

MIND GAMES
VIEW FROM THE TOP
HOT OFF THE PRESS
DIRECTORY



OLYMPIC COACH

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**Message from the
MANAGING DIRECTOR**

**MINDSETS: Developing Talent Through
a Growth Mindset**

**NON-VERBAL OBSERVATIONAL LEARNING
AMONGST ELITE ATHLETES**

DEVELOPING A SELF-RELIANT ATHLETES

**COACHES AND EMPLOYMENT
CONTACTS**

**IRON DEFICIENCY ANEMIA AND
PERFORMANCE**

**DEVELOPMENT, ENHANCEMENT
AND SUSTAINABILITY OF EXPERT
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ON THE COVER

Cover Photo: Cassie Johnson delivers for USA Curling

Message from the
**PERFORMANCE
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DIRECTOR**
by
DOUG INGRAM

One of the great attributes of a good coach is their curiosity in what it takes for their athletes to perform at the highest level possible. Coaches look for new ways that a skill may be taught and learned, mental states that change, or even a different leadership approach.

Many good coaches are avid readers—either books, magazines or research articles. Some books really provide some outstanding insight into coaching from another research area. In this issue, we asked Carol Dweck to share her insights into coaching from her book “Mindset”. Dr. Dweck is a Stanford psychologist who studied why children fail in school. The impact of her work for sport is immeasurable. There is a difference between being an athlete and a talented individual. Through the course of your career, you have had talented individuals who really did not work hard and did not use their talent effectively. On the flip side, you have had individuals who were not very talented or skilled, who worked hard and became athletes. As you read her article, you will think about current and past athletes and how this information could have been crucial to taking an athlete from being a talented person to truly being an athlete. It is in the “Mindset” of the individual and she gives some tips on identifying whether they are “fixed” or “growth” and how to facilitate a change.



Another way coaches learn is by hearing from other coaches or scientists. Becoming an expert in any field is difficult as you well know. The USOC recently hosted a seminar that focused on skill acquisition and the key findings are published in this issue. The quality of your practice and the number of hours that an individual practices (mostly on their own with a deliberate intent) appear to be key determinants in achieving expert performance. The manner in which a coach provides feedback directly impacts how the athlete learns and uses the skills taught in practice and games.

In another article, Garrett Klugh, one of our Olympic rowers, talks about how athletes learn by observing their fellow athletes. As coaches we sometimes forget about the impact peers have with their peers in an athletic setting.

Also included is second installment in legal issues for coaches by Dr. Athena Yiamouyannis and Dr. Heather Lawrence focusing on employment contracts. What really makes up a contract and how to protect yourself as a coach are hot topics that are covered in this article.

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FYI — The USOC will be hosting our annual Training Design Symposium on March 4-6, 2009 at the Colorado Springs OTC. The Training Design Symposium focuses on key issues in developing a meaningful training program for athletes. The USOC brings in leading experts from all over the World to provide insight into high level planning along with highly successful coaches explaining how they plan for their seasons. This is an extraordinary symposium for the price and one that should not be missed. To register: <http://www.usolympicteam.com/content/index/4122>

MINDSETS: Developing Talent Through a Growth Mindset



Carol S. Dweck
Stanford University

Coaches are often frustrated and puzzled. They look back over their careers and realize that some of their most talented athletes—athletes who seemed to have everything—never achieved success. Why? The answer is that these athletes didn't have everything. They didn't have the right mindset.

In my research, I have identified two mindsets that people can have about their talents and abilities. Those with a fixed mindset believe that their talents and abilities are simply fixed. They have a certain amount and that's that. In this mindset athletes may become so concerned with being and looking talented that they never fulfill their potential.

People with a growth mindset, on the other hand, think of talents and abilities as things they can develop—as potentials that come to fruition through effort, practice, and instruction. They don't believe that everyone has the same potential or that anyone can be Michael Phelps, but they understand that even Michael Phelps wouldn't be Michael Phelps without years of passionate and dedicated practice. In the growth mindset, talent is something you build on and develop, not something you simply display to the world and try to coast to success on.

Almost every truly great athlete—Michael Jordan, Jackie Joyner-Kersey, Tiger Woods, Mia Hamm, Pete Sampras—has had a growth mindset. Not one of these athletes rested on their talent; they constantly stretched themselves, analyzed their performance, and addressed their weaknesses. In the recent Olympics, silver-medal swimmer Dara Torres (age 41) and gold-medal marathoner Constantina Tomescu-Dita (age 38) defied myths about age through their training and dedication.

Research has repeatedly shown that a growth mindset fosters a healthier attitude toward practice and learning, a hunger for feedback, a greater ability to deal with setbacks, and significantly better performance over time. How do the mindsets work and what can coaches do to promote a growth mindset? Before addressing these

issues, let me first answer some other questions that I am often asked about the mindsets.

