



OLYMPIC COACH

SPORT PERFORMANCE DIVISION

TeamUSA.org

Summer 2011



Sport Performance Workshops:
A New Applied Science Model for
USA Track & Field

Fit for purpose: Linking Coach
Education and Development to
Athlete Development.

Changing a Team Culture:
Championships are Founded in
Program-Wide Trust

Gearing up for London
2012

Rugby 7's vs. 15's

Protecting the Future of
Sport: A Coaches' Role

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Awards Dinner

Olympic Day
Celebrates Coaches

Measuring Basic Per-
formance Parameters
from Video: A Tutorial with
Sprinting as an Example



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United States Olympic Committee

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Editors

USOC Coaching Education Department
Christine Bolger 719.866.2551
Christine.Bolger@USOC.org

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Message From The
Chief of Sport Performance
by
Alan Ashley

First, let me welcome you back to the Olympic Coach Magazine. We took a short hiatus from publication and now we are back with great information and collaboration by sport professionals from many different NGBs and experts in the sports community.

Coaching is a key area of focus for me in this new role as chief of sport performance. When it comes to performance, coaches are one of the most influential and consistent pieces of our sport system. Time and time again we can all point to programs that, in and of themselves, would have been good, but instead became great as the result of the leadership, passion, and expertise of a great coach. Finding ways to support and interact with the coaching community is essential to our future efforts as a nation and will be one of the initiatives we undertake as a staff. In looking at this, there are a couple of key principles I believe can help shape our future.

For the top programs in each sport, the day-to-day programs in training and preparation for the athletes is primarily delivered under the direction of the coaches. The coach must act as the center piece for all decisions on the performance plan and must coordinate a growing list of demands brought on by an ever more complex and competitive sports environment. In addition to managing the team, the staff and a broadening list of administrative responsibilities, our coaches must also find time to analyze the competition and establish ways to integrate new and more complex methods of assessment and evaluation through sport science and medicine. As a result our performance planning and the determination of how resources are deployed needs to be driven by coaches. Our resources can best be deployed when it is clear that the performance objectives have been established by the coaches in consultation with their athletes and that the programming necessary to reach these objectives has been prioritized based on their most critical performance needs. If there is a clear understanding of what it takes to win at the highest level and this information is used to drive the preparation and competition plan for the athletes we are all in a much better position to act on behalf of the athletes and coaches.

For athletes and coaches in the sport pipelines, we have different challenges. The critical question has always been, "How can the USOC best support national coaching programs in the Olympic Sports?" Is it through the development of a national coaching system, the development of curriculum and delivery systems, through a national accreditation system, or by hosting conferences and seminars? It is my intention to take on that question so that we can support a sustainable system that doesn't duplicate the efforts of the NGBs and other coaching organizations, but instead provides a conduit for sharing effective ideas, creating collaboration and momentum by unifying our efforts as a nation and developing performance impacting programs that enhance rather than duplicate the efforts of our partners.

Over the next few issues I will expand on these ideas and report on our progress in research the best way forward and the collaboration with our partners.

Thank you for your efforts on behalf of athletes everywhere and please don't hesitate to reach out to me with your ideas concerning the creation of the best system possible for our country.



Gearing Up for London 2012

Lisa Elson

Coordinator, Paralympic Games, USOC International Games

The USOC is tailoring their planning with the success of Team USA in mind as they continue their preparations for the Olympic and Paralympic Games in London.

Alan Ashley, the USOC's chief of sport performance outlined the USOC's goals for the London Games.

"Our goals for each Games are fairly consistent in that we want to focus our resources and time on putting in place the system for the athletes, their coaches and the NGBs that allows them to compete at their full capability," Ashley said. "Given the complexity of our delegation and the number of sports we compete in this is a challenging proposition and one we take very seriously."

With these goals in mind, Leslie Gamez, managing director of International Games, commented on how the USOC is working to improve what they offer to the athletes.

"We're trying to make improvements in a number of areas to positively impact sport performance," Gamez said. Some of those improvements include a new approach to team processing tailored to NGBs and athletes focused on minimizing the time athletes spend at team processing, implementing new mobile phone technology for athletes to use during the Games, and incorporating web based technology during the planning for the Games to simplify the level of involvement for NGB sport staff in an effort to better use their time.

"We have taken into account post-Games surveys from past Games to address concerns, issues and snafus that occurred at these Games, and we are trying to address them so we can improve the service we provide for the athletes," Gamez said.

Kelly Skinner, team leader in Sport Performance chimed in with how his team is focusing on sport performance through their support of personal coaches. "The particular sports that we work with have a large number of personal coaches in addition to the national team coaches, and we are partnering with the NGBs to maximize opportunities for the personal coaches to continue to work closely with their athletes," Skinner said.

The USOC is expecting a large team size with entries in almost every sport. The estimated team size for Team USA for the Olympic Games is 550 athletes. The numbers are down from Beijing due to the loss of baseball and softball from the Olympic Program, but the addition of women's boxing has added a few to the count. For the Paralympic Games, an estimated 207 athletes are expected to compete. Coordinating this number of athletes requires a defined focus.

"Our primary focus moving into the Games is to make sure that we have a solid plan with each sport to prepare athletes to maximize their capabilities," Ashley said. "We have a number of athletes that have shown that they are ready for Olympic and Paralympic success, and we want to make sure that we do everything

Quick Facts



LONDON 2012

Olympic Games *(All numbers are estimates)*

- Games dates July 27 – August 12
- 550 athletes
- 325 team support staff
- 250 USOC/NGB support staff

Paralympic Games *(All numbers are estimates)*

- Games dates August 29 – September 9
- 207 athletes
- 124 team support staff
- 95 USOC/NGB support staff

Diagram by Lisa Elson

we can to help them achieve their goals.”

In line with this focus, the International Games Division has planned several advance site visits for NGBs and USOC staff to help everyone get oriented to the Games environment in London to best support the athletes. Many of the NGBs have been to London for site visits and some to compete in pre-Games events. This philosophy was echoed by Skinner.

“We are working closely with the NGBs on maintaining a consistency of service and support where we have been engaged with them and where they have asked for support. Our team is focused on helping to meet the needs of the NGBs in order to give them every opportunity to be successful,” Skinner said. Wes Barnett, Team Leader in Sport Performance said his teams are focusing their preparations on the basics.

“We try to really focus on the basics of the sport and preparation, before looking at ‘special’ things,” Barnett said. “However, we do try to engage in projects that focus on specific physiological needs and demands of the athletes.”

The level of pre-planning is crucial to the success of Team USA. As a result, most of the USOC’s operational sites in London are already secured and under contract.

“As we say, the early bird gets the worm, and we were out ahead of the curve securing prime training and operational sites,” Gamez said. Presently secured are sites for a High Performance Training Center, Operations Center, Performance Services Center, Team Processing, a multi-sport field house, and they’re in negotiations now for a track and a swimming pool.

Maximizing sport performance starts with the athlete’s first stop at the Games – Team Processing. Team Processing for both the Olympic and Paralympic teams will take place in London. This will be the first time in recent Games that both Olympic and Paralympic Team Processing will take place in the host city.

Some of the opportunities for athlete success are available at the USOC’s High Performance Training Center, Performance Service Center and Operations Center, which will all be set up at two university campuses in East London.

The campuses include athletic training facilities (currently under construction), dormitories and classroom and lecture hall space. A new multi-sport venue will include basketball, volleyball, plus open gym space for mat sports and strength conditioning. Dormitory space will include 350 single dorm rooms, which will provide housing for training partners, personal coaches, medical personnel, technical personnel, and any other USOC/NGB support personnel. The campus near the Athlete Village will be used for Performance Services like science, coaching and medicine, as well as for Games Operations.

The USOC has also contracted with an additional training facility, located minutes north of the Athlete Village. This space adds a six court field house to the total training space available to Team USA athletes. The USOC will be utilizing their relationship with sponsor 24 Hour Fitness to provide training equipment for the athletes at the USOC training sites.

“24 Hour Fitness will once again be outfitting our High Performance Training Center at the Games in London,” Barnett said. “They are and continue to be a great sponsor with significant abilities to impact perfor-

mance.”

In addition to their contributions during the Games, 24 Hour Fitness has also contributed to the NGBs pre-Games preparations.

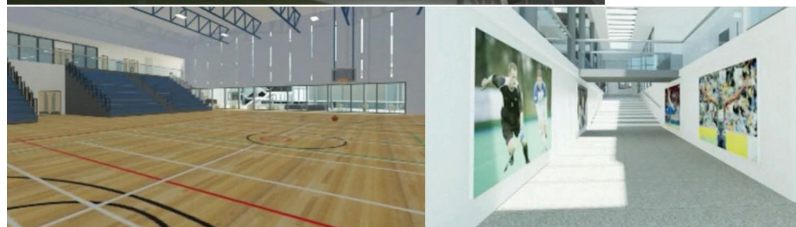
“They (24 Hour Fitness) have generously agreed to partner with the NGBs to purchase equipment that can be provided to various NGBs and high performance clubs and facilities,” Barnett said. “They supply many of the NGB National Teams with complimentary memberships.”

Several sports have secured their own pre-Games training sites for additional training prior to the opening of the USOC’s training sites.

“What we are seeing is that most of the NGBs will be conducting their pre-Games training in various locations throughout Europe in order to help get the athletes acclimated,” Skinner said. While some sports train in Europe, other sports are utilizing the services offered at the Olympic Training Centers.



The new sport building at the high performance training center will include a full size basketball court and ample space for training activities.



rendering provided by the University of East London

“Each of our three sports (Paralympic Track & Field, Paralympic Cycling and Paralympic Swimming) has a resident program that is an integral part of 2012 preparation. Track & Field’s program utilizes the Chula Vista Olympic Training Center, while both Cycling and Swimming are based at the OTC in Colorado Springs,” Julie O’Neill, team leader for Sport Performance said.

All of the preparation and training will help the athletes give a solid performance, which can only happen once the London Organizing Committee makes the final touches on the competition venues. The organizing committee’s operational systems are in check, and they have plans to move into advance stages. New construction on venues is rapidly progressing, with some venues already complete including existing historical venues like Wimbledon, Wembley, Greenwich, Hyde Park and the Lord’s Cricket Grounds. The functionality of an organizing committee can play a major role in the success of a Games. Gamez commented on the progress of the organizing committee, and the USOC’s relationship with them.

“The organization of the London Games is moving at a predictable and steady pace,” Gamez said. She reported the USOC has established a positive relationship with the London Organizing Committee for the Olympic and Paralympic Games (LOCOG), and communication between LOCOG and the USOC is occurring almost on a daily basis.

The Olympic Park is taking shape and will house eight Olympic and 11 Paralympic competition venues in addition to the main Athlete Village. Public transportation to and from the park will be popular due to the nearby Tube station as well as the Javelin train station, which provides a seven minute train ride to central London at St. Pancras station.

In addition to its close proximity to public transportation, the Athlete Village will offer amenities such as Internet and TV in each apartment. In the past, Internet and TV were available for purchase through the Rate Card catalogue, but were not a standard in the rooms of the Village.

Despite all of the advanced preparations, the USOC has identified some potential challenges they might face in London. Transportation around the city has stood out as something to overcome.

“The city of London is beautiful and historic, but extremely tight and crowded,” Gamez said. “Public transportation will be the key to getting around London for the Games.”

