

Sport Training Program Management
The Criminal Nature of its Absence
James Smith

The problem must be identified before the solution is drawn. If you are currently employed in a capacity that is contributing to the problem it is your choice as to whether you will recognize and perpetuate the problem or change your course in favor of long term athlete development and the improvement of your sporting organization.

The Problem

The “strength and conditioning” profession has a brief history in the United States. On a large scale, the team sports industry didn't formally include its use until the early/mid 1980's.

Up until that time team sport athletes were largely left to their own instincts with respect to how to physically prepare themselves for training camps and competitions during the stages of the year in which they were not under the supervision of their sport coaches. Others, were operating under the guidance of sport coaches who possessed some experience in physical culture and the associated confidence in instructing physical preparatory measures.

The training load is, from a physical standpoint, constituted by all physical loads undertaken by the athlete. This includes all technical-tactical, physical preparatory, and active recovery/regeneration modalities of training.

Prior to the existence of formal “strength and conditioning”, the training loads the athletes were required to perform by their respective teams during the off-season were not formalized; as the physical preparatory element was not forced upon them nor formally present in the training. Not all, but many collegiate and professional team sport athletes up until the 80's were using instinct to regulate their physical preparation during the off-season.

The directive of “strength and conditioning”, as the title implies to most, but only because of its familiarity, is to develop the strength and work capacity of the athlete; however, the two words are redundant. Conditioning is a verb no different than preparation, training, or developing. The word conditioning alone does not provide any particular sport scientific information similar to the word 'core' which bears no clinical anatomical relevance yet is used repeatedly amidst the fitness community. The question is what quality is being conditioned, prepared, trained, developed, or what have you.

Furthermore, the curricula (exercise science/physiology) designed to educate aspiring coaches in physical preparation are fundamentally flawed precisely because they do not address the most important scientific study- the science of sport. Any attempt to prepare people for careers in physically preparing athletes via 'exercise science/physiology' is backwards. By analogy, a NASCAR driver's support team must thoroughly understand the nature of the race the driver is faced with (distance, track geometry, climate, number and skill of opponents, and etcetera...)before any mechanical aspect of the car is addressed. If the pit crew only understands the nature of the car, and not the nature of what the car is faced with each race then they are unfit for the job.

The same logic, or lack thereof, may be applied towards sport/technical-tactical coaching. The technical-tactical load, the most significant aspect of physical loading due to its correlation to sport results, is constructed by individuals (sport coaches) who have little to no understanding of the

physiological implications or the biodynamic/bioenergetic relevance of the practice drills themselves.

The biomechanics of movement are arguably the most significant aspect of technical preparation. Inefficient mechanical execution of sport maneuvers not only limits specific movement outputs but also drastically increases mechanical stress on joint and lever systems.

Thus, the intentions of the powers that be (sport coaches, deans of academia, certifying organizations) were/are presumably sincere; however, their unfit knowledge base has hindered their ability to construct appropriate curricula; and the subsequent training loads for athletes. The result is what I have long since considered to be a criminal environment in which athletes are experiencing far too many injuries, and subsequent shortened careers, as a result of over volumized/intensified training and sport practice loads.

The instance of documented connective tissue trauma has escalated over the years. The reason, in my view, is an eventuality of the fact that the magnitude of mismanaged training load taxonomy has dramatically increased since the addition of formalized “strength and conditioning”. The training load was already flawed in so far as western sport coaches are not educated in the field of sport physiology and biomechanics; however, prior to the introduction of S&C the cumulative physical load was less than the current sum total in which physical load volume/intensities are, in many cases, enormous. This comes as a consequence of sincerely intentioned, yet uninformed, “S&C coaches” adding to the volume of technical-tactical work with potentially huge volumes/intensities of misdirected physical preparatory efforts.

It is, therefore, my contention that the industry of “Strength and Conditioning” is the most damaging sport training component to have emerged in the last 30 years.

The product of this damaging situation yields a distorted scenario:

A physical preparation coach who is able to develop competence in spite of an exercise science/physiology degree is faced with the dilemma of having to prepare their athletes for wildly off-base pre-season training camp loads that place unrelated stress on the athletes than the actual games themselves.