QUESTIONS ABOUT THE MINDSETS

Which mindset is correct? Although abilities are always a product of nature and nurture, a great deal of exciting work is emerging in support of the growth mindset. New work in psychology and neuroscience is demonstrating the tremendous plasticity of the brain—its capacity to change and even reorganize itself when people put serious labor into developing a set of skills. Other groundbreaking work (for example, by Anders Ericsson) is showing that in virtually every field—sports, science, or the arts—only one thing seems to distinguish the people we later call geniuses from their other talented peers. This one thing is called practice.

Are people's mindsets related to their level of ability in the area? No, at least not at first. People with all levels of ability can hold either mindset, but over time those with the growth mindset appear to gain the advantage and begin to outperform their peers with a fixed mindset.

Are mindsets fixed or can they be changed? Mindsets can be fairly stable, but they are beliefs, and beliefs can be changed. Later on, I will describe workshops that have altered people's mindsets and had a real effect on their motivation and performance.

How Do The Mindsets Work? The Mindset Rules

The two mindsets work by creating entire psychological worlds, and each world operates by different rules.

Rule #1.

In a fixed mindset the cardinal rule is: Look talented at all costs. In a growth mindset, the cardinal rule is: Learn, learn, learn!

In our work with adolescents and college students, those with a fixed mindset say, "The main thing I want when I do my school

work is to show how good I am at it.” When we give them a choice between a challenging task they can learn from and a task that will make them look smart, most of them choose to look smart. Because they believe that their intelligence is fixed and they have only a certain amount, they have to look good at all times. Those with a growth mindset, on the other hand, say “It’s much more important for me to learn things in my classes than it is to get the best grades.” They care about grades, just as athletes care about winning the game, but they care first and foremost about learning. As a group, these are the students who end up earning higher grades, even when they may not have had greater aptitude originally.

Our studies show that it is precisely because of their focus on learning that growth mindset students end up with higher performance. They take charge of the learning process. For example, they study more deeply, manage their time better, and keep up their motivation. If they do poorly at first, they find out why and fix it.

We have found that mindsets play a key role in how students adjust when they are facing major transitions. Do they try to take advantage of all the resources and instruction available, or do they try to act as though they don’t care or already know it all? In a study of students entering an elite university, we found that students with a fixed mindset preferred to hide their deficiencies, rather than take an opportunity to remedy them—even when the deficiency put their future success at risk.

Rule #2.

In a fixed mindset, the second rule is: Don’t work too hard or practice too much. In a growth mindset, the rule is: Work with passion and dedication—effort is the key.

Those with a fixed mindset believe that if you have natural talent, you shouldn’t need much effort. In fact, having to work hard casts doubt on your ability. I believe that this is why so many enormously talented athletes never fulfill their potential. They are often the ones who have coasted along, winning with little effort, while the other athletes were sweating, struggling, and practicing. The fixed mindset “naturals” never learn to work, so that when they later reach their limits, they cannot cope. From Michael Lewis’ wonderful book, *Moneyball*, we all know the story of the super-talented Billy Beane, who was a colossal failure in the major leagues because he didn’t think he should have to learn or try.

Those with a growth mindset know they have to work hard, and they enjoy it. They understand that effort is what ignites their ability and causes it to grow over time.

I get letters from former child prodigies in many fields. They were led to expect that because of their talent, success would automatically come their way. It didn’t. In the world of Olympic sports, we do not do our young athletes a favor by allowing them to believe that great talent alone will transport them to the medal stand.



Recently we conducted a small study of college soccer players. We found that the more a player believed athletic ability was a result of effort and practice rather than just natural ability the better that player performed over the next season. What they believed about their coaches' values was even more important. The athletes who believe that their coaches prized effort and practice over natural ability were even more likely to have a superior season.

Rule #3.

In a fixed mindset, the third rule is: When faced with setbacks, run away or conceal your deficiencies. In a growth mindset, the rule is: Embrace your mistakes and confront your deficiencies.

We have found over and over that a fixed mindset does not give people a good way to recover from setbacks. After a failure, fixed-mindset students say things like "I'd spend less time on this subject from now on" or "I would try to cheat on the next test." They make excuses, they blame others, and they make themselves feel better by looking down on those who have done worse. Everything but face the setback and learn from it.

It was so interesting to see in the last Olympics how many champions prevailed in events that were at some point not their strong suit. Chris Hoy, the Scottish gold medal cyclist saw his specialty eliminated from the Olympics and had to reinvent himself. He did not sit and lament his fate or blame others; he got to work.

HOW ARE MINDSETS COMMUNICATED?

Mindsets can be taught by the way we praise. In many studies, we have gotten a very surprising result. Praising children's or adolescents' intelligence or talent puts them into a fixed mindset with all of its defensiveness and vulnerability. Instead of instilling confidence, it tells them that we can read their intelligence or talent from their performance and that this what we value them for. After praising their intelligence or talent, we found that students wanted a safe, easy task not a challenging one they could learn from. They didn't want to risk their "gifted" label. Then, after a series of difficult problems, they lost their confidence and enjoyment, their performance plummeted, and almost 40% of them later lied about their scores. What should we praise?

