterns is a six-course program, encompassing six fundamentals of training: stamina, strength, suppleness or flexibility, agility, speed and skill.

The six courses focus on sports administration, coaching methods, sports medicine, strength and conditioning, sports psychology, and athlete development. With the addition of these new disciplines, training athletes has become a holistic activity focusing on the entire athlete (i.e., mental and physical aspects).

For athletes to improve systematically, coaches need to follow practical programmes based on sound principles. According to Andy Harrison, coaches should be encouraged to reflect critically on the process, methods and variables that they use, or could use, to devise training interventions and evaluate the effectiveness of their programmes. When an athlete's performance improves and the athlete becomes stronger, faster or more precise in their movement, there's always an underlying reason to account for it, be it psychological, physiological, biochemical or biomechanical.

General programme considerations

There are four key ingredients for a successful coaching program:

Determining training needs – Training is the process of imposing a physiological stress on the body with the aim of generating an adaptive response that results in improved performance. In order to be effective, any training intervention must impact positively upon a component of the sport movement. It is therefore essential that these key components of the sporting activity are identified.

Individualising the programme – Knowing the demands of a particular sport allows the coach to profile and evaluate an athlete in order to identify their strengths

and weaknesses relative to performance demands; for example, the use of a shuttle run ('bleep') test can determine if a footballer has sufficient *aerobic capacity* for the needs of the sport. Training programmes must address differing individual needs in order for each athlete to progress. Athletes are individuals and won't be able to compete effectively using only generalised training programmes

Setting goals

Simply wishing for improvement is not enough. The coach and athlete must determine a specific performance objective that is appropriate. For example, wanting to be Olympic champion is admirable but establishing short and medium-term performance related objectives is an essential process towards such a long-term goal. Coaches must therefore help athletes realise that these appropriate goals need to be based on experience and the athlete's past performances.

Making a plan – During training, we impose physiological 'stress' and the body (hopefully) adapts. However, adaptation is not a simple process; the mechanisms are quite complex with each training intervention generating a number of acute, immediate, cumulative, delayed and residual effects. An efficient way of optimising adaptation is to use a periodised training plan (Ed – see issue 266 for a detailed discussion on *periodisation*). The term 'periodisation' is commonly used to refer to the systematic design and sequencing of an athlete's preparation and competition activities over time. In general, it involves breaking down the season or year into separate phases with each phase having a set of distinct objectives, workloads or training contents in order to promote optimal adaptation and prepare the athlete for peak performance. Typically, a successful programme will optimally blend several performance factors, vary the emphasis and training load, and exhibit a high degree of individualisation to make it specific for each athlete.

Limitations of knowledge and coaching art

Most coaches and sports scientists agree that we still lack a sound theoretical framework that enables us to 'optimally' prescribe training and competition activities in terms of sequencing and proportion. Furthermore, despite the large body of knowledge available, the ability to predict with an acceptable degree of precision the nature, rate and magnitude of adaptation resulting from concurrent training interventions is variable.

There is much evidence available regarding the methods and protocols that are appropriate for the development or maintenance of individual performance factors (eg maximum strength, anaerobic capacity, aerobic endurance, etc). Consequently the artistry of coaching is not necessarily about designing training interventions that target single performance factors, but rather how best to integrate activities that stress several of them concurrently within a micro-cycle or over a longer period of time.

Assessing programme effectiveness

Standard process for the design and monitoring of a training program. Central to any process is the necessity for the coach to assess the outcome of the programme and its effectiveness to provide the desired adaptive response.

When reflecting upon the effectiveness of a training intervention, the coach needs to consider the following four factors:

- What was planned;
- What was actually completed;
- What the outcomes were;
- How these outcomes compared with the desired outcomes.

These considerations probably seem like common sense and fairly simple to apply. However, in reality, applying them meaningfully can be both challenging and time consuming. Methods frequently used by coaches include laboratory and field assessments (to measure the progress of key performance indicators), competition results (to assess the athlete's capacity to perform in sport-specific conditions) and training diaries. Information logged in a training diary would generally include the type of activities performed, the conditions during training and subjective comments (eg the level of stress felt by the athlete).to help the athletes themselves analyse their performance retrospectively.

Critical to the success of any such interpretation is that it is not just an afterthought but rather adequate consideration is given to the process at the programme design stage. During the design phase, the variables that are to be recorded should be identified and a system established whereby this information can be accurately defined, collated and quantified on an ongoing basis.

The task for coaches therefore is to determine the most appropriate sequence and progression of training and competitive activities to bring about these positive changes.

Risk Management

Participating in sports involves a certain level of risk, even when reasonable precautions have been implemented. Coaches have some level of responsibility for all aspects of their athletic program. For example, coaches need to be concerned about the welfare of their players and the maintenance of athletic equipment and facilities. These responsibilities fall under the umbrella of risk management and the controlled evaluation of the athletic environment. Evaluating risk management in the athletic environment is a significant administrative element for coaches. While risk can never be fully eliminated, these individuals must be aware of, and must seek to limit the chances liability exposure. Hence, coaches must exert significant effort to monitor all components of their athletic programs.

Wound avoidance

Today, young athletes train like elite professional athletes. Specifically, many adolescents are undertaking physical and mental conditioning regimens for several

hours a day in order to produce peak athletic performance. Additionally, some individuals are specializing in one sport at an early age and participating on several teams during a single athletic season. While others participate in several different sports year-round without allowing the body and mind enough time to sufficiently recover from the rigors of athletic competition.

Communication

Besides interacting with medical personnel, coaches must be exceptional communicators with their athletes in order to be effective teachers. The ability to communicate is a critical component in becoming a successful coach and developing elite athletes. "Communication is a process through which two entities exchange formal messages in a common code by using one or more transmission channels ..." . It is the foundation upon which coaches build their team. Coaching without effective communication is like trying to play basketball without a ball; it just is not a successful endeavor. "In fact, effective communication is often cited as a critical element in the success of athletic teams," . Team members must learn how to communicate with each other both in and out of the playing arena so that they can become one cohesive unit and ultimately increase their level of success.

Nourishment

As coaches establish a positive relationship with their athletes, many athletes begin to realize the importance of training the body physically in order to produce peak performances. Hence, every coach should consider performance enhancement to be the number one priority when developing a strength and conditioning program. However, without adequate nutrition, training results may be suboptimal due to a lack of recovery and reduced ability to perform due to depleted energy. Therefore, nutrition is the foundation of performance enhancement. Without optimal nutrition, athletes cannot compete to their full potential.

Target Setting

When completing a strength and conditioning program, a coach may instruct an athlete to complete "another repetition." Coaches have a responsibility to prepare their athletes physically and mentally for athletic competition. Thus, many athletes develop a desire to produce successful performance and gain mastery of any task completed. For example, an athlete may not only want to win the contest but may also aspire to perform sport skills exceptionally well in order to produce peak performance. Without question, coaches have an opportunity to assist athletes with performance enhancement.

Locke and Latham explained that an individual's level of success in athletic competition is primarily dependent upon skill and motivation. Therefore, a primary responsibility of coaches is to motivate their athletes to perform at optimal levels. Sage indicated motivation is the direction and intensity of an individual's effort.

How Coaches Should Apply This Information

As described in previous sections, coaching education includes knowledge from several disciplines. The nature of a coach's job is affected by the athlete's stage of development. This will determine what kind of knowledge the coach needs and how it will be applied. The final piece of the coaching puzzle centers on how to make the coaching process athlete centered. No matter what the specific training discipline, a coach needs to understand the stages of athletic development in addition to knowledge of how individuals grow and mature.

Instruction Stages

Athletes progress through several training stages as they get older and become more accomplished in their sport. For the most part training stages are age related. Each stage's curriculum should help athletes transition to the next stage by providing what they will need at their present training stage as well as preparing them for the proceeding one.

Training stages also take advantage of periods of accelerated adaptation for various training components. For example, significant increases in aerobic capacity occur after the onset of peak height velocity so aerobic training should take priority during this period which generally lasts for 12 to 18 months. The accelerated period for learning skills occurs from about 8 to 11 years of age for girls and 9 to 12 years of age for boys, so during this period it makes sense to focus on skill development. Speed has two periods of accelerated adaptation, one as a result of changes in the central nervous system (6 to 9 years of age), and the other resulting from changes due to training stimuli (11 to 13 years of age for girls and 13 to 16 years of age for boys) (3). By periodizing on a career scale, coaches can take advantage of these various periods and be assured that athletes are being provided with training appropriate with developmental goals.

Early vs. Late Maturing Athletes

Most countries use an athlete development system that focuses on performance outcomes. This involves getting as many young athletes as possible into training programs and then focusing on the elite performers. The problem with this method is that sport governing bodies rely on early maturing youngsters—those who are simply bigger and stronger than their peers and who, almost inevitably, perform better in sport. However, only an estimated 25% of youngsters identified as 'elite athletes' at an early age were identified the same way at a later date; indicating late maturers can also become 'elite athletes' if given enough time to develop .

The outcome model tends to quickly discard those who do not measure up, and while this may not be by design it happens often enough to be considered a characteristic of the model itself. In the outcome model young athletes are treated as small adults, following the same training and competition patterns as older athletes. Late maturers are discouraged from continued sport participation since the outcome model rewards early

maturers with more coach contact, encouragement, and social recognition due to their early ability (i.e., athletic-talent).

A better model might focus on the process of developing an athlete. This model is more inclusive because the path from instruction, to training, and finally, to competition is paved with intentionally stage-appropriate activities and training. Early maturing or physically precocious youngsters do not affect this model. In a process model, stages of physical and athletic development are paired so that athletes are receiving the instruction and training they need at times when it is most beneficial. By deliberately focusing on process rather than outcome providers of youth sport will be able to keep youngsters involved in programs for longer periods. Over the long term this will help athletes develop an appreciation for physical activity and sport. It will also help sport governing bodies reduce the early vs. late maturer problem.

By making a conscious effort to keep all athletes involved through stage-appropriate modifications in training and competition, sport governing bodies will provide a better sport experience for everyone and increase the likelihood of developing elite athletes from those who might otherwise have dropped out from participating in sport. Not only will this enlarge the pool of talent available to national sport governing bodies but it will also increase the likelihood that athletes will continue to be physically active throughout life. Specifically, as youths progress into adulthood, these individuals will have the competence to use skills and knowledge they acquired in organized sports to remain healthy and physically fit.

Burnout and Dropout

The terms "burnout" and "dropout" are frequently used as if they mean the same thing. However, burnout refers to the long-term effects of overtraining or inappropriate training based on the age of the athlete. Symptoms of burnout are frequent or chronic injury, lack of progress in training and competition, and general dissatisfaction with the sport (1); the key component is long-term involvement in training programs. Dropout refers to the phenomena of athletes simply quitting their sport participation prematurely. Coaches should realize dropout is more detrimental to the athlete and the sport governing body. Following accepted athlete development guidelines and constructing career periodization plans which adhere to these guidelines, coaches can reduce both dropout and burnout.

In 2008 over 44 million youth participated in youth sport activities throughout the United States. Although this is an increase of over 6 million participants since the National Council of Youth Sports report in 2000 it is estimated that 35% of youth involved in such athletic programs drop out each year. Since millions of young athletes participate in adult organized and supervised activities coaches must gain a solid understanding of performance enhancement and proper coaching methods. By providing a better sport experience for all

participants more children will have the skills and knowledge needed to participate in life-long activity. Maintaining a physically-active lifestyle may help alleviate present-day mental and physical health issues associated with youth obesity.

Conclusion

Ultimately, coaches should be passionate about teaching sport skills to their athletes. Coaches must be life-long learners of sport in order to properly train their athletes for peak performance. As the profession of sport coaching has evolved and sport has become a multi-billion dollar industry, many coaches have discovered sport incorporates both physical and mental training. Therefore, in today's sports world, several disciplines have been integrated into the science and art of training athletes.

Based on the guidance and leadership of Dr. Thomas P. Rosandich, the United States Sports Academy has created the American Coaching Patterns; a six-course program, embracing six basic fundamentals of training: stamina, strength, flexibility, agility, speed, and skill. This article presented information which coaches should utilize when training their athletes. These six courses, which comprise the American Coaching Patterns, emphasize sports administration, coaching methods, sports medicine, strength and conditioning, sports psychology, and athlete development. Training athletes to become "champions" in sport, and more importantly life, can provide many individuals with opportunities to produce peak performance.

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