The USOC has plans to arrange ground transportation to run between all operational sites. There are several venues spread out across the city of London, with the venues for mountain bike, slalom and rowing being outlying venues. The USOC will be faced with the task of identifying the quickest routes to transport athletes and staff to and from these venues.

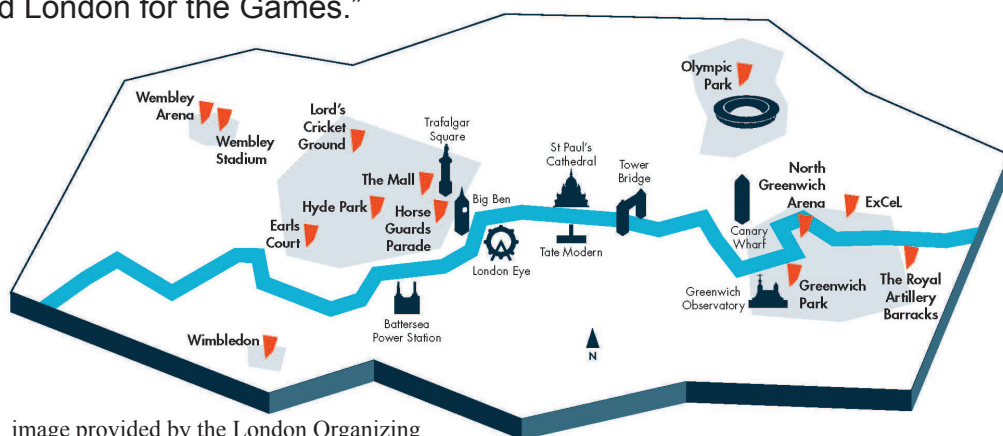


image provided by the London Organizing Committee of the Olympic Games (LOCOG)

“London transportation will pose a challenge for Team USA because of the need to integrate LOCOG transport with our own bus system to take our athletes and coaches to our dedicated facilities,” Todd Allison, associate director, International Games said. “This combined with driving on the left, a well utilized public transportation system, restrictions imposed by Olympic overlay, and the inherent challenges of moving around a big city will need careful planning by us and communication to all affected.”

All of the advance preparation will take center stage once the athletes qualify and begin their Olympic or Paralympic journey.

“Our teams are working hard and we are taking things one day at a time,” Barnett said. “They first have to qualify for London, and we are making sure that no stones are left unturned during the qualification process.”

It is evident the plans and preparations are taking shape and will continue to progress as the date for the Opening Ceremony approaches. It will take a team effort from everyone involved to ensure the London Games will be a success for Team USA, and the USOC is ready to take on any challenges and help their athletes bring home the gold.

Sport Performance Workshops: A New Applied Science Model for USA Track & Field

Robert Chapman, Ph.D. FACSM

How can sports science be best used to help elite track and field athletes run faster, jump higher, and throw farther? On the surface, it appears to be a straight forward question, but for USA Track & Field affiliated sports scientists around the country, the answer is far from simple. In this article, I will share with you the innovative approach that USA Track & Field has taken in their efforts to try and answer this question and help augment the performance of top American track and field athletes heading into the 2011 World Championships and 2012 Olympic Games.

Why Applied Sports Science Matters

In elite track and field, a fraction of a percent difference in performance can easily be the difference between winning a medal in the Olympic Games and finishing well back in the pack. Similarly, very small deficiencies in mechanical and neural factors, such as range of motion, balance, or movement pattern asymmetry, can easily be the difference between healthy outcomes or an injury that impairs training and derails a season. In the past four Olympic Games, the average time / mark difference between 4th place (out of the medals) and the gold medalist for all 43 events in the sport of track and field averaged 1.88% for men and 2.44% for women [range 0.36% to 5.63% across the individual events (Andre, 2010)]. In most cases, these percentage differences are so small they encompass just a few hundredths of a second or a few centimeters in distance.

Table 1 – Percent difference between 1st and 4th place at the last four Olympic Games (averaged over each event area), from Andre et al., *Medicine and Science in Sports and Exercise*, 2010.

| Event Area | Men (Time/ mark difference be- tween 1st and fourth) | Women (Time / mark difference be- tween 1st and 4th place) |
|------------|--|--|
| Sprints | 1.83% | 1.70% |
| Distance | 1.09% | .98% |
| Throws | 3.07% | 5.35% |
| Jumps | 1.98% | 3.21% |

Table 1

Hopkins and colleagues (1999) completed a statistical analysis demonstrating that a 2% improvement for an elite track sprinter would give that athlete a greater than 75% chance of winning a race against three competitors who had equal ability. Similarly, the chance of winning the same race effectively drops to zero with a 2% reduction in performance. A follow-up analysis by Hopkins in 2005 suggests that a 0.3% to 0.5% change in performance is the difference between winning and losing within equally matched elite sprint athletes.

Clearly, very small changes in performance have a very large impact on competitive outcomes in elite track and field. Can the proper application of sport science help our nation's best track and field athletes gain these fractions of a percent in performance they need to reach the podium? Absolutely!

The Sports Performance Workshop Model

Since its evolution and growth under the late Dr. C. Harmon Brown, USATF's sports sciences program has been positively influencing the performance of track and field athletes throughout the USA. Historically, these service efforts could be divided into two different approaches: one focused on basic sci-

ence and another centered in applied science.

With the basic science approach, the goal was and remains the scientific discovery of what limits human performance. In some cases, this means collecting large amounts of data on the best athletes in the world, then dissecting exactly how they do what they do better than anyone else. For example, this has largely been the approach of biomechanist Dr. Ralph Mann, who has developed an idealized sprinting “model” based on an amalgam of hundreds of elite sprinters from the mid-1980’s through today. If we know how the best sprinters in the world mechanically apply force, both kinetically and kinematically, to achieve top speed, we can then encourage other sprinters to try and pattern their movements off of the model. In other cases, a basic science approach means experimentation in the laboratory. For example, recent laboratory work by biomechanist Dr. Peter Weyand using a specially instrumented force plate imbedded treadmill has shown that faster maximal running speeds are created by producing more force against the ground, and not from an improved ability to reposition the legs more quickly through the air. Taken together, these basic science approaches help scientists understand what limits human sprinting.

Now, USATF’s goal is to augment these successful basic science efforts with a robust applied science approach, taking our scientific knowledge out of the lab and into the field, and directly helping athletes and coaches with interventions that optimize performance. USATF’s new applied science delivery model has been labeled Sports Performance Workshops and are designed to put leading sports science and medicine professionals in direct contact with athletes and coaches in the field, in a one-on-one setting utilizing a “stations” format.

Sports Performance Workshops feature:

Functional Movement Screening (FMS):

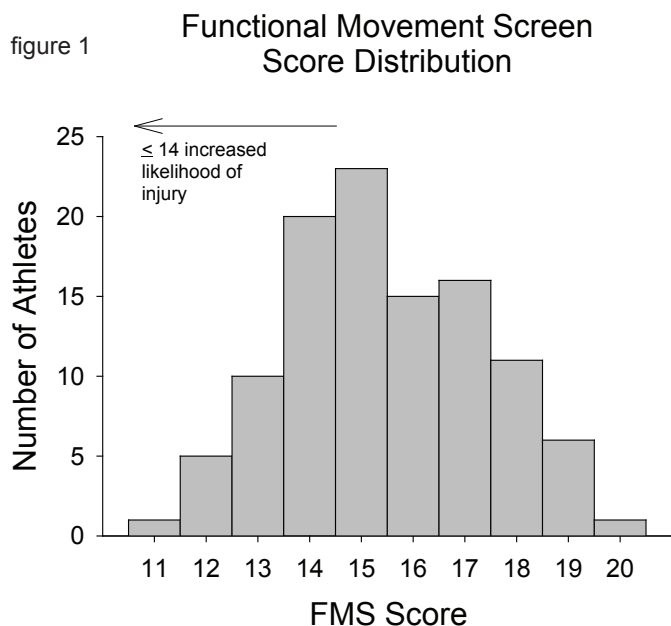
The functional movement screen is a simple set of seven movements that are analyzed and

scored by a trained medical professional. FMS looks at components such as asymmetries, range of motion issues, balance and motor control, flexibility, and the ability to complete basic movement patterns. Information and scores from this test correlate strongly with injury incidence and likelihood, and a key component of FMS is the prescription of exercises and interventions designed to proactively correct basic movement issues and limit the likelihood of injury.

In the first eight months of implementation of Sports Performance Workshops, USATF and our partners at St Vincent Sports Performance Center have completed 109 functional movement screens on targeted elite athletes across all events areas. The vast majority of these screens were completed on athletes who were ranked in the top 20 in the world in 2010. The distribution of FMS scores from these athletes are displayed in Figure 1 [note: on next page]. Published research indicates that athletes who have a total FMS score of 14 or less are at greater risk of sustaining an injury at some point during training or competition, compared to athletes with a score above 14. Similarly, athletes who have at least one bilateral asymmetry score on one or more of their individual FMS movements – for example a score of 2 on the hurdle step movement with the left leg and a score of 3 with the right leg – are also believed to have a greater risk of developing an injury. Our data to date indicate that of the 109 athletes screened, 36 athletes (or 33%) had an overall FMS score of 14 or less. Additionally, 72 athletes or 2/3rds of the elite athletes screened had at least one bilateral asymmetry identified in the FMS screen.

Once these issues were identified with the screen, each athlete and coach were provided with corrective exercise interventions, designed to specifically address key movement limitations. The goal of this corrective exercise prescription being a) a proactive approach to limit injuries before they occur and b) an effort to improve basic movement patterns which result in improved performance. Injury rates post-FMS screen and performance data will be analyzed after the conclusion of the 2011 season.

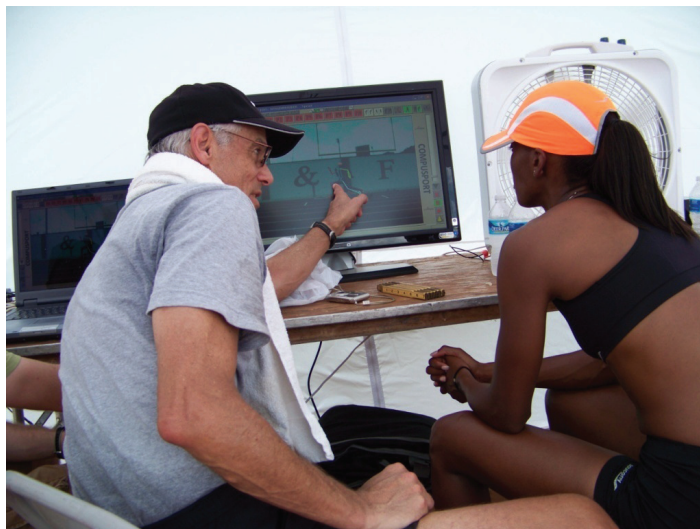
Figure 1. Functional Movement Screen (FMS) score distribution from 109 elite US track and field athletes, measured at USATF Sports Performance Workshops. Thirty-nine of 109 athletes screened (33%) had an FMS score of 14 or less, suggesting an increased risk of sustaining an injury during the current season.