We found that praising students' effort or strategies (the process they engaged in, the way they did something) put students into

a growth mindset, in which they sought and enjoyed challenges and remained highly motivated even after prolonged difficulty. Thus coaches might do well to focus their athletes on the process of learning and improvement and to remove the emphasis from natural talent. A focus on learning and improvement tells athletes not only what they did to bring about their success, but also what they can do to recover from setbacks. A focus on talent does not.

We have also directly taught students the growth mindset. We have been developing a software program, called Brainology, in which students learn all about the brain and how to make it work better. Further, they learn that every time they stretch themselves and learn something new, their brain forms new connections, and over time they increase their intellectual ability. Research has shown repeatedly that teaching students the growth mindset strongly enhances their motivation and their achievement.

Research has shown repeatedly that teaching students the growth mindset strongly enhances their motivation and their achievement.

Coaches can identify their fixed mindset athletes by asking them to agree or disagree with statements like this: "You have a certain level of athletic ability, and you cannot really do much to change that;" "Your core athletic ability cannot really be changed;" and "You can learn new things, but you can't really change your basic athletic ability." They can also ask their athletes to complete this equation: Athletic ability is ____% natural talent and ____% effort/practice. They can then work on fostering a growth mindset in their players who place an undue emphasis on fixed ability.

WHAT ABOUT COACHES' MINDSETS?

Of course, coaches themselves can have a fixed mindset. These coaches may convey to their teams that they value natural talent above all, they may spend little time with the athletes they deem less talented, and they may be intolerant of feedback from others (since they may see feedback as impugning their own ability). Research by Peter Heslin and his colleagues shows that business managers with a fixed mindset have qualities like this. However, after workshops that teach them a growth mindset, these same managers are more eager to help their employees develop and become more receptive to feedback from others.

A growth mindset coach is also more likely to foster teamwork and team spirit. When a coach has a fixed mindset, players will be eager to impress the coach with their talent and will vie to be the superstar in the coaches' eyes. However, if athletes know that their

coach values passion, learning, and improvement, these are things that players can work together to produce.

CONCLUSION

At the level of the player, a growth mindset allows each individual to embrace learning, to welcome challenges, mistakes, and feedback, and to understand the role of effort in creating talent

At the organizational level, a growth mindset is fostered when coaching staffs present athletic skills as acquirable, value passion,

effort, improvement (and teamwork), not simply natural talent, and present themselves as mentors and not just talent judges.

When coaching staffs have a fixed mindset, their job is simply to find the talent. When they have a growth mindset, their job is to inspire and promote the development of talent. It is in this mindset, I believe, that they will nurture a new generation full of Olympic athletes the likes of Michael Phelps and Nastia Liukin, athletes who love their sport and bring it to the highest level.

Carol S. Dweck is Professor of Psychology at Stanford University and author of Mindset: The New Psychology of Success.