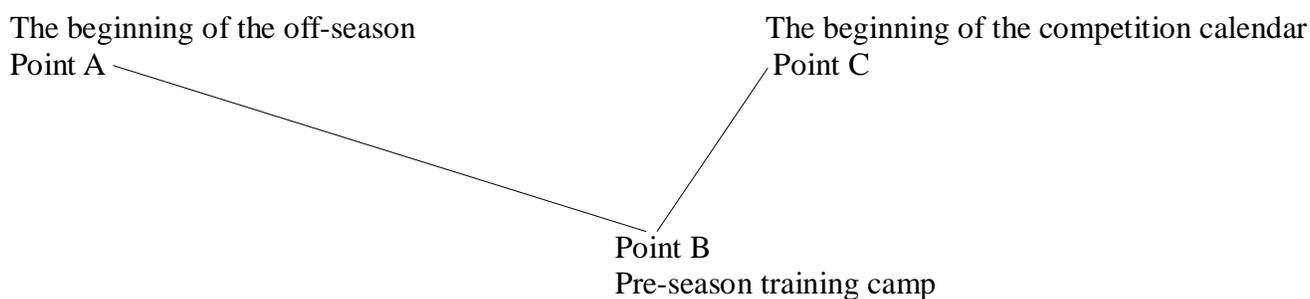
The situation may be described in geometric terms:

The logical solution to solving the problem of how to most effectively prepare athletes during the non-competitive stage of the year is to work backwards from the specific nature of the competition demands (a process that requires sport physiological knowledge). This is efficient and analogous to minimizing the distance between two points on a graph by drawing a straight line (short of being able to curve space:time).

The beginning of the off-season
Point A

The beginning of the competition calendar
Point B

Unfortunately, this is not the case because of the wildly misdirected nature of most pre-season training camps that add an additional point to the system which drastically changes the geometry



The geometrical detour is an eventuality of the fact that the corporate population of team sport and S&C coaches fall prey to the misnomer that 'mental toughness' (a grossly inadequate term used to characterize a complex aggregate of psycho-behavioral components) must be developed via measures that wildly exceed or differ from the sport demands themselves.

The analogies are abound. One identifies his destination and maps out a set of directions that provide a direct path; however, the traveler is forced to take a substantial detour which yields greater fuel consumption, mileage, mechanical stress, and general wear and tear on the vehicle.

The most glaring problem associated with this approach is the physical degradation that is experienced by speed-power athletes. This comes as a consequence of the inevitable long durations and low power outputs associated with most 'conditioning' activities which ultimately result in lactic workloads due to their challenging nature .

A working knowledge of muscle physiology reveals that the intramuscular biochemical changes associated with lactic loads destroys skeletal muscle mitochondria (the molecules which generate the primary muscle contractile fuel- ATP). The stress placed upon the lactate buffer mechanisms causes detrimental changes in type II fibers which diminish their contractile velocity. It is for this reason, as Charlie Francis pointed out, why a T&F thrower will always out jump a sprinter; the throwers training is entirely alactic while the sprinter, due to the lactic nature of speed endurance and special endurance training, is not limited to purely alactic loads and thus their explosive power potential is not as great as the thrower whose event duration is fractions of even the shortest indoor sprint.

Thus, the legions of speed-power team sport athletes who are subject to lactic 'mental toughening conditioning' drills during their pre-season stages of training are, ironically, being de-conditioned for their sport requirements.

The predominance of team sport disciplines are alactic/aerobic (with the primary bioenergetic differences coming in the form of the proportionality between the two systems). Thus, the only rationalization for lactic loads, if they are to be used at all, is to systematically introduce them far away from technical-tactical stages/camp periods for the purpose of developing the aerobic capacity of the myocardium. This provides enough time to shift the adaptations in favor of the aerobic development of the skeletal fiber which is most closely related to biodynamic aerobic work capacity due to the fact that the oxidative potential is developed in the muscles involved in the competition exercise.

Problematically, however, a great deal of lactic workloads are placed upon team sport athletes immediately prior to their competition calendar during training camps (which, ironically, are intended to most specifically prepare the athletes for competition).

On the whole, team sport athletes are no longer provided the opportunity to address their physical

preparatory needs via their own auto-regulatory efforts. Idealistically, it is the aggregate of intelligent supervision and guidance that is combined with athlete auto-regulatory input that contributes to the highest attainable results. Instead, formalized programs are headed by individuals who are products of academic myopia (credit to Buddy Morris for this term) and their sport practices are constructed by individuals who are not specialists in sports biomechanics or physiology. As a result, the sum total training load is often one that is not only far too large but also misdirected in its taxonomy.

There are, on the whole, 3 broad groups of team sport athletes in terms of their talent level for sport:

1. So gifted that if all they did was show up on game day they would still outperform the majority of their teammates and competitors
2. Recruiting mistakes in so far as their lack of physical ability; yet their *neurophysiological ability is high and this combined with incredible work ethic allows them to overcome their physical shortcomings and keep their head above water and contribute in some way
3. Somewhere in between the two points already listed. Good physical and neurophysiological talent that is combined with hard work.

*In the context of sport, one may consider neurophysiology to characterize the speed at which an athlete is capable of processing visual input and responding to it with physical acuity. (This ability is often referred to by coaches in layperson slang such as 'vision' or 'the ability to slow the game down'). Problematically, it is a lack of neurophysiological ability that is often mistaken as an athlete playing 'stiff'. The coach sees an athlete moving upright, rigidly, and slower and says 'that guy can't bend' or he plays 'stiff'. When in reality, the issue often has nothing to do with flexibility or mobility about a joint. It's simply a function of that athlete's inability to process information as fast as necessary to respond to an opponent's movement with physical precision. The result of this lack of ability appears as stiffness of movement because of the lag time the athlete is dealing with and corresponding impaired movement. We see this over and over again from American football players who perform extremely well in the pure output tests at the Scouting Combine and Pro Timing Day (sprints, jumps, agility drills) yet appear awkward when performing specific position drills.

If you have been coaching or competing long enough you have encountered all three categories of team sport athletes and are well aware of the fact that most of these athletes (at least at the larger school and professional levels) fall under the 3rd category.

In order to attain the highest level of team sport competition results, the reality is that an individual approach must be taken to physical AND technical-tactical preparation.

Category 1, the most gifted, are athletes whose output potential is so great that the physical nature of technical-tactical practice alone is tremendously stressful. These athletes are the high performance race cars of the team. While they are capable of producing the highest outputs they are also the most susceptible to injury and require the most maintenance (therapy). It is for this reason why the practice of sport and minimal physical preparatory training is enough stimulus for them to develop impressive physical characteristics.

Category 2, the least gifted (physically), possess output levels so low that they project the illusion of greater durability because they are incapable of generating the same type of outputs as category 1. Their neurophysiological skill and work ethic, however, allows them to perform at a technical-tactical level that is sufficient enough to contribute. Their work ethic is directly proportional to their playing potential and off-season training is their life blood.

Category 3, the general population of Division I and professional sports, cannot afford to miss practice/training weeks like category 1; however, they are gifted enough to not require the same magnitude training load as category 2.

These are sweeping generalizations; yet they are accurate and sufficient enough for one to accept the fact that neither the physical or technical-tactical preparation can be administered in a one size fits all approach (as is the case in many programs) if the objective is to attain the highest possible performance results. The highest possible absolute, not relative, results cannot be attained when technical-tactical and physical preparatory loads are constructed void of sport biodynamic/bioenergetic knowledge.

The Solution

A program manager whose skill in programming and organizing all technical, physical, and active recovery/regeneration workloads is necessary in order to ensure congruency between all facets of preparation that are currently, and have been historically, largely incompatible with one another and damage no population greater than the athletes themselves.

The individual(s) charged with managing the program must have the most comprehensive knowledge of all aspects of sport and the training load (technical-tactical, physical, recovery/regeneration). Logic dictates that it is this individual who must program and organize all technical-tactical, physical, and recovery/regeneration workloads and allow the respective specialists to supervise their individual areas of expertise. In this way, total accountability is ensured along with two probabilities:

- Drastic reduction in non-contact injuries
- Significant improvement in competitive results

The concept of program management is a logical and intuitive one; however, the capacity to perform such a professional task is well beyond the scope of any detailed set of instructions. Coaching, in any realm, at a level of high mastery requires an aptitude that supersedes what any potential curriculum can provide to a student. In this way, the ability to coach at a true level of high mastery is dependent upon, first and foremost, a pre-existing level of creative thinking and critical/complex problem solving ability. By association, true coaching excellence and world class athletes have much in common-you either have this potential or you don't. Only after recognizing that one has this potential may any particular curriculum/training program serve to further develop one's skill.

Likewise, while a certain amount of physical or technical-tactical development is attainable by copying and pasting the popular set x rep programs that are commonly found in training manuals that are for sale or the latest schemes that are discussed at the coaching clinics; as Charlie Francis stated "the more you repeat the same program, you're room for improvement becomes less and less". Thus, the objective of coaches must be to identify the mechanisms of sport biodynamic/bioenergetic advancement in order that they might liberate themselves from the confining borders of fixed programs which, as previously explained, cannot possibly provide continued support for various populations of athletes who require individualized loads to reach their highest potential.

The Paradox

One may question how it is possible that such a flawed system could continue to produce high level sports achievements by so many teams of athletes. The answer lies in the athletes themselves. The unique nature of the human organism sees to it that those who received the most athletically relevant genetic material from their parents possess the greatest capacity to attain high performance results

regardless of how mistreated they are by their coaches.

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