Biomechanics:

A key applied performance component of these Workshops is individual, one-one-one analysis by leading sports biomechanist, utilizing an “immediate” feedback approach. Using the sprint events as an example, Dr. Ralph Mann has elucidated specific mechanical components directly related to elite sprint and hurdle performance, and he has perfected, over many years, measurement and feedback mechanisms which allow for a tremendous transfer of technical knowledge directly to athlete and coach. The end result is a visual performance “model” which mimics idealized sprint mechanics, and can be overlaid on a video of athletes taken at the Workshops. Athlete, coach, and sports biomechanist can review their sprint video and performance model on a track-side video screen, immediately after completing a top

speed pass in front of the camera. After review, the athlete is instructed and completes drills and other mechanical interventions designed to bring mechanics more in line with the performance model.



Dr. Ralph Mann (left) and Dee Dee Trotter reviewing high speed video with her coach (not pictured) at a USATF Sport Performance Workshop

A unique aspect of this information delivery format to the athlete and coach is that it engages three separate modalities of learning: visual feedback from seeing the athlete in reference to the performance model, auditory feedback from hearing analysis and corrections advised by the biomechanist and coach, and finally kinesthetic feedback from the athlete's completion of drills and interventions to feel the proper movements. The athlete and coach get a qualitative sense of how their mechanics improve with multiple passes within the Workshop session. Quantitatively, this approach has been effective in changing key variables related to sprint performance. For example, in 31 elite 100m and 200m sprinters analyzed at the Workshops to date, ground contact time (with which a shorter ground contact time is strongly related to improved sprint performance) improved by an average of 0.003s (or 21%) from the initial top speed pass to the final pass. While 0.003s may seem like a small amount, consider that for an elite 100m male sprinter, a 0.003s improvement in ground contact time projects to an improvement of approximately 0.12s, or about a 1.0-1.5% improvement in final 100m time. At the elite level, this is a

substantial improvement, but even more impressive when considered it comes after just 60 minutes of analysis and intervention.

Sports Psychology:

At the Workshops, sports psychologists have worked with one-on-one with athletes and coaches on mental skill development. In particular, the theme for the sports psychology component has been “focus.” When elite athletes enter the competitive arena, they are faced with a number of distractions, ranging from external to internal origins. The ability to tune out the distractions and focus on the task at hand is an instrumental part of performance, and for most athletes this ability to focus is not an inherent trait. It is a learned skill that can be taught and practiced. The Workshop format allows for exactly that.

Nutrition:

At Workshops to date, the range of nutritional knowledge of athletes has been remarkably widespread. While some athletes are clearly skilled and have been integrating best nutritional practices into their daily routine for some time, other elite athletes have shown a surprising lack of basic nutritional knowledge. From a sports nutrition survey instrument given to select athletes prior to our Workshops, athletes rated their own nutritional knowledge with a score of 84% -- a solid ‘B’. However, athletes’ answers to basic questions on sports nutrition showed their actual knowledge was at 58%, demonstrating a disconnect between what they actually know about performance nutrition and what they think they know about performance nutrition.

An effective practice in the nutrition area at the Workshops has been the creation of individual meal plans for athletes. Athletes and coaches have found it useful to be given specific examples of meals that should be eaten prior to or after select workouts. For example, meal plans designed to help increase muscle mass before a strength training workout or meals designed to promote recovery after a high quality track session have been well received.

Competitive Performance: The Ultimate Metric

One aspect of this Sports Performance Workshop model that is beneficial is the longitudinal nature of the interactions. At each successive workshop, improvements can be measured and the effectiveness of the interventions can be determined. Ultimately, competitive performance is the ultimate metric and outcome by which USATF’s athletes and the Workshop model will be judged. Will US athletes who participate in the Workshops perform better and have fewer injuries in 2011 than comparable US (or international) athletes who do not participate in the Workshops? At USATF, we are excited to find the answer and believe we have a model that will truly help athletes find those small percentage improvements needed to reach – and stay on – the podium.

Robert Chapman

Dr. Robert Chapman serves as the Associate Director of Sports Science and Medicine for USA Track and Field. He holds a faculty appointment in the Department of Kinesiology at Indiana University.

From 1998 to 2007, Dr Chapman also served as the head men’s cross country coach and assistant track and field coach at Indiana University. Chapman served as the junior men’s coach at the 2010 World Cross Country Championships, and for the last 4 years has coached Team Indiana Elite, a designated USA Distance Training Center of professional distance runners based in Bloomington, Indiana.

Fit for Purpose: Linking Coach Education and Development to Athlete Development

Anne Pankhurst

Coaching education and athlete development in any sport should be closely linked. They both certainly need to be fit for purpose and train coaches to meet athlete needs in the best way possible. Success in sport, whether as a world class performer or as a weekend participant, depends on the skills and knowledge of the coach meeting the needs of the athletes. The process through which this occurs – coach education – is changing in many sports. This article will suggest some of the reasons why.

In recent years, a number of sports have paid more attention to the pathway along which athletes develop from childhood to adulthood; from young beginner, to adult athlete, to life time sportsperson. The understanding of how and why young people develop in their athletic abilities as they grow and mature, and the impact of these changes on the sport training process, appears to be increasing. Sport development is essentially outlined by the different ages and stages through which young athletes develop, irrespective of their level of ability. Variously called long term or progressive athlete/player development, the pathway is at last being understood by governing bodies and coaches as a process that is independent of the level of ability of the athlete. Coach education to date has been associated with the ability of the athlete, rather than the stage of physical, mental and social development and maturation.

The fundamentals of the present athlete development pathway probably began with Bloom's study of talented young people in 1985. However, athlete development research by many child physiologists and psychologists has resulted in Bloom's model being developed and adopted (and in some cases, adapted!) by a number of sport governing bodies in the US.

While keeping the basic concept, USA Football and USA Hockey both have developed progressive web based models and in the individual sports, US Tennis Association developed a poster of their player pathway several years ago. In Canada many sports base their sport-specific models on the Canadian Sport for Life project.

The progressive development model itself has also developed over time from being an essentially talent based physical, technical, and training model to include data on mental, emotional and social development, volume and type of competition, type of practice at different ages and stages and the role of parents. Much 'external' research has been applied and incorporated into current versions of the athlete development model.

It seems likely that the development of such models for young athletes is also responsible for an increasing and welcome focus on coaching becoming more athlete-centered. Indeed, the different stages of the model emphasize the difference between athletes so much that implementing the concepts and the data means concentrating on the athletes themselves. As a direct result, coaches must be taught to base their coaching on the athlete, rather than the sport. Further, NSCS accreditation in the US means that sports must adopt the athlete centered model as central to their coaching education process.

An equally significant, subsequent move in the change in coaching education, however, is the way in which a number of governing bodies have begun to link their coaching education programs to the athlete development model. In the past, coaching education trained coaches at three levels, each for increasing amounts of time; the inference being that the advanced coach needs to be trained for longer than the beginner coach! These coaches then worked with beginner, intermediate or advanced athletes, irrespective of their age, in a process that simply linked the education level of the coach to the sport development level of the athlete. The adoption of an athlete development pathway, however, means that coaches need different skill sets based on the age and stage of the athlete, rather than the stage of development in the sport. As an example, the basic coaching skills of communication, organization and teaching are important with any age group, but the detail of them will change with different ages, not by their stage of sport development. The skills needed to communicate with or organize a coaching session for a six year old are different to those for a sixteen or sixty year old. The lesson plan for a ten year old athlete with potential cannot be the same as one for a group of adult beginners. The characteristics of a quality coaching environment areas different for eight year old beginners as they are for thirty year old club players or fifty year beginners. And the ethical considerations for different ages and stages will be different too. Thus the use of progressive development models and especially those that include a lifetime in sport focus, mean that coaching education has to change. That change is happening: and for certain athlete development models and the need for an athlete centered approach are a catalyst.

USA Football has begun the process by developing age-based coaching certifications to match the age-based progressive player development model they have adopted. The Professional Tennis Registry (one of the two tennis coach organizations in the US) has changed its whole coaching education structure to educate coaches to work either with children, adults or performance players. Their new programs recognize that coaches need different skills for different groups of players. Further, the children coaches can coach 10 and under or older juniors and the performance group can train to coach juniors with potential or older talented players.

Several years ago the long established levels of coaching education began to be questioned in Europe and the UK. Progressive development models in many sports highlighted that coaches needed more specific training and coaches needed to be specialists in different stages of athlete development. The first step was to identify the stages. The emergent model is for coaches of children, participants, young talented athletes and performance athletes. Further, coaches can progress through different levels of expertise from Level 1 to Level 4 (Master) coaches.

Coaching education is changing: to become a Master Coach, working with young children who are just beginning in a sport, was a dream of some! The advent and understanding of the athlete progression pathways has brought the change. Finally coaches are fit for purpose!

Anne Pankhurst is an athlete and coach development consultant in the US to United States Tennis Association and the Professional Tennis Registry. She was previously the Manager of Coaching Education for the LTA in London and Manager of Coaching Education for USTA. She works directly with young athletes and coaches, specializing in player and coach development pathways. She is currently pursuing her PhD in talent development pathways.

Rugby 7's vs. 15's

Jarrod Beckstrom, Jim Snyder, Erin Kennedy, Mollie McCarthy



Photo Provided by USA Rugby

In October 2009, the global rugby family was elated to learn that seven-a-side rugby (rugby sevens) would appear in the 2016 and 2020 Olympic Games. Immediately the sport, which is still classified as amateur in the United States, gained mainstream legitimacy. An opportunity to capture and inspire a new generation of elite rugby athletes presented itself. While the average American might not understand the subtleties of rugby, Americans understand what the Olympic rings mean. An athletic display fueled by heritage, pride, patriotism, and passion on one of the world's biggest stage is as compelling as it gets. That's why the global rugby family is buzzing with excitement and anticipation to see "ruggers" following the torch and writing a new chapter in the rugby history books.

At USA Rugby, we are tasked with developing not only rugby players, but Olympians. Rugby sevens is a spinoff of the traditional fifteen-a-side (fifteens)

game that has, until recently, been the focus of most programs in the United States and around the world.

FIFTEENS v. SEVENS

Fifteens is what is played in the Rugby World Cup, which is watched by over 4 billion people worldwide. It's the form of the game featured in 1920 and 1924 when the USA won Olympic Gold. In fifteens, there is a position for every body type and skill set. It's very physical and extremely tactical. Games are 80 minutes long. There are shorter, wide players, massively tall players, quick players, fantastic kickers. Roles are pretty finite (although all players will have to tackle, carry the ball, and ruck throughout the course of a game).

In rugby sevens, games are 14 minutes long. Everyone has to be very quick, have excellent tackling skills, precise passing skills, evasive running skills,

and a good sense of where the ball is and where it's going. Miscalculations and mistakes in sevens are compounded by there being lots of space and not that many players to cover for you.

In fifteens, you don't run backwards and rarely run sideways. It's go forward and attack always. In sevens, it's common to see a player on a breakaway with a tackler in pursuit stop in his or her tracks, run backwards towards their teammates and wait for a more promising attacking opportunity, not unlike a point guard making a break and slowing for a big forward to dish it to. Sevens is a fantastic sport to watch and is made for America evidenced by USA Rugby landing an influential and enthusiastic broadcast partner in NBC Universal. The more people that watch sevens, the more people fall in love with it.

The question is now: How do we engage coaches, players, administrators, and the rugby community at large to emphasize sevens as well as fifteens?