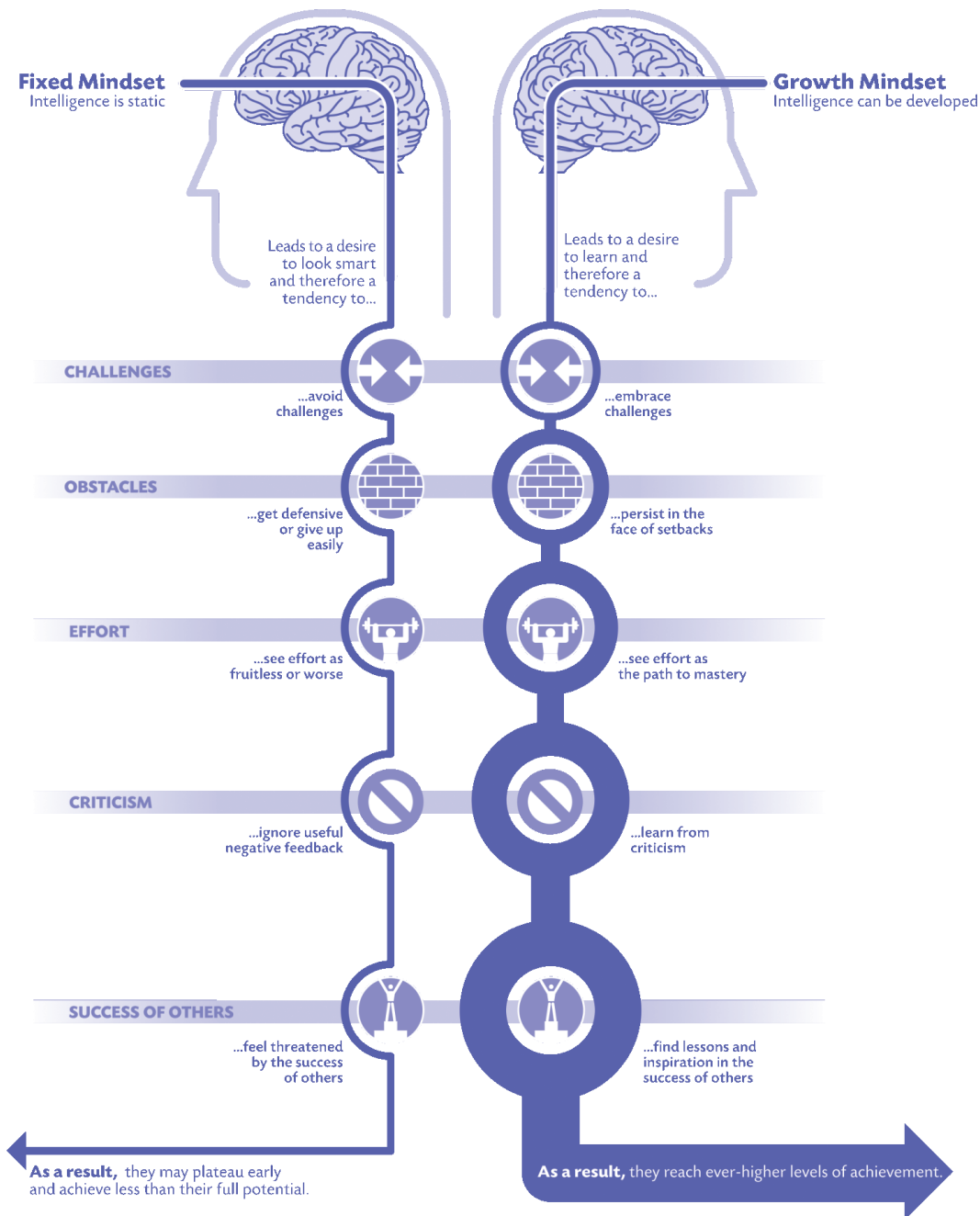


DIAGRAM OF MINDSETS BY NIGEL HOLMES

Non-Verbal Observational Learning Amongst Elite Athletes

By: Garrett Klugh
USOC Strategic Planning (2004 Rowing Olympian)

As an elite athlete for seven years in the sport of rowing my skill acquisition strategies developed and evolved with my training environment. In the early stages of my elite athletic career I undoubtedly learned the most from conventional coaching methods: explanation, demonstration, trial, and feedback. However, after several years with the same coaches in the same environment, I began to seek alternative methods for acquiring skills. My motivation to improve led me to try a new approach. My coaches at the time were not insufficient; I was merely in a stale learning environment and my technique required improvement. I knew without improvement I would not be able to achieve my goals. Necessity, in this case, was truly the mother of invention. My curiosity, desire and need to improve drove me to look to my teammates for assistance. I recall one instance early in my elite career when I had the opportunity to row behind a recently crowned world champion. After the practice my coach asked me what stood out to me about his technique. I am unsure if my coach had something particular in mind when he asked me that question but it forced me to critically analyze and differentiate between techniques. It was then I realized that I could learn from my teammates.

In the ego filled culture of sport, I could not simply approach and ask teammates for help. My delicate ego would not allow such a transparent display of weakness. Additionally, I might be sending my competition a message giving them a mental advantage, (as most of the year we are in competition with each other). As a result I turned to observational learning.

Anecdotally, there is evidence to support the use of peer to peer observational learning amongst elite athletes. However, there has been no quantified data taken specifically in regards to this group. As a coach, should this instructional technique be harnessed and promoted?

Traditional non-verbal coaching research does not adequately address this learning phenomenon amongst elite athletes. Studies are focused primarily on feedback to training or performance, not skill acquisition.

There is vast research about theories of cognitive development and motor learning. The concept of observational learning (also called implicit learning, perceptual motor learning and associative learning) is rooted in the basic theory of cognitive development. There is data that supports non-verbal modeling (observational learning) as a stronger method of teaching skill acquisition than verbal modeling. In fact depending on the skill, often a verbal explanation can confuse the learner. The effectiveness of modeling is noted in Bandura's research. He submits that modeling is known to be a one of the most powerful ways of transmitting behavior.

Bandura additionally breaks down observational learning into four processes: attentional, retention, production, and motivation. In my experience the attentional process determined which athlete to model and why. In Bandura's retention process I interpreted and associated the model in



usable way by comparing it to my experiences. The production process reflects the learner’s ability to use the gathered information to form new skills. In my experience the motivational process represented the desire to implement the newly developed technique.

Therefore when we apply Bandura’s observational learning model to elite athletes, we may conclude that observational learning is a large part of the acquisition of skill. In the sport of rowing, the coach does not get into a boat and model the desired behavior. This situation leaves our teammates as the models for the desired behavior and through Bandura’s theory we analyze, code, assign and ultimately adapt the “acquired competency.” In most sports the coach may tangentially model the desired behavior but often this model is elementary. The best example is watching a subject perform the desired behavior during the participation in his/her sport.

I utilized observational learning by studying those athletes that excel at certain skills. In my case, I would analyze one teammate’s relaxed and natural “catch” while also studying the flawless change of direction that another teammate exhibited. Great examples were around me daily: seasoned veterans of multiple national teams, multiple world champions and eventual Olympic Champions. All I had to do was be open to the idea that I could learn from my teammates. This method of skill acquisition became a complimentary learning technique. I watched my teammates on the erg (rowing machine). I found it was a great quantifiable method for skill improvement as there is numeric feedback displayed from each stroke. I studied them as they raced and practiced. I tried to identify precisely what technique or skill they possessed that allowed them to excel. Once the skill was identified I would compare and contrast it to my own. I then had to assimilate their technique. I was able to accomplish this with varying degrees of success. Depending on the skill, over time I found that I was able to integrate the identified desired behavior.

Many confuse observational learning with mimicry or imitation. In mimicry there is no attempt to understand the movement(s) only attempts to copy it. This results in a temporary hollow skill attainment. Observational learning requires the learner to understand the movement(s) and adapt based upon that

understanding. In observational learning the learner cannot simply “go through the motion.” Without a critical skill analysis the learner will not properly and successfully absorb the information.

In a study by Drummond and Gansteads, they note the effectiveness of observational learning is related to the level of experience an athlete has obtained. The more experienced the athlete, the greater the ability to analyze and reproduce a skill. These results were previously reflected in studies by Beveridge and Gangstead (1988), Biscan and Hoffman (1976) and Girardin and Hanson (1967). This research shows that during an observational retention task elite athlete’s performed significantly higher than those athletes with less meaningful experience. This was attributed to elite athlete’s kinesthetic and visual experience with the specific skills.

Coaches regularly single out athletes to model technique. They have an individual or team view the athlete in the hopes they may assimilate the desired technique.

Anecdotally this evidence suggests that elite athletes would harvest the greatest benefit from organic non-verbal observational learning. Less experienced athletes may garner some benefit but time may be better spent on alternative skill acquisition methods, as they do not have the knowledge base to effectively analyze skill.

For example, if I watch Kobe Bryant shoot a 30 foot fade-away jump-shot with a defender in his face, I am not able to reproduce the skill because I do not have the requisite skills to be able to process the model. Basically, I am not good enough at basketball to truly understand the movement.

Coaches regularly single out athletes to model technique. They have an individual or team view the athlete in the hopes they may assimilate the desired technique. While this is tangentially related to non-verbal peer to peer observational learning it is unique in that the viewing athlete did not critically identify the skill. Additionally when an athlete is told to model a particular technique that technique has a tendency to mutate.

The use of non-verbal peer to peer observational learning assisted me in the development of my skills. I organically found that it was a viable skill acquisition method. I used it throughout my elite career and undoubtedly assisted me in achieving my goals. As a coach, one could encourage athletes to non-verbally critically identify exceptional skills exhibited by their peers, analyze these skills and assimilate them into their own technique.

Developing a self-reliant athlete

By Catherine Sellers- USOC Coaching

Here you are-- at the biggest event of your athlete's career and you can't even get close enough to talk! You are always right there for your athlete. Every problem the athlete has they look to you for the correction. Your athlete looks frightened and almost confused. You see them searching for you and you are yelling out to them, so much everyone that hears you...

We have to look at our role as the coach and what our responsibility is to the development of a self-reliant athlete. Sure, coaches are responsible for developing the training plan, the competition schedule and skill development. Often we even tell them when to get up, make recommendations for meals or even have the meals pre-ordered, determine the warm-up, the competition strategy, etc. We are right there to direct any changes in the strategy that might need to be made. All the athlete has to do is go out and compete—no worries—no problem. Coach has it all under control. Sounds like this coach is doing all the right things.

But here's the problem--- during the course of the competition, the strategy you (the coach) deliver breaks down. What you thought was going to happen isn't going according to the script. You are too far away from the athlete for them to hear your frantic instructions. The athlete has to make a decision about what to do. Are they ready to make a decision? It might be one of the biggest decisions in their athletic career and have you given them the knowledge and the ability to make the decision? You can't be heard—how will they know what to do?

What if they make the wrong decision—how do you respond? Your response is the key to developing a self-reliant athlete.

Do you:

- Send a substitute to the table, pull the player out and send them to the bench or do you show them how that play went wrong and how they could improve it?
- Ask them to tell you the two options they had when the opponent made that move or do you just tell them what their two options were?
- Do you teach them how to read changes in pace, to try to anticipate the move and to look, listen and feel all the different cues in a move?



Or do you respond “I” am the coach and just do what “I” tell you to?

How do you teach them to become self-reliant? First, you have to decide if you want them to be self-reliant. Some coaches and we have seen this type of coach even at the Olympic level, who want total control over every aspect of the athlete’s life. The problem manifests itself as we watch the athletes struggle because the confines of the Games limits the access for the coach and the athlete doesn’t know what to do as they have never had to make those decisions.

Coaching is about a relationship — a working relationship with a common bond and a goal for achievement. A one-sided relationship is not a good relationship.

FIVE TIPS

You can start teaching your athlete to be self-reliant with simple ideas that can be done in practice, such as:

1. Don’t over analyze—if they can remember three things that you tell them to do—that is amazing.
2. Have them describe what happened, instead of you telling them what happened. If they didn’t like what happened ask them what they would do differently—don’t accept “I dunno”.
3. Design practices so that you don’t do the same skill over and over again (block practice) but make it random—if you are working on three plays—mix it up—do one twice, then the third one, then the second one—the variability makes the athlete think much like a much like they would in a game..
4. Stop workouts and ask them questions. How did it feel or I noticed this happened, why do you think that is?
5. Don’t give constant feedback—tell them what the purpose of the workout is—let them work on it. Let them experiment and give constructive feedback after 5, 10 or 15 tries. If you do it every time, they learn to rely on you and not on themselves.

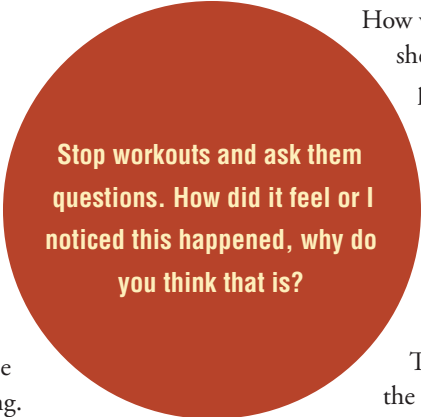
A PRIME EXAMPLE OF WHY AND THE BENEFITS

In 1988, there was a coach and an athlete who had been working together for about 12 years. The coach was a great teacher and the athlete was a willing learner. The coach taught the athlete everything about her event—the High Jump. They would watch film together and he would ask what errors she would see in the technique. The athlete would tell the coach what she saw. He would challenge her with tasks great and small. One night he called her after the sun when down and in the pitch black, he had her come out to the high jump pit. With the light from a

flashlight, she put down her marks. The flashlight went off and she jumped in the dark. How much courage that took—but more importantly how much confidence it inspired. (Do not do this with beginners) The coach wanted her know that she could make the jumps in any kind of condition—even blinded by darkness.

The Olympic Games of 1988, in Seoul, Korea this athlete walked out to the High Jump pit. Her coach had decided not to come to Korea. He didn’t want her to worry about where he was. He just wanted her to focus just on jumping. Before she left, they sat on the edge of the pit and talked about all the possibilities, all the different things that might happen at the Games.

How would she respond if this happened and what she might do if this happened—a lot of mental preparation for the what-ifs?

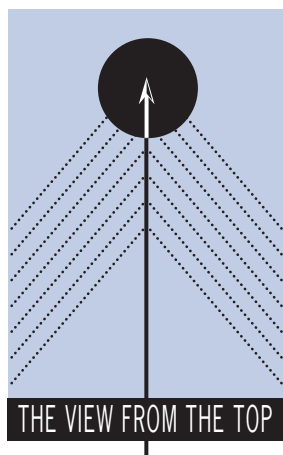


The High Jump expert, who was announcing the event, did not give this athlete a chance to even make the final, even though they were friends. The jumper had overcome a number of knee surgeries and no one had expectations except the jumper and her coach.

The competition was tough, but the jumper made the finals. She was having a great meet, and she kept watching her competitors as each of them jumped, analyzing what they were doing. At the end, it came down to her and one other jumper. She was in a tie for the Gold medal!

Every jump was critically important and she had no coach there to help her through it, but she did have all the knowledge that he had her learn over the course of the 12 years and all the confidence that he could instill in her. It was a jump-off—imagine the pressure—one mistake and you are done. She had dreamed all her life about a Gold medal, the medal being placed around her neck and hearing the national anthem played as she stood on the podium. This is the moment.

Each athlete took a jump and they both knocked the bar off the standard. But our athlete noticed that her competitor made the same mistake twice and our jumper knew that she had made a mistake and more importantly she knew how to correct her mistake. Imagine how her confidence increased when she realized that she knew how she could improve, but her opponent did not. Her opponent jumped and missed and as all eyes in the stadium focused on Louise Ritter, she made that third jump to win one of the most improbable medals of the 1988 Olympic Games. Bert Lyle, her coach, watched on TV as his athlete won the Gold medal in the most dramatic fashion and smoked his victory cigar, knowing that all those years of preparation and teaching had enabled Louise to win a medal for both of them.



VIEW FROM THE TOP

Pia Sundhage

Pia Sundhage did a remarkable job at the 2008 Olympic Games leading her team to a Gold medal victory over a strong Brazilian team. Her philosophy and leadership became invaluable as the team lost three key players, one just two weeks before the opening rounds of the Games.

1. What a phenomenal Olympic Games run you had! Going into the Games, you had three season ending injuries to key players. How did you get the team to rally, particularly after losing the first game?

The first thought after the injuries and the loss against Norway was: Find another way to move on! As long there is a chance, we'll try and do our very best.

It helped that we've been talking since December 2007 about THE TEAM that is going to win. The team is bigger than any single player. I went from words to action:

- Talking about the player in pairs (Boxx and Lloyd, Rampone and Margraf) to journalists.
- We changed the attacking style. We worked on exaggerating the "keeping possession" idea and not playing "long balls to strong, great Abby". We wanted to make our play more unpredictable.
- We had drills where they coached each other.
- We have worked on creating a great atmosphere and that helped us in difficult times. We had fun together!

2. After being named in November of 2007, with less than a year before the Games, how did you approach the upcoming Olympic preparations?

The very first meeting with the players, my first words were from a song, Bob Dylan's "Times they are a-changin'". Everybody wanted a change and my job was to inspire that to happen. It couldn't be too small of a change (no one would recognize the change); it couldn't be too big of a change (that would make a bronze-medalists team lose confidence). It had to be a change that MADE THE DIFFERENCE. I made it clear that it is not about me, it is not about one star, and it is about THE TEAM.

Little by little, I changed things with the coaching staff. I came up with a nine month plan focusing on three items: attacking-team, defending-team and fitness. We couldn't afford to NOT be very professional in every moment on the field! We did not have much time. Every single minute on the green grass, every single feedback, took us one step closer to improvement and to the change the team embraced.

3. You have been a coach in Sweden, Norway, China and the US, are there any differences that you see from country to country in player development?

Swedish and Norwegian players are well organized on the field, well educated, and have watched many games. They are physical, tough, and good in the air. But sometimes they are not brave



enough to step up, to do something different and have a tendency to “hide behind” the Team. Norwegians do not have good technique overall. Swedish players don’t talk on the field enough. Sweden and Norway have different playing styles!

Chinese players are very technical and when I ask some players if they are left- or right-footed, they don’t understand the question. They have four good feet!!! They are quick players, but they are not fast. They follow the coach, never questioning and are very loyal. I think they need one or two players that are NOT typical Chinese players. If they change this pattern, they would improve their soccer a lot.

The American players have the ability to “Go For It”. They are fast and forward. They hide their lack of technique with speed and fitness in general and with a belief that they are the best in the world! They don’t read the game as well as the European players. The great history and winning culture have won many games for the US Team, I think.

4. Team-I think that is the word that defines this Olympic team. You can definitely see the team effort. What are three keys to building a great team?

1. Awareness
2. Responsibility
3. Enjoyment – and be patient.

My knowledge and inspiration will give them feedback, so they are aware of how they play and how they are off the field. Then we all should take responsibility for the way we act/are. But first and foremost we have to find a way to make it fun. Joy is the best motivator. For me, it is very important to be positive.

Every player and coach has a role on the Team. If we understand, accept, respect the role we have – for now – and if we can see the bigger picture, we have a big chance to win.

I usually say, “We are the environment that brings out the best performance from each other.” So play to her best foot and expect good things to happen.

5. The pressure has to be enormous when you are playing single elimination. How do you and your coaching staff try to diffuse the pressure or do you?

The coaching staff shows that we believe in what we’re doing, in our players, in the Team by being positive. I expect good things to happen and very often it does. I also believe that it takes seven positives to balance one negative. (An old clever woman in

Philadelphia told me that...) That’s why we show the players video clips where they are successful. They have not yet seen a goal we’ve given up on video. We have talked about it, drawn arrows on the flip chart, yes-- but not on video. When I give positive feedback I talk to their heart (video). When I want to adjust something I talk to their brain (flip chart).

Soccer is much more than Gold medals. It is the way, the road we decided to take. We’ve set up a goal to be winners in two ways.

1. Win the next game
2. Win the respect from people by the way we’re playing.

“It is a privilege to play under pressure”

6. There have to be some serious challenges when you have to move locations every three days during the Games. Moving people, equipment and being tired from just competing, how does that work?

Great people around the team are making a great effort to make it work as smoothly as possible. Our General Manager, Cheryl Bailey, has played a big part in our Gold Medal! When things are not going so well with luggage, etc. we remind ourselves that if you can’t do anything about it (the problem) let it go. The Team is very competitive so we do whatever it takes...

7. Tell us about your most memorable moment at the Games. When the referee blew the whistle after 120 minutes and the coaching staff hug each other.

And when I heard friends and family singing USA, USA, USA-- when we came to the USA House in Beijing after the final.

8. As a coach, how do you try to keep up with current trends in women’s soccer?

Studying/analyzing games-- working with analysis program on my computer. Reading magazines. Talking/listening to coaches as often as possible!

9. What advice would you give to a young coach who is just starting out?

If you think its fun (make it fun) and if you’re interested you will improve your game all the time. Watch soccer! Study a player in the game. Spend time with the ball little bit every day. Make the ball your friend.

Don’t let the coach decide how good you will become. You have the ability in you.

COACHES AND EMPLOYMENT CONTRACTS

By: Dr. Athena Yiamouyiannis, Ohio University
Dr. Heather Lawrence, Ohio University

Whether you are a high school, college, or Olympic coach, gaining a better understanding of contract law as it relates to employment contracts is important. This knowledge can better prepare you for the contract negotiation process and perhaps result in greater compensation and benefits as well as protecting one's rights. Contract law may seem complex, but the basics are easy to understand. This tutorial on employment contracts will begin with a general overview of the basics of contract law, essentially the conditions necessary for a valid employment contract. This will be followed by an overview of the key elements included in more complex employment contracts.

CONTRACT LAW – THE BASICS

In order for a contract to be considered valid and enforceable, ALL of the following conditions must be met:

1. There must be an offer.
2. There must be an acceptance of the offer.
3. The agreement must involve an exchange of something of value.
4. Both parties must have the legal capacity to enter into the contract.
5. The transaction may not involve illegal activity.

An example of a basic employment contract is a situation where a high school athletics director verbally offers a part-time coaching position of \$5,000 to a high school teacher for one sport season. The high school teacher agrees to accept the offer. Essentially, in exchange for serving as a coach for a season, the school will be compensating the teacher \$5,000. Both the athletics director and the coach are legal adults and the contract is consistent within laws and regulations. Under such conditions, this is considered a valid and enforceable employment contract. Both oral and written contracts can be used, but it can be very hard to prove who said what in oral contracts; therefore, it is strongly advisable to have all contracts be in written form.

COMPLEX EMPLOYMENT CONTRACTS

Instead of a handshake or simply a letter of agreement, employment contracts for coaches particularly at the college level have become increasingly complex as salary amounts and perks continue to escalate. Due to the “tenuous nature of a coach's position, employment contracts have evolved into complex legal documents, often involving complicated negotiations” (Cotten and Wolohan, 2007, p. 375).



For coaching contracts involving significant dollar amounts, it may be helpful to review documents with an attorney before they are signed. Since most hiring organizations have the benefit of an attorney when drafting the contract, the use of an attorney will help to protect the coach and may avoid future lawsuits that contest unclear contract language.

Employment contracts are broken more frequently than other contracts, which is why it is important to make sure the details in complex employment contracts are specified so that ambiguity will be lessened. When one party fails to uphold their end of the bargain, then a “breach of contract” is considered to have occurred and depending upon the negotiated contract, one party may have to pay the other party monetary damages. For example, a college may want to buy out a contract of a coach if the coach is not winning. In other situations, a college coach may want to leave earlier for another job even though they have several years left on their contract; in such case, it may require the coach to pay some damages to the institution for breach of contract depending on the contract language.

What can you do to better prepare yourself for the contract negotiation process? Gaining a better understanding of the key elements of a complex employment contract is one step in the preparation process. Those key elements are included below.

KEY ELEMENTS IN COMPLEX EMPLOYMENT CONTRACTS

According to Cotten and Wolohan (2007), a typical employment contract will include the following terms or elements:

- **Duties and Responsibilities.** The contract typically includes a list of duties and responsibilities that the coach is required to do.
- **Term of Employment.** The length of the contract should be stated.
- **Rollover Provisions.** Rollover provisions let the sports organization extend a coach’s contract for a specified period of time. Rollover provisions typically benefit the coach rather than the sports organization. For example, in *Cherry v. APA Sports Inc.*, (1983) Cherry’s contract stated that “if his contract was not renewed for an additional two years, he would automatically receive \$35,000.” (p. 394)
- **Reassignment Clause.** A reassignment clause allows the sports organization to remove the coach from the coaching position and reassign them to another area within the sports organization, such as an administrative position. If a reassignment clause is included in the contract, the pay rate for the new position should be specified. Furthermore, if a coach is reassigned and chooses not to take the reassignment, the coach would be considered to have terminated the contract.
- **Compensation Clause.** “A compensation clause should include the guaranteed base salary, term of pay increases over the time of the contract, fringe benefits, moving and relocation expenses, bonuses, additional retirement benefits, and other compensation that the organization itself provides the coach” (p. 394).
- **Fringe Benefits.** Examples of fringe benefits include complