

Is the Present Day Athlete Prepared for the Initiation of Athletic Performance Enhancement Training?

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The lack of early age athletic “preparation” as well as the common occurrence of youth athletic “sports specialization” is presently an all too common theme in the United States. The dream of a college scholarship and perhaps an ensuing professional payday appears to often be the incentive for such early sport specialization. However, too early a sport specialization does have its consequences. An example of such a consequence is the 12-year-old baseball pitcher whom I recently rehabilitated after arthroscopic elbow surgery. According to his father “this young man is going to be the next Roger Clemens”. Obviously the father did not realize that throughout Roger Clemens athletic career, this Hall of Fame caliber pitcher never had elbow surgery. My time and experiences with this young athlete was my incentive to write this article.

The athletes of today live in a much different society than the athletes of decades past. The days of walking or riding a bicycle to one’s destination is often replaced with a car ride from parents, an arranged “carpool”, or perhaps a helping hand from a friend or neighbor. The advances in technology have provided us with the Internet, a venue for obtaining information effortlessly and provides an ease of multiple tasks as it is no longer necessary for one to leave their home as often to make a sales purchase, communicate with friends, travel to the public library, etc... and essentially producing instant gratification at one’s fingertips.

The days of sandlot competition and playground pick-up games have been frequently replaced with various video games played at home in a sedentary position. However, there are certainly millions of children, teenagers, and young adults that participate in athletic activities. Some of these young athletes partake with the aforementioned dream of their participation evolving as a gateway to a college scholarship and perhaps even an eventual professional occupation. Though the number of Americans that participate in some type of physical activity, and more specifically, the number of present day athletes who physically train with the goal of athletic enhancement is probably at an all time high, the question arises are these athletes prepared for the stresses of vigorous Athletic Performance Training as well as the enduring repetitive stresses that will occur over a long competitive season? Unlike the athletes of decades past, many of today’s adolescent and teenaged athletes are often sedentary when off the field of play, and many are of the mindset of “sport specialization”, meaning a significant percentage of these individual athletes participate in one specific sport and only that sport activity throughout the year (i.e. 24/7/365).

Each year an increased number of athletes (just like that 12 year old pitcher) walk through the doors of our physical therapy clinics with both performance training and athletic participation injuries. Many parents with whom I speak are of the opinion that the performance training as well as the organized athletic participation of these athletes is initiated at too young an age. I have had many conversations with a number of Strength and Conditioning (S&C) Coaches, many with whom I associate, and their opinion with regard to this subject matter is that prior to the initiation of the athletes performance training a “lack of physical preparation” occurs all too often. This opinion comprises athletes of all ages and levels of competition including those at both the college and professional level of play. Often times it is the athlete’s skills that render them successful, but it is their lack of physical preparation and at times, their lack of “athleticism” that may “set them up” so to speak, for potential injury.

At the time of the initiation of an athletic performance training program, many young athletes, and at times their coaches, are more concerned with the amount of weight the athlete can lift vs. the proper way to prepare to train. A common question a coach or teenage athlete may ask their peer is “How much can you bench?” vs. “What kind of training program do you utilize? “

If the present day young athlete is less physically active (sedentary) during the early developmental stages of life, and disregards the opportunity for their body, and more specifically the neuromuscular system of the body to adapt and develop from the experiences of the various environmental stresses that occur in a child’s life, are they less prepared at the time of the initiation of performance training and/or their selected sport of participation? If the physical stresses such as walking, running, bicycle riding, tree climbing, participation in various sports and physical activities, etc... occur less frequently or are even eliminated, in addition to elementary schools and physical education classes eliminating “dangerous” activities such as a schoolyard game of “tag”, or climbing ropes in the gym class, is the young athlete of today as physically well prepared as the young athlete of the past? Are today’s young athletes prepared to adapt to the high stresses that are applied to their body over a prolonged period of time without breaking down? Are college and professional athletes, whom are so specialized and demonstrate high skill levels for their particular sport of participation, also prepared for the high stresses of their off-season training program?

Skill vs. Athleticism

Many successful one-sport specialized athletes are very “skilled” at their particular sport of participation. Though a baseball player may have a .300 batting average, or a basketball player may make a high percentage of his/her shots, are these athletes flexible, strong, powerful, and fast? Is their conditioning and work capacity at optimal levels? Are they prepared for the training that hopefully will not only enhance their level of play, but also allow them to resist the stresses associated with

athletic participation over a long season (avoid injury) while maintaining their ability to perform at an optimal level of performance time and time again?

There are also many athletes that display high levels of ‘athleticism’, but are not necessarily “skillful”. For example, an athlete with a superb vertical jump may not be a very good shooter of the basketball. A football player who displays excellent running velocity but demonstrates the inability to catch a football may be assigned to become a defensive back or with special teams. There is certainly a difference between “skill” and “athleticism” and it would be a crucial mistake for a coach to not recognize the differences between these two physical entities. Our responsibility as S&C Coaches is to enhance the athleticism and work capacity of our athletes, as well as assist in injury prevention. The newly developed athletic “enhancement” will eventually transfer to result in optimal athletic “skill” performance as the athlete continues to practice their skills over time i.e. hit a baseball further. The S&C Coach is also responsible for the preparation of our athletes, when necessary, prior to their participation in a stressful performance training program, to ensure that the training is applicable, that athletic enhancement is achieved, that overall work capacity is enhanced, and that the reduction of a potential risk injury is attained. The coaches, and more specifically, the position coaches of the specific sport of participation are the individuals responsible for enhancing the specific skill(s) level of the athlete. Due to the distinct differences displayed in these two physical entities (skill vs. athleticism), a very highly skilled athlete may not be prepared for the task of strenuous athletic performance training, or for their long season of participation during athletic competition.

The Neuromuscular System of the Body

The significance of the nervous/neuromuscular system of the young athlete was very highly emphasized during my time studying in the Eastern Bloc. Many of the coaches and instructors stressed of how “plastic” the nervous system of an adolescent is, and how this system of the body could be “molded” during the athlete’s early years during the initiation of the process of “general physical preparation” (GPP) that would assist to result in the young individual becoming the best possible athlete that they themselves could come to be. In fact, these coaches and instructors stated that up to 57.5% of the physical qualities that are potentially developed over the athlete’s career (athletic life) occurred between the ages of 12 to 16. This information was further substantiated to me by Mr. Gregorio Goldstein, a former Soviet Weightlifter and Weightlifting Coach here in the U.S with whom my friend and at the time NFL New York Giant S&C Coach Johnny Parker and I studied with for approximately 5 years. Coach Goldstein also highly recommended, as the other Eastern bloc athletic enhancement authorities, the necessity for young athletes to participate in as many different athletic endeavors as possible. This participation was necessary to develop their nervous system, athleticism, and work capacity, prior to focusing on the specialization of their particular sport. This GPP also prepared the athlete for the high stresses of performance training to not only enhance the individual’s athletic performance, but to ensure the body’s resistance to

these appropriately applied high stresses and reduce the risk and avoid possible injury. Even at the professional level of competition, Coach Goldstein recommended that the NY Giant football players participate in at least 250 to 300 hours of GPP annually.

Preparation for Athletic Performance Training

Prior to the initiation of any athletic performance training program, an evaluation of each athlete should be performed. If an evaluation were not performed, how would the coach possibly know of the deficiencies incurred by each athlete? The method of evaluation may be specific to the opinion and choice of each individual S&C Coach, but the utilization of some type of evaluative method is highly recommended. What is also recommended, if necessary, is a period of athletic performance training preparation. This preparation period of training will ensure that the athlete has achieved the necessary physical qualities of flexibility, muscle, tendon, and joint strength and stability, familiarization and the actual demonstration by the athlete of the proper exercise technique of those to be performed during the training program, as well as the enhancement of the athletes overall general physical conditioning and work capacity.

Preparation for the Training of the Adolescent Athlete

During the yearly training of the adolescent athlete, as previously stated, this young individual should participate and perform in as many different athletic sports and activities as possible. However, the total avoidance of specialization training is also not recommended. The emphasis is placed on GPP vs. sport specialization for a superior variety of stresses applied to the body for eventual adaptation by the athletes neuromuscular system in an attempt to “create” an overall better athlete. The preparation (GPP) vs. specialization guidelines for the adolescent through the early teenage years of training may be reviewed in Table 1.

<u>Age</u>	<u>Year of Training</u>	<u>Percent GPP</u>	<u>Percent Specialization</u>
12	1	70% - 80%	20% - 30%
13	2	50% - 60%	40% - 50%
14	3	30% - 40%	60% - 70%

Table 1. General Physical Preparation of the Young Athlete

The appropriate progressive and repetitive practice by the athlete of their actual sports skills performed over time, will support the transfer of these enhanced neuromuscular qualities resulting in an “overall” superior athlete.

Adolescent athletes will initially utilize body weight exercises (i.e. push-ups, pull-ups, squats, etc...) and medicine ball activities during their training program. Rubber bands and other implements may be used to assist in unloading the athlete during the performance of specific exercise activities such as pull-ups, if the athlete cannot perform these types of exercises with their full body weight. When appropriate wooden dowels, PVC pipe, and lightweight bars may be utilized to assist the “eye of the coach” to ensure that proper exercise technique is maintained and/or improved while the application of these additional light intensities will continue to enhance the appropriate amount of applied “stress” for the athletes adaptation from the exercises performed.

Preparation for the Training of the “Older” Athlete

As a S&C Coach begin their work with the “older” (i.e. high school, college, professional) athlete, the biological age and sports skill experience of the individual athlete may not correlate to the same level of athleticism or physical condition/work capacity of these same athletes. These differences, if presented, are undoubtedly a consideration and will certainly have an influence during the planned course of applied stress of performance training for the desired outcome of optimal athletic development. Over the years during multiple conversations with S&C Coaches, and more specifically my friends Al Vermeil, Johnny Parker and Al Miller, I have heard time and time again how often the professional athletes they have worked with were not prepared to train. They have stated how frequently they have had to physically “prepare” many of their professional athletes prior to allowing the athlete participate in their professional teams the off-season S&C program. This is not to insinuate that the athlete’s previous S&C Coach was a poor coach. This is simply stating that at the time the athlete arrived to participate in the team’s off-season S&C program, they were not physically prepared, in the opinion of these coaches, to partake in the teams strenuous off-season training program. We have also had this same experience with some of the college and professional athletes we train at our Performance Center, as this was also often the case during my 10 years as the Head S&C Coach at St. John’s University.

The necessity of an athletes physical “preparation” is especially true of those specific high school, college, and professional athletes that have participated and completed a course of physical rehabilitation prior to their arrival for participation in an Athletic Performance Enhancement Training Program.

I have often heard at lectures, or during my conversations with other S&C Coaches that they don’t have the time to “prepare” the higher level athlete for their off-season athletic performance training program. This “preparation” would take away from the valuable training time that is necessary for the athlete’s actual participation in the specific off-season training program. Many of these coaches have been of the opinion that the athlete should participate in the same off-season program as their teammates, as the athlete will either adapt or not adapt i.e. “sink or

swim” during the training process. The obvious response by many coaches would be how could a coach not spend the time to preparing the athlete?

As an example, during the 1980's Coach Goldstein spent a significant amount of time teaching both Coach Parker and I the value of the overhead squat as both an evaluation and performance training tool. Al Vermeil substantiated this information when he expressed the importance of the overhead squat to me during a conversation that occurred in 1990. If the S&C coach utilizes the overhead squat as an evaluative tool, and a particular athlete demonstrates poor exercise technique, why would an S&C coach apply inappropriately high intensities to the athlete during squat exercise performance when the athlete had previously demonstrated such a poor squat performance? Should an athlete that demonstrates limited shoulder range of motion or poor thoracic mobility be stressed inappropriately and instructed to perform the overhead press or the snatch? Is it reasonable for an S&C Coach to prescribe excessive and inappropriate specific exercise intensity and/or volume when deficits in specific physical qualities and work capacity have been demonstrated? This is especially true when one would consider that these improperly performed exercises (poor technique) are to be performed repeatedly over time where both increases in exercise volumes and intensities will be applied as usually prescribed in any athletes training program design.

Preparation for training of the higher level athlete probably does not occur as often as we would assume. Yet it is very simply achieved in a fairly short period of time. Utilizing methods such as Javorek's complexes, where an athlete will perform a "cycle" of 5-6 exercises in immediate succession for 6 to 8 reps per exercise and eventually complete 4-6 cycles in a training session is a very effective training method to establish the necessary exercise range of motion (flexibility), muscle and joint strength and stability, familiarity of the exercise performance (technique), and enhance the overall work capacity of the athlete. Initiating the exercise complex at 25% body weight and eventually achieving 40% body weight, as well as instituting activities such as medicine ball and running tempo, etc... depending upon the individual athlete, the GPP may take a total of 2 to 4 weeks to achieve. At that time the athlete will be well prepared for the advanced yet appropriate exercise volumes and intensities required of an off-season performance enhancement training program.

Considerations based upon the athlete's biological and training (experience) age, athleticism, training experience, and evaluation test results will assist, when necessary, in the program development and prescribed exercise selection to be utilized by the athlete to prepare them prior to the initiation of their performance enhancement training program. Although many of these off-season athletic enhancement training programs may differ, what is certain is that often "preparation" of the athlete is essential to ensure optimal training success. There are coaches with the opinion that they do not have the necessary time to prepare the athlete for off-season training. These coaches will unfortunately likely find that that the athlete will lose that preparation time and perhaps an even greater amount of

time when during the training period, the athlete performs poorly, breaks down, and is possibly injured. There is an old saying that states “you can pay me now, or you can pay me later”. We as S&C Coaches should determine the best time to write the check.