Well, as it turns out, it doesn't take a whole lot of convincing (those Olympic Rings certainly do help the case). Many teams haven't hesitated to embrace sevens as it's a great introduction for new players and for its propensity to get players fit, fine tune passing, and work on other skills like open field tackling, that often are underdeveloped in fifteens. Coaches and club administrators are chomping at the bit to learn how to coach sevens specifically.

Our challenge as a governing body charged with developing athletes, coaches, referees, and the public profile of the game, is creating a sevens-specific framework and pathway for talent to ascend to the Olympic level.

A GOOD PROBLEM TO HAVE

We are currently enjoying record-breaking membership levels (we expect to break 100,000 active members this year. In 2006, we only had roughly 64,000). While this growth is fantastic, it presents challenges: Are there enough referees to keep up with the number of games played? Are there enough coaches?



Photo Provided by USA Rugby

Are the coaches and referees qualified and or certified? The list goes on.

These are questions we have to answer as an organization, and we have already put mechanisms and systems in place to develop the non-player roles (coaches, referees, administrators, etc...). To start with, we have built a sevens pathway from the bottom-up by capturing a new generation of talent and simultaneously investing in our athletes, coaches, and referees that are already in the international ranks.

We have referee and coach development departments that are always striving to improve the refs and coaches we currently have and engage a new generation in non-player roles and providing curriculum and courses to provide cutting-edge content to our members.

Our coaching department is guided by a mantra: Better Coaches, Better Players, Better Rugby. A similar principle can be applied to our referee department that is constantly developing internationally recognized resources and referees. Coaching and refereeing is central to the development of players and the sport as a whole.

We have developed a "Rugby For All Continuum" that

clearly charts the development pathway for players, coaches, and referees. It's essentially a road map from the introductory levels to the highest, most competitive levels of the game and equipping the stakeholders with the skills and knowledge needed to excel. The Continuum can be used for fifteens or for sevens.

DEVELOPING PLAYERS

Exposing our top athletes to high level rugby in a high performance environment is crucial, but developing young rugby athletes and exposing more and more kids to the game is just as important. Last year alone, 350,000 youth were exposed to rugby for the first time. Getting these young athletes exposed to the game of rugby (and rugby sevens specifically), is enormous and we have created programs to keep kids involved and interested in the game at such a young age.

For our youth players, we have developed "Rookie Rugby," a non-contact version of the game. It has been enormously successful and has helped rugby get a foot in the door in many schools and community organizations around the country.

Following the Rookie Rugby sequence, we have created the next step in the pathway, Rookie Rugby 7s. RR7s introduces contact and tackling as well set-pieces such as scrums and lineouts in a manageable and safe way. It's designed for players from age nine and above.

As these players progress, we have created a high-performance pathway of age-grade or All-American sevens programs to feed into our senior national sevens teams. The framework is in place for the pathway and there's a huge amount of collaboration between the coaching staffs of each of the All-American teams to create consistent expectations and standards for players and coaches.

HIGH PERFORMANCE PATHWAY



So far, the pathway is working. Our Women's Sevens team is one of the top five teams in the world, and our men are in the top ten. Our men have climbed over 29 spots in the world rankings and are now a core team on the HSBC Sevens World Series circuit.

In October, our men's sevens team will play in the Pan-American Games and USA Rugby has established as one of its core goals in 2011, to medal in those Games.

As the Olympics near and we approach the next quadrennial cycle, there will be a lot of change, and USA Rugby will do all it can to reclaim Olympic Rugby Gold in 2016.



"Inspiring Americans To Fall In Love With Rugby"
for more information visit, www.usarugby.org

Coaches Honored at Awards Dinner

Chase Langdon

This past June the USOC hosted the 2010 Coach of the Year Awards dinner in Colorado Springs, CO., which took place at the conclusion of the annual National Coaching Conference. At the dinner members of the USOC gathered with coaches and athletes of all levels and sports to honor the 15 Coach of the Year nominees and two National Federation of State High School Association Coach of the Year award winners. Olympic swimmer Nancy Hogshead-Makar emceed the event and took the opportunity to recount the impact that her coaches at all levels have had on her life. Videos of athlete testimonies about their coaches, including stories of their coaches pushing them to succeed were shown during the conference as well as the dinner, and demonstrated the intimacy and importance of the coach-athlete relationship that exists in sports. Throughout the awards dinner it became blatantly clear that this nation's athletic culture thrives on its strong foundation of influential coaches.

With an abundance of highly qualified coaches that exist within our NGB family, the task of narrowing down the field of Coach of the Year Applicants was daunting. Every NGB was allowed to submit a nomination, based on the coach's 2010 performance, for each one of the five Coaching awards (Volunteer, Developmental, Paralympic, Doc Counsilman Science and Technology, and National). The nominations were then reviewed by an independent panel of coaching experts who narrowed down the pool of applicants to three finalists and ultimately a winner in every category. The applications were scored on a weighted rubric that was unique to each of the five awards. The coaches were scored on many different criteria, which were category-dependent, such as win percentage, community service, awards and recognitions, athlete performance, camps and preparation events, medalists coached, world and Olympic record holders, odds of winning and dominance of win.

The distinct weighting of each rubric between categories is critical to upholding the integrity of the process. It is important to recognize that what qualifies as the success of a coach varies depending on their goals and level of competition. This year's applicant pool for the five Coach of the Year awards was increasingly competitive. Every nomination received was for a coach that was equally deserving of recognition for their commitment and passion to their sport and their athletes. This awards dinner truly highlighted the highest standard of coaching that this country has to offer and the USOC was privileged to have the opportunity to honor the 15 this past June.



Photo of the 2010 Coach of the Year Finalists
Photo by Scott Cronk

2010 Coach of the Year finalists (by category)

Volunteer

Jim Coombe, Archery
Alex Matthews, Badminton (Not Pictured)
David Farmer, Rugby

Developmental

Bob Gunter, Diving
Barbara Nelson, Basketball

Michael Nyitray, BowlingParalympic

Craig Griffin, Cycling (Not Pictured)

James Gumbert, WC Rugby

Ray Watkins, Skiing

Doc Counsilman Science and Technology

Nicholoas Bohanan, Bowling

Alberto Salazar, Track and Field (Not Pictured)

Grant Schaffner, Skeleton (Not Pictured)

National

Dave Jarrett, Nordic Skiing

Adam Krikorian, Water Polo

Brian Shimer, Bobsled

onships all four seasons, including finishing second (once), third (twice) and fourth (once). He helped rescue a program through fundraising campaigns, and by embracing a philosophy of developing responsible behavior and promoting accountability both on and off the field.

Farmer works on numerous building development and renovation projects. He has overseen the renovation of the Walsenburg, Colo., library, serves on the board of the Downtown Denver YMCA to assist with renovations and business operations, and serves on the building committee for the local Boys & Girls Club. In addition, he has volunteered with YMCA after school programs and helps with inspection of area Boys & Girls Club camps.

2010 Coach of the Year – National Winners

Photo by Brandon Pen

Volunteer- David Farmer

As coach of the Aurora (Colo.) Saracens High School Rugby Club, David Farmer guided the 2010 squad to a 12-5 record, and he earned Rugby Colorado 2010 Coach of the Year honors. In his four years at the helm of the club, the team has finished in the top four at the Colorado State High School Rugby Champi-

Developmental- Michael Nyitray

Michael Nyitray has coached high school bowlers in south Miami for the past four seasons. Most recently, Nyitray has worked to develop a bowling program for Broward County (Fla.) high school bowlers. Working with the Florida High School Athletic Association, he created an innovative singles and team system that allows schools to start a bowling team with as few participants as one bowler. In the first season, the 2010-11 Broward County high school bowling program has 13 participating public and private high schools.

Among Nyitray's students is Nathan Ricks, who carries among the highest high school averages in the country at 246.0. Another student, Andrew Koff, captured two gold medals and one silver at the 2010 Youth World Championships in Finland. In addition to his coaching and program development roles, Nyitray has also hosted and facilitated bowling clinics throughout central and south Florida, as well as annually providing hundreds of individual and group lessons.



Photo by Scott Cronk

Paralympic- Ray Watkins

As head coach of the 2010 U.S. Paralympic Alpine Ski Team, Ray Watkins guided the squad to 11 medals at the 2010 Paralympic Winter Games in Vancouver – three gold, four silver and four bronze. For the Games he also served as a downhill course setter, a role he regularly fills with the International Paralympic Committee (IPC). During the 2009-10 ski season, the U.S. team captured five overall World Cup globes, placed 45 athletes on World Cup podiums and finished No. 1 in the Nations Cup.

Watkins also served in several other coaching and sport development roles, including as a coach at the Disabled Sports USA National Race Festival, as a member of the IPC Factor Working Group, and as a member of the U.S. Ski & Snowboard Association Adaptive Sport Committee, along with working with adaptive programs for Challenge Aspen and the National Sports Center for the Disabled.



Photo from the University of Cincinnati

Doc Counsilman- Grant Schaffner

University of Cincinnati assistant professor Dr. Grant Schaffner was the principal designer for a revolutionary new skeleton sled used at the 2010 Olympic Winter Games in Vancouver. Two Cincinnati-area businesses, ProtoStar Engineering and Machintek Corporation, jointly designed and built the new sled – the X2. In Vancouver, the X2 sled was raced by athlete John Daly, and the sled's shell (or pod) was used by Noelle Pikus-Pace.

Under the lead of Dr. Schaffner, a group of experts with the two companies and other fields collaborated on theories, design, construction and on-ice testing to develop a prototype skeleton sled. The sled was built to dampen vertical and lateral vibration, helping the skeleton athlete steer and maintain body position. The project was targeted for 2014, but significant progress was quickly made and the X2 was tested and raced on the second half of the 2009-10 World Cup circuit. As a result of Dr. Schaffner's efforts, the now has a skeleton sled program.



Photo by Brandon Penny

National- Brian Shimer

Under the guidance of U.S. men's bobsled head coach Brian Shimer, the USA I four-man bobsled team captured the gold medal at the 2010 Olympic Winter Games in Vancouver, breaking a 62-year medal drought. The team of driver Steven Holcomb, Steve Mesler, Justin Olsen and Curt Tomasevicz, known as the "Night Train," also claimed the 2010 World Cup title after winning gold in Lake Placid, N.Y., gold in Cesana, Italy, silver in Altenberg, Germany, and silver in Koenigssee, Germany. Overall, U.S. men's bobsled teams captured 11 medals during the 2009-10 World Cup season.

A five-time Olympian, Shimer won bronze with the four-man bobsled team at the 2002 Salt Lake Games. In addition to serving as USA Bobsled & Skeleton's driving coach prior to his current role, he has worked with the Bo-Dyn Bobsled Project on the research, design and testing of bobsleds. He was the recipient of a 2010 Order of Ikkos award, presented by the bobsled athletes during the 2010 Vancouver Games.

UPCOMING EVENTS

International Altitude Training Symposium

October 5-7, 2011

Colorado Springs, Colorado

Pan American Games

October 14-30, 2011

Guadalajara, Mexico

Para Pan American Games

November 12-20, 2011

Guadalajara, Mexico

Innsbruck Winter Youth Olympic Games

January 13-22, 2012

Innsbruck, Austria

AAHPERD National Convention

March 13-17, 2012

Hynes Convention Center

Boston, Massachusetts

ACSM Annual Meeting

May 29 - June 2, 2012

San Francisco, California

USA Coaching Coalition

National Coaching Conference

June, 2012

Indianapolis, Indiana

London Olympic Games

July 27th- August 12th, 2012

London, England

London Paralympic Games

August 29- September 9th, 2012

London, England

Minority Women in Coaching Conference

November 7-9 2012

Colorado Springs Colorado

Chase Langdon is the Coaching Education intern in the Sport Performance Division of the USOC.

Changing a Team Culture: Championships are Founded in Program-Wide Trust

Larry Lauer, Ph D, Rob Smith

Within every team and program there is the opportunity for success and also for self-defeating breakdowns and total collapse.

Think about this statement for a moment. Is this true?

We would argue that it is. Any athletic program has the potential to be successful, even if you do not have much talent. At the same time, every program has a number of stakeholders with different interests. Student-athletes want to play, win, be on a team with their friends, represent their school, and be recognized for their efforts. Coaches want to develop young people, win, compete, build a program and so forth. Parents want their children to be successful, have fun, and of course win, too. Administrators want successful programs with few problems that shed a positive light on the school.

All Programs have their Powder Kegs

There are many similar interests across these stakeholder groups. However, their primary interests often create conflict. What's the primary interest of the coach? It is his or her team. What is the primary interest of the athlete or parent? You hope the team, but maybe it's their own self-interest (playing time, points, or glory). Every program has powder kegs or people, situations, decisions that can blow up in your face if not handled wisely.

Frequently coaches complain about the issues they have with others in the program. Student-athletes are not willing to work hard and seem entitled. You can't push them to the extent you need to develop their abilities and have an outstanding program. And, when things are not going well they take home a message that deflects the blame from themselves to the coach. This creates drama, makes the kid feel important and gets the parents' attention. So, often parents hear the negative message massaged by the athlete to place themselves in a positive light.

Coaches are concerned that administrators feel the pressure to succumb to the politics of parents who are trying to get the coach to do what they want in the program. Sometimes parents create rumors about coaches, attempt to make changes in programs by exerting political power, and second guess coaches. The politics that surround teams makes it difficult to create team cohesion.

So, how do we overcome this inherent conflict of interest and get back to building great programs?

Championship Teams develop over time and with trust-building

In the 2008-2009 season the Pittsburgh Penguins were struggling to make the playoffs. They fired the coach, Michel Therrien, and hired Dan Bylsma from their American Hockey League club. The Pens went on to defeat the Red Wings in the Stanley Cup Final in seven games, and compiled an astonishing record of

34-11-4 (including playoffs) after Bylsma's hire. This is the rare minority, however, it does not usually work this way; change the coach and the team succeeds. Bylsma was the second coach in NHL history to be hired midseason and win the Cup.

Why do quick turnarounds not happen very often? Think about when a new coach comes to a program, with a new philosophy and system, a new way of doing things, and with different expectations. For adolescents this is a lot of change to deal with especially when they don't have the life experiences and coping skills to always handle it well. We argue that high school programs should hire coaches for the long haul and then provide all the resources needed to build a program founded on trust amongst stakeholders. When you create a culture and a tradition where trust exists and communication is transparent, great things are possible.

Program-wide trust is the foundation of championship teams. Programs must facilitate coach-athlete-parent-administrator trust and communication to succeed. Instead of coaches walking on egg shells afraid to make tough decisions because of parental reactions, offending players, and worrying if the administration will have their back; coaches must have the trust within the program to make tough decisions and have those around them follow. All program members must understand their role, accept it, and recognize how their current behavior/attitude is adding to or taking away from the solution. When Coach Smith's team lost the 2008 high school girls varsity basketball state championship game the winning coach remarked that a big part of the reason they won was because the parents were supportive and not creating drama and distraction.

To illustrate how to develop program-wide trust let's review the case of the East Lansing girls basketball team that won a state championship in 2010.

Trust is at the Core of Winning a State Championship

Winning and coaching are very complex things that are the result of thousands of hours, decisions, communications, and the efforts of many people. You will find it very difficult and really useless to attribute a championship season to one key move or decision. However, we do believe that every season has tipping points that influence the course of the season greatly.

Rewind back to early March of 2010. For the fourth consecutive year the East Lansing varsity girls basketball team is considered a real championship contender. In previous years the team suffered heart breaking losses, once in the championship game and once in the quarters to the team that would runaway with

the state championship. What was even more frustrating was the fact that the team was favored in each of these situations to win, and they even led in the 2009 state quarterfinal the whole game until the last minute. It was the coaching staff's opinion that the team failed not in being prepared, but in staying composed under pressure. We also felt that this could be directly linked back to the lack of trust between stakeholders in the program. When some parents are overtly second-guessing the coaches it is impossible for the athletes to buy-in to what the coaches are communicating.



Photo provided by Robert Smith

East Lansing was feeling the weight of the continued expectations as they headed in to the 2010 state playoffs with only one loss, and with few tight games during the conference schedule. Last year they were undefeated the whole season until they suffered defeat for the first and only time in the quarters. Would they experience another post season trip that would end with disappointment? The question, although no one was saying it aloud, was on everyone's mind. Playing with this kind of burden showed as the girls played tight offensively and struggled to find their rhythm in the district playoffs. Fortunately, the girls battled to a regional championship. However, the team was not dominating like in previous years. How could they even be as good as last year's team who didn't win states?

It was clear that something wasn't quite right with the team. They weren't executing on offense and were resisting the coaches' strategy to slow down the game when they had the lead late. They did not trust that



Photo provided by Robert Smith

it was the right thing to do. Team chemistry was great off the court, but on the court the players still did not totally trust the coaches' decisions. At a team meeting we talked about trust and belief to get the girls to buy into slowing the game down; it wasn't stalling, but being smart and forcing the other team to foul. In response a senior raised one of the best questions we have ever had to answer. "How can we trust that we are going to win a state championship when we had great teams in the past and we didn't?" This was question was at the core of the tense, burdened team. They were consumed about the outcome that they could not trust the process. This was a tipping point.

But, why should they not be consumed by the outcome, the state championship, which had been this team's mission for years? This was the time of the year that everyone had been waiting for. It was their time to shine; but the pressure of the spotlight was putting the girls in a nervous, doubting mindset. They had to believe in themselves and focus on the process. We probably did not get through this mindset in past years. What could we do differently? The answers we gave that day may or may not have made anyone feel better, but the message was to take faith and trust in the process. Trust in the hard work and preparation they had put in all of their lives. Trust in the coaches and that they knew what was best based on their expertise and diligent scouting. Trust that if you focus on the "how to play" that the outcome would take care of itself. What other choice do you have? You can continue to choose to dwell on your concerns over winning and

meeting everyone else's expectations. This has not worked before; why go down the same path? Believe in yourselves, trust in your coaches and teammates, and take faith that by doing the right things on and off the court that you gave your self a chance to win it all. If not, then you won't have a chance.

The girls went on to play outstanding basketball in the state semifinal and championship games. They played with a confidence and composure we had not seen in previous years. It seemed as if they played without the burden of expectations and fear. How did the mindset and feel in the locker room change? The key was when the senior captains bought ownership of the process and sold it to the rest of the team. They decided to trust in the team, in the coaches and ignore the distractions. Winning a state championship happens when the players trust the coaching staff and the coaching staff trusts the players. Together we made it, and for everyone involved that should be the real reward.

How to Develop Program-Wide Trust

East Lansing is a great story about a team struggling with chemistry and trust within its program and then turning it around. In 2010 they experienced very few problems between stakeholders in the program. Importantly, parents were very supportive and backed the coaching staff, thus allowing the players to trust. Let's not forget a few important things though. The team was very talented and was led by three Division 1 bound players. Moreover, it was easy for players to buy into roles because the pecking order was clearly defined based on talent and experience. The team certainly benefitted from these factors. At the same time, there were a number of key things implemented to create program-wide trust which were essential to the championship season. These trust builders were implemented over a period of three years. Thus, success and trust did not happen overnight, but grew over the seasons.



Photo provided by Robert Smith

1. ***Enhance Staff Credibility*** – If you have a trust issue, then the coaches must enhance their perceived credibility. Players and parents must know that they are competent and their interests are genuine. They are not there just to set themselves up for the next job. They truly care about the student-athletes and want the best for them as people and athletes. Caring can be expressed in many ways from a pat on the back, listening to a player when she is down, giving a player a chance based on practice efforts, showing passion for teaching all players on the roster, and creating a connection between coaches and players. The East Lansing coaches also demonstrated their credibility with an interest in continuing education. They went to coaching clinics, watched videos and read books.

2. ***Set and Clarify Program Expectations*** – Everyone must understand their roles and the responsibilities that come with them. Coaches need to get on the same page with administration; what are the objectives we need to fulfill? It is also important for coaches to build trust with the parents, and educate them about appropriate conduct. This is crucial since the parents have the ability to reinforce or break down the level of trust fostered within a team, or between the athletes and the coaching staff. Furthermore, coaches must establish clear lines of communication. Trust is destroyed when parents jump the chain of command and go to the principal or superintendent to voice complaints. Attempt to transparently handle all concerns at the

coach-athlete or coach-parent-athlete level. To aid in the process of clarifying program expectations, the East Lansing coaching staff developed a “How We Operate” document that established codes of conduct for coaches, parents, and players that were reviewed in the orientation meeting.

3. *Establish a Culture and a Mission* – One of the best ways to motivate youth is to give them some power. Let them help the staff develop a mission for the season. Where do we want to go and what do we need to do everyday to get there? Things like doing well in the classroom, treating teammates with respect, etc., will be voiced as players talk about the daily things it takes to be a champion. You don’t become a champion in a day, it takes months and even years of doing the right things and this includes off the court. This will facilitate the establishment of a positive culture. In East Lansing’s case we established a high performance culture. Playing time is based on practice and game performance, not on who you are or the past. Not everyone will play all the time, or get the number of shots they want, but you will play a valued role that contributes to the team’s success. Team comes first in our decisions – “We before Me”. Finally, you have to be willing to be pushed hard, take some criticism (remember always more positives than negatives when communicating with youth), and accept that making mistakes may cause you to be removed from the game (but with dignity and effort to teach instead of punishing).

The coaches exhibited their belief in empowering the girls by allowing them to sometimes pick the drills in practice or even relying on them for what plays or defenses to run during games. The team also set their “10 goals for victory” and led their own warm-ups. Finally, the coaches reached out to the leadership on the team by setting up a Leadership Council. The team was represented by three upperclassmen that would go talk to coach in a respectful manner about team issues. And, the coaches had to listen and attempt to not get defensive when they heard things they did not like. The coaching staff promised their girls they would listen to them, but they could not always do everything that was requested.

4. *Continue to Clarify Roles and Establish Team Chemistry* – In our situation we had many new faces. In some ways this made it easier, because the pecking order was pretty clear. However, it also made it difficult because the veterans had to make the new girls on the team feel like they belonged. Having team dinners, camps, and meetings with team building activities helped to establish this chemistry. They created a family feeling; the girls wanted each other to be successful. This process is reinforced when the coaches clearly establish roles and help players see how their role is valuable and contributes to everyone’s success.

To show how everyone contributes the coaching staff would ask players to write their name on a note card. Their teammates would then write down things that the person was doing that was helping the team be successful. They would also write down what they thought the person could improve upon. We have also done this exercise publically with players openly addressing teammates and the contributions that they are making. Finally, to continue the process of trust-building the coaches asked players during the season what the stakeholders (coaches, the player herself, teammates, and parents) could do to help the team be successful.

5. *Foster Mental Toughness and Discipline* – To be a champion requires mental and physical toughness. You have to be willing to do the training in order to be great. To challenge the girls to go to the next level we had them think about their self-limiting beliefs and counter them. They had to overcome their personal demons as well as the team’s demons; this battle continued into the playoffs. At the tipping point the girls decided to trust in each other, in the coaches and in the process. If you don’t believe deep down that you can make it, whether it be due to own personal doubts or those created by program stakeholders, than you will

never reach your goal. That is why getting parent support is paramount to success. They cannot be undermining the coaches. It only creates a lack of belief and trust. In contrast, supportive parents can boost the confidence and cement the trust.

For our team we were able to have a motto that connected to a popular song. Our motto was “together we will make it.” And, fortunately the song “Together we made it” became a huge inspirational piece during the playoffs. It allowed us to refresh the message after a long, grueling season. We inserted this new motto during the playoffs and it really brought the girls closer together and inspired them to push beyond their doubts and trust that they had what it took. If you can create a team motto that has a very meaningful message then you can bond a team and get them to go where they have not before.

Ultimately, trust can only occur if the team has done the necessary hard work. If you don't have the conditioning how can you trust that your team can last in a playoff tournament? Further more, you have to be willing to prepare mentally for the pressure by creating strategies that you have planned out and practiced for the big moments. In East Lansing's case girls were taught deep breathing, visualization, and positive thinking strategies that were integrated into routines that helped them plan for, and overcome, adversity.

Confidence can be a tricky thing for a teenager. Teenage girls tend to be hard on themselves and worried what others think. So, the coaches implemented strategies to continually help the girls feel like they were improving. They created challenging practices that really pushed girls to go beyond their limits and be successful. The coaches also celebrated each girls' strengths, used video and press clippings to highlight accomplishments, and sat with girls 1-on-1 to discuss areas to improve and encourage them to persist.

6. *Communicate Always* – The coaching staff has prioritized the importance of transparent communication. We let the team and the program know why we are doing things. They may not always agree, but we gain their acceptance because they know where we are coming from. Further, communication is not a one-way street. Coaches must listen and lead by example. They must ask for feedback and make players and parents feel they are approachable and want the input. Again, set the expectations early on how to do this appropriately. For example, we had the team list three things that the coaches could do to help them personally and/or the team. We then discussed them with each player. By doing this we showed an interest in every player and helped them meet their needs.

As mentioned earlier, if you give the players some power then they will be more engaged in the process. They will take ownership for team functioning. This is especially true when it comes to your team leaders. You must openly communicate with them, listen to their advice, and really work with them to lead in effective ways. We gave them the MHSAA captains booklet as a way to help them learn how to better lead.

In addition, within your coaching staff it is helpful to have coaches that play different roles. In our coaching staff, the head coach has to make the tough decisions that make people unhappy. Gary Greider, a very experienced and respected coach, serves as the guy the girls could talk to without any ramifications. They could say whatever needed to be said to Coach Greider. The girls appreciated having this outlet. You cannot underestimate the importance of having coaches on your staff with different skills and roles. The head coach cannot be everything to everyone. Therefore, it is essential that the head coach empowers his or her coaching staff to communicate with players in the program and follow through on the principles of building trust.

7. Handle Conflict Quickly and Wisely – Again, every program has powder kegs. Commit to preventing crisis and dealing with festering issues. Avoiding conflict only allows things to get worse behind the scenes, and it certainly breaks down program trust. Make it clear that players should feel comfortable coming to you with concerns. Then, when they do respectfully approach you with critical feedback avoid becoming defensive or biting their head off/punishing them for communicating something you may not want to hear. If you reinforce open communication then your problem-solving and trust can be strengthened. Educate your team on the best ways to approach the coach and also learn how each player handles feedback. Help them develop a thicker skin while facilitating respectful communication throughout the team.

Conclusion

Developing program-wide trust is a difficult thing and can be a long process. You should not expect turn-arounds in the first or second month or possibly even the first or second season. Instead, be patient and work diligently to develop the foundation of trust. Communicate transparently with all stakeholders in your program. Create a structure and a culture that facilitates trust and minimizes selfishness and politics. Be true to your philosophy, make it clear what your vision is and how everyone can play a role to get there, empower your athletes to take ownership of team functioning, and inspire them daily to follow through.

Larry Lauer, Ph D, is the Director of Coaching Education and Development at Michigan State University,

Rob Smith is the Girls Basketball Varsity Head Coach at East Lansing High School.

Olympic Day Celebrates Coaches

Chase Landon, Dana Leenheer

Annually observed internationally on June 23rd to commemorate the birth of the modern Olympic Games, the 2011 celebration of Olympic Day in the U.S. was the most highly participated year in the history of the event. More than 300 cities in the United States, representing all 50 states, hosted more than 350 registered events this year to honor the Olympic movement and its values. Athletes living around the country came to their local events to promote their sport, sign autographs, and answer questions.

“Olympic Day is such an important tool for introducing young people to sport in the United States and around the world, and I’m proud to say that with this year’s efforts, the Olympic Movement has reached more communities in the U.S. than ever before,” said USOC CEO Scott Blackmun. “The U.S. Olympic Committee is grateful to all Olympic Family members for their support in either hosting an event or connecting a young person to an Olympian or Paralympian in their local community. We look forward to being a part of the continued growth of this International Olympic Committee initiative in the U.S. and around the world.”

This year’s celebration in Colorado Springs CO., was particularly unique because of multiple events that highlighted the efforts of our nation’s coaches as well as its athletes. In partnership with the City of Colorado Springs, the USOC capitalized on the opportunity to include some highly-recognized and regarded coaches in the local Olympic Day festivities. This year’s Olympic Day celebration in Colorado Springs was held at the conclusion of the National Coaching Conference and garnered the participation from some of this year’s Coach of the Year Nominees. While not always public icons like their athletes, coaches contribute just as much to the advancement of sport as their often more famous counterparts. Coaches, especially at the developmental and vol-

unteer levels, are the ones who are charged with the responsibility of inspiring, teaching, creating a culture of sport within a nation’s youth – and keeping athletes involved by making participation fun. Amongst the many free sport clinics held the morning of June 23rd in Colorado Springs the local community was particularly fortunate to have Barbara Nelson, a 2010 Developmental Coach of the Year finalist (USA Basketball), and Alex Mathew, a 2010 Volunteer Coach of the Year finalist (USA Badminton), to run the clinics for their respective sports.



Photo by Elisabeth Klikiier

Barbara Nelson is currently the head women’s basketball coach at Wingate University where during her four years there she has earned a No. 10 national ranking in the USA Today/ESPN/WBCA Div. II Coaches Poll. Nelson also lead the US women’s U 17 team to a decisive gold medal at the 2010 World Championship in France. Despite her many accomplishments as a competitive basketball coach at the national and international levels, Nelson seemed excited to take the time to work with local children from the Colorado Springs area. While the attendees of her clinic were probably much younger than the athletes Nelson is used to working with, Nelson

was able to tailor the drills and her instruction to the participants who attended her clinic. As most coaches know it can be difficult to run a clinic for a group of people with a large variety of skill, age and gender demographics; however Nelson with the help of YMCA/YWCA volunteers ran a clinic that was both instructional and inspirational to the children. While during their brief time with Coach Nelson all of the children were given tips and taught drills that would help hone their skills as basketball players, but at the core of Coach Nelson's clinic was her goal to purely inspire the children to play and enjoy the game.

Alex Mathew is the founder of Badminton Chicago, a non-profit organization dedicated to grassroots development in the sport of badminton. Mathew also serves as a liaison between local badminton clubs and USA Badminton. Mathew was in his element working his clinic, as he regularly coaches middle school, high school and park district youth. His enthusiasm for the sport of badminton was clear and the children enjoyed learning about the sport. A video of top badminton players was shown to start the clinic and Mathew's skill, as he demonstrated different shots and points of the game, was at the level of the players on the video to be sure.

Chase Langdon is the Coaching Education intern in the Sport Performance Division of the USOC.

Dana Leenheer is the Coaching Education Assistant in the Sport Performance Division of the USOC.

International Altitude Training Symposium Save The Date!

The 2011 USOC International Altitude Training Symposium will be held in beautiful Colorado Springs on October 5-7. We have an excellent group of sport scientists and US National Team coaches scheduled to speak, and we hope that you will be able to join us for what will be a great conference.

For more information about the conference visit the IATS conference section the of teamusa.org website by going to: teamusa.org > Resources > USOC Sport Performance > Coaching Education > Conferences > IATS

Please note that registration will close on September 15th. Due to the popularity of the conference, we will be limited in the number of attendees we can accommodate. Registration slots are filling quickly, so please don't wait too long.



Protecting the Future of Sport: A Coaches' Role

Annie Skinner

The U.S. Anti-Doping Agency (USADA) is most well-known as the organization responsible for conducting the independent anti-doping testing and results management program in the U.S. for Olympic, Paralympic and Pan American athletes. The entire U.S. Olympic and Paralympic movement has been praised for implementing one of the toughest and most effective programs in the world and for making great strides in the advancement of all anti-doping programs. Olympic and Paralympic athletes are recognized as some of the most positive role models in sport today. For the past 10 years USADA has respectfully and faithfully served the nearly 50 national governing bodies for U.S. Olympic, Paralympic and Pan American athletes. As a result of their unique role in the sport community, USADA has a keen understanding of the significant role sport plays in our society, and how dangerous it can be to have a win at all costs culture in sport.

Recognizing that doping, at its core, is not just a drug problem but also a values issue, USADA appreciates that knowledge and education is central to the effort of preserving integrity in sport and eradicating doping. Sport, at its best, can build character and promote the virtues of honesty, respect, selflessness, teamwork and dedication to a greater cause. Sport lessons, both good and bad, transcend the playing field, spilling over into the classroom, the business world, and the community.

In an effort to further understand and measure Americans' attitudes, beliefs and behaviors about sport and the impact sport has on values and culture in the United States, USADA commissioned Discovery Education's national research branch to conduct a groundbreaking research study to look at, among other things:

- Participation levels nationwide
- The values sport should reinforce versus those that it actually does
- Beliefs about issues/problems facing sport today
- Why people begin playing and conversely why they stop and when
- What drives the pressure to cheat and the impact of the emphasis on winning
- The responsibility sport figures have as role models
- Whether sport is meeting society's expectations

According to the study, "What Sport Means in America: A Study of Sport's Role in Society," which appeared in the April issue of the Journal of Coaching Education, published by the National Association for Sports and Physical Education (NASPE) at www.AAHPERD.org/NASPE, sport plays a major role in shaping the character and culture of America's citizens. Overwhelmingly, as a country, we have high hopes and expectations for sport and rank values including honesty, fair play, respect for others and teamwork as most important for sport to reinforce. The research also reveals that Americans believe an overemphasis is placed on winning, and that this undermines the fundamental values they want from sport. Americans believe ethical breaches such as cheating with performance-enhancing drugs and the desire to win at all costs threaten the inherent value of sport.

Some major findings from the study include:

- Coaches rank as the #1 positive influence on today's youth involved in sport
- Parents overwhelmingly cite personal and social values when describing their hopes for their children in playing sport

- Nearly 90% of U.S. adults agree that well-known athletes have a responsibility to be positive role models for young people, and by wide margins agree that the personal conduct of well-known athletes is as important as their athletic accomplishments
- Americans rank the use of performance-enhancing drugs as the most serious problem facing sport today closely followed by issues such as the focus on money, and the criminal behavior of well-known athletes
- Two-thirds of Americans agree that sport overemphasizes the importance of winning
- More than three-fifths of U.S. adults- approximately 162 million people- claim some relationship to sport-related activities (add the number of children participating in organized sport and it's more than 200 million Americans)

“This research reinforces what we believe to be true, that Americans have not become complacent, that they care about the integrity of sport and what it means in our society,” said USADA CEO Travis T. Tygart. “Americans see great value in sport and want to preserve the legacy it has created, while ensuring its constructive and positive impact on all generations. Research such as this provides a foundation for all of us who love and value sport to ensure its lasting legacy as a force for good.”

The intended outcomes of sharing the findings of this research are to spur an ongoing cultural dialogue aimed at keeping attention focused on these challenges, and to pave the way for constructive change. As the research highlights, of particular note is that coaches at all levels play an extremely important role not only in teaching athletes the necessary technical skills, but also imparting and helping to develop ethical behaviors and strong character traits that will help carry athletes through life.

Coaches are uniquely positioned to have a positive influence on athletes at any level of sport. But coaches also face substantial pressure to produce winning results. A wise coach once said “A tough day at the office is even tougher when your office contains spectator seating.” Even coaches who love and respect their sport and their athletes can lose perspective in the quest to win.

Only a small percentage of athletes will ever become the elite of the elite, and even fewer will reach the podium. Competition is great, and winning should be sought after and celebrated, but the real reward comes from the journey. Coaches have a responsibility to teach what is valuable about sport outside of just the win/loss columns, values like: good sportsmanship, respect for opponents, following the rules, accountability, teamwork and integrity.

The pressure put on coaches is intense, but this research has shown they have a unique ability to create positive changes in the lives of their athletes if they are willing to embrace their responsibilities as role models, and to teach future generations that how we win is the real honor.

USADA has a variety of educational tools available to help coaches facilitate conversations about ethics and sport which can be found at <http://www.usada.org/outreach> For a copy of the full research report, go to <http://www.usada.org/outreach-research>

Annie Skinner is the Media Relations Manager in the Communications Office of the U.S. Anti-Doping Agency (USADA)

Measuring Basic Performance Parameters from Video: A Tutorial with Sprinting as an Example

Phil Cheetham

An Inexpensive Analysis System

Many of you are familiar with the use of video for viewing and comparing performances of your athletes. You may use a video camera and a VCR to play back the videos, or today, most people put their videos onto the computer and use Media Player or QuickTime to view them. If you are lucky you may even have Dartfish to analyze your videos and compare performances side-by-side. But did you know that you can actually measure many aspects of performance from video? Things like timing, angles, distance and speed. In fact many important parameters from track and field events can be measured directly from video; take-off angle, release angle, stride length, stride rate, flight time and stance time; too name a few. It may take a little bit of work and know how, but it is definitely achievable.

The other good news is that it is no longer expensive to do this. All you need is a video camera; preferably a high frame rate camera; a laptop and video analysis software. In this article I will introduce you to a very simple to use yet professional video analysis software program that you can download for FREE! It is called Kinovea and is available at www.kinovea.org. Currently it only runs on Windows but in my opinion if you own a Mac it is worth getting a Windows emulator, or buying a Windows laptop just for this purpose. I have no relationship with the company that makes this software; I just think it is a breakthrough in biomechanics analysis because it is free and yet powerful.

High Speed Video

A word on video cameras; they have advanced rapidly in the last few years and are now conveniently small and completely digital with storage directly onto memory cards. No need for tapes anymore, a 32 Gig memory card can store hours of video. Interestingly, most of them look just like still cameras and they can do both stills and video. There are a few now that can even take video at very high frame rates to produce “slow mo” that used to be available only on very expensive cameras. One of these is called the Casio FH100. It is capable of filming at normal speeds (30 frames per second) in both standard and high definition video, but also 120, 240, 420 and 1000 frames per second. For most sports actions, including track and field events, 120 and 240 are excellent speeds to use, especially for making measurements. To achieve the rates of 420 and 1000 the camera decreases resolution so the picture gets very grainy and hard to see. 120 and 240 are quite clear for full body capture, so that’s what I use most of the time. Also this camera is inexpensive; about \$250 if you search around online. One note though, this particular camera is now obsolete! It is superseded by the Casio ZR100, which is still a great camera, but doesn’t, in my opinion, do as much as the FH100. At the moment you can still get the FH100, but you’ll have to be quick.

Now with a Windows laptop, the Casio camera, Kinovea analysis software, plus a few accessories, you have a powerful “quantitative” video analysis system for easily under \$1000. So what can you measure and how do you do it? I’ll give you a few practical examples.

Measuring Timing

Measuring timing is relatively straight forward. You just count the frames between the events you are timing. It's actually easier than that because Kinovea has a built in stopwatch feature, and using a high frame rate camera gives you more frames to count, which in turn gives you better timing accuracy. A good practical example is measuring stance and flight time for each leg during sprinting, (note that stance time is also known as ground time and flight time is also known as air time). Here's how to measure them. This tutorial will be specific to Kinovea, but you can do the same measurements in Dartfish if you have it.

Firstly, you must video the event. At the training center we test the athletes regularly doing the "20 meter fly test". We have 20 meters marked off with cones and they have about an additional 20m to get started, and of course room to slow down. When they run through the 20 meter measurement section they are at full speed. Now for timing measurements it is best to zoom in on the athlete and pan with them as they are running, however for making distance measurements you must keep the camera still and fixed on the measurement zone. These are conflicting requirements, so you either need two cameras or get timing from one run and length measurements from another. The reason we pan is it is much clearer to see foot strike and toe off with a big image size. Also use the higher frame rate of 240 frames per second for this because it gives you more frames to see contact and toe off, eight times more than standard video.

Once filming is complete, copy the video to a folder on your computer, open the Kinovea video analysis software and import the video. Before doing any timing measurements make sure you change the camera speed in the software to 240. Do this by right clicking on the video image and choosing "High Speed Camera". This allows the software to calculate times correctly.

I like to start with right foot contact, so play the video until you are near that point in the first stride inside the measurement zone. Stop at the image where the right foot is just contacting the ground, look for some foot deformation so you know contact has occurred. Choose the stopwatch feature and place in on the screen; make sure you turn it on by right clicking and choosing "Start Stopwatch". Now advance frame by frame until the right toe just leaves the ground and the toe is not bent from still being in contact with the ground. You can step forward and back using the cursor keys on the keyboard. The stopwatch will now have right leg stance time. Write this down or put it into a spreadsheet like the example I show below. At this point set the stopwatch back to zero by right clicking on the read-out and choosing "Start Stopwatch". Click forward until the left foot contacts the ground. Write down the time. This will be the flight time. Repeat this procedure for the left leg. It is best to get several complete cycles from right foot to right foot again. I suggest you do it for four or five of them as you see below. This will allow you to calculate averages and be more positive of any trends you may see. Here is an example spread sheet that I have done.

| Cycle | Right to Left Stride | | | | Left to Right Stride | | | |
|-------|----------------------|---------------------|--------------------|-------------------|----------------------|---------------------|--------------------|-------------------|
| | Stance secs | Flight secs | Total secs | Rate strides/s | Stance secs | Flight secs | Total secs | Rate strides/s |
| 1 | 0.107 | 0.127 | 0.233 | 4.28 | 0.093 | 0.103 | 0.197 | 5.08 |
| 2 | 0.103 | 0.123 | 0.227 | 4.41 | 0.097 | 0.110 | 0.207 | 4.84 |
| 3 | 0.100 | 0.127 | 0.227 | 4.41 | 0.093 | 0.113 | 0.207 | 4.84 |
| 4 | 0.103 | 0.127 | 0.230 | 4.35 | 0.093 | 0.110 | 0.204 | 4.91 |
| 5 | 0.103 | 0.127 | 0.230 | 4.35 | 0.097 | 0.113 | 0.210 | 4.76 |
| Avg. | 0.103 | 0.126 | 0.229 | 4.36 | 0.095 | 0.110 | 0.205 | 4.89 |
| | R-On to R-Off | R-Off to L-On | R-On to L-On | | L-On to L-Off | L-Off to R-On | L-On to R-On | |

Tabulation of left and right stride times and rates

From this table of five complete right foot to right foot cycles near the middle of the 20 meter measurement zone, you can glean a lot of information about the athlete. You can get stance time for each leg, flight time for each leg, plus stride time and stride rate. Notice that I have labeled each phase, for example, “R-On to R-Off”, means the times in that column are measured from when the right foot initially contacts the ground to when it first comes off the ground. A right to left stride goes from right foot contact to left foot contact, and a left to right stride, goes from left foot contact to right foot contact. In some articles you may see each of these being called a “step” and stride meaning one complete cycle from foot contact to foot contact on the same side (i.e. two steps is one stride). In our terminology step and stride mean the same thing; one foot contact to the next foot contact.

Notice that in this example the right to left stride time is longer than the left to right (0.229 versus 0.205 seconds), and hence the rate is slower on the right to left than the left to right (4.36 versus 4.89 strides per second). Why is this? Is one leg weaker than the other or perhaps there is an injury? Maybe one side is over-striding. It could be one of several reasons, but this information certainly points out something that the coach should investigate.

Measuring Distance, Speed, Stride Length, and Stride Rate

For measuring distance and speed the process is a little different. You need to place the camera on a tripod and point it at the middle of the measurement zone and it must not move during the run. You must also have a reference measurement of some sort in the field of view. At the training center, when we do the 20 meter fly test we use two sets of timing lights one set at the beginning and one set at the end. In the past I have set the camera zoom to see the whole 20 meters but have found that the image size of the athlete is too small to see detail of toe off and contact. Recently I began filming only a 10 meter section and getting the information from a reduced number of strides. This makes the image size bigger and easier to see. Here’s the way to do it. From the beginning of the 20 meter zone measure 5 meter increments. Set two cones one on each side of the lane at 5 meters, 10 meters, and 15 meters. We use six-inch cones that are orange, but I would

prefer white ones because they would be easier to see in the camera view. Position the camera pointing at the middle set of cones so you get a side view of the middle 10 meter section. Set it about 100 feet or more away and then use the zoom so that you see just a little passed each cone. You are not trying to get the whole 20 meters just the middle 10 meters. You will know you are directly in line with the 10 meter cones if they line up with each other, (almost looking like only one cone). You will see both cones at the 5 meter and 15 meter positions due to the perspective caused by the camera lens. If you can't see the cones very well because of the sun, then have someone stand between each set of cones just so you are sure they are in the cameras view. Now film all the runs; I suggest at 240 frames per second. Once you have all the video, transfer it to the computer.

Open a video clip in Kinovea and set the camera speed to 240 frames per second (right click on the image, choose "High Speed Camera" and enter 240). Now use the line tool to get the reference frame length. Choose the line tool from the tool bar under the video image; click the cross hair between the first two cones, (those at the 5 meter mark), drag the line between the two cones at the 15 meter mark. Now right click on the line and choose "Calibrate Measure". Enter 10 meters and click "Apply". You have indicated to the system that this is 10 meters long and from now on any lines you draw will be automatically measured. Note however that only distances in the middle of the running lane will be accurate. Due to the perspective of the camera lens, as you get closer to the camera 10 meters gets wider and as you get further away it gets narrower. You couldn't use this scale factor to measure runners in lanes closer to you because it would no longer be scaled correctly. You can now use the "hand tool" to drag the line out of the way to the top or bottom of the screen, so you can see the runner.

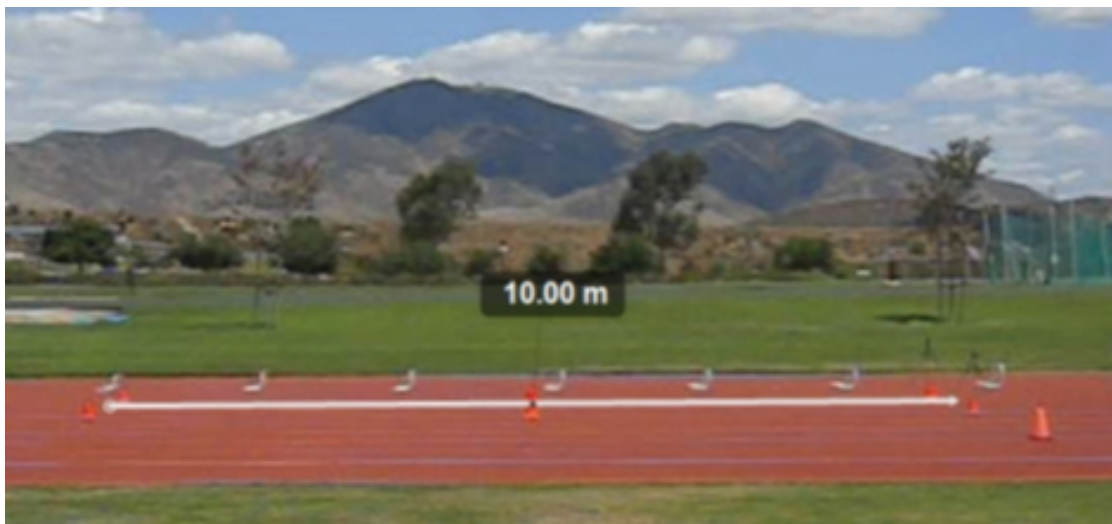


photo provided by
Phil Cheetham

Setting the scale factor

Advance the frames until the runner is in the field of view and with one toe just off the ground. Set this to time zero by choosing the stopwatch. Right click the stopwatch read-out and choose Start. Also before you move the frame, choose the line tool and place it right on the runner's toe. Drag it to the right (if the runner is running left to right across the screen) and down a little then let the button go. You will place it on the runner's toe again later when you advance the frames to the last stride. Now right click on the line you just did and choose "Persistence"; then unclick "Use default value" and click "Always Visible". This makes the measurement line stay visible while you advance to the end of the run.

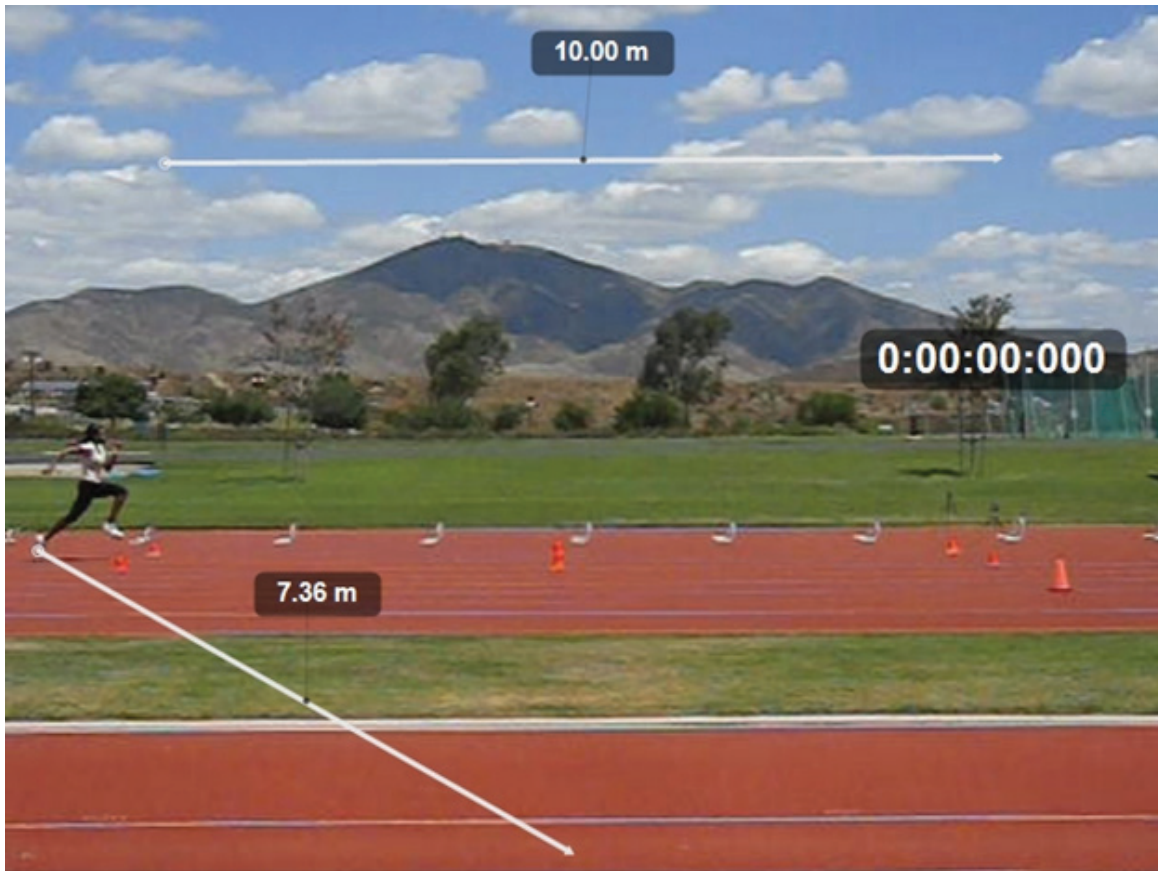


photo provided by Phil Cheetham

Locating toe off, setting the stop watch to zero and locating the line tool on the toe
 Advance the runner, counting the strides. Advance an even number of strides, usually 4 or 6. Stop at toe off with the same foot as you started. Write down the time or enter it into your spread sheet. Use the “hand tool” and place it carefully on the arrow, placing the little cross right on the end of the line. Now drag the line to the athlete’s toe and release the mouse button. You will see a measurement. Enter that number into your spread sheet, (see the example image below).

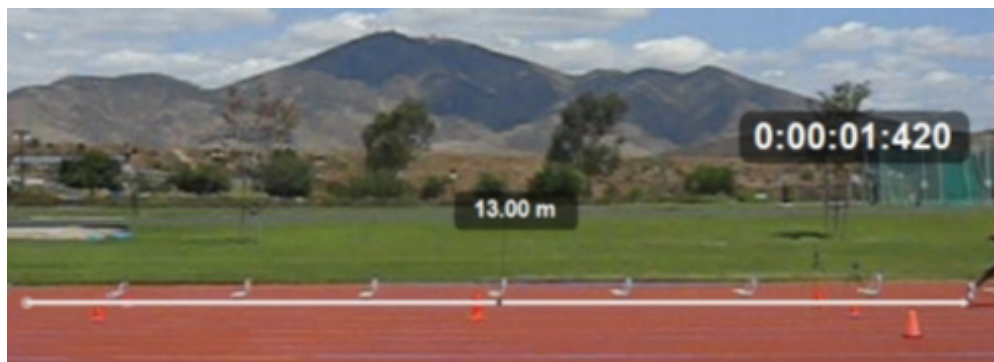


photo provided by Phil Cheetham

Measuring the total length and time for all strides

You now have enough information to calculate stride length, rate, and speed. Here’s an example table of two runs.

| Trial | Strides | Length | Time | Stride Length | Stride Time | Stride Rate | Speed | 20m Time from Calcs | 20m Time from Lights | Speed from Lights |
|-------|---------|--------|-------|---------------|-------------|-------------|---------|---------------------|----------------------|-------------------|
| | | m. | secs. | m. | secs. | strds/secs. | m/secs. | secs. | secs. | m/s |
| 1 | 6 | 12.46 | 1.304 | 2.08 | .22 | 4.60 | 9.56 | 2.09 | 2.09 | 9.57 |
| 2 | 6 | 12.34 | 1.333 | 2.06 | .22 | 4.50 | 9.26 | 2.16 | 2.13 | 9.39 |

Tabulation of average stride lengths and rates

In summary; first you enter number of strides, time, and total length; then the spread sheet calculates the rest.

- Stride length = length/strides
- Stride time = time/strides
- Stride rate = 1/stride time
- Speed = length/ time
- 20m Time from Calculations = 20/speed
- 20m Time from Lights is the time measured by the timing lights if you have them set up
- Speed from Lights = 20/20m time from lights

If you have a spread sheet built up it only takes you about five minutes to do the whole set of calculations from the time you open the video until you start on the next athlete.

Notice that sometimes the time calculated from the video will be different from the time using the timing lights. This may be caused by different parts of the athlete breaking the beam at the start and the finish, hence not getting a consistent measurement.

From this information you now know your athlete's stride length and rate and you can determine if it needs to be lengthened, shortened or left alone, and as a coach you can design exercises and drills to adjust it if necessary. You can also test again at a later date to see if your changes have worked. There is nothing like measuring to see if your coaching is really working.

In conclusion, I believe that all coaches should regularly test their athletes and measure these performance parameters. Years ago it was very expensive and difficult to do this, now it is easy and inexpensive!
Phil Cheetham, August 2011

Phil works primarily with track and field at the Chula Vista Olympic Training Center, although his background is also in gymnastics, swimming, diving and golf. He specializes in motion analysis and biomechanics, using high speed video and sensor technology to measure and interpret athletic motion, with the goal to help coaches improve athlete performance.

On the cover: Sean Furey

Cover photo by: Martin Rose, Bongarts

USOC Directory for Coaching Resource Staff

Sport Performance Division

Chief of Sport Performance
Alan Ashley
Alan.Ashley@USOC.org
719.866.4971

Manager/ Coaching Education
Christine Bolger
Christine.Bolger@USOC.org
719.866.2557

International Games

Managing Director
Leslie Gamez
Leslie.Gamez@USOC.org
719.866.4059

Website

www.teamusa.org

Team Leaders

Wesley Barnett, Team Sports
Wesley.Barnett@USOC.org
719.866.4820

Rachel Isaacs, Acrobat/Combat Sports
Rachel.Isaacs@USOC.org
719.866.4662

Julie O'Neill, Paralympic Sports
Julie.O'Neill@USOC.org
719.866.4794

Kelly Skinner
Kelly.Skinner@USOC.org
719.866.4794

Chris Vadala
Christopher.Vadala@USOC.org
719.866.4082

Olympic Training Center

Managing Director/ Chief of Sport Operations
Mike English
Mike.English@USOC.org
719.866.4501

Director of Training Centers
Glen Werner Roseboom
Glen.WernerRoseboom@USOC.org
719.866.4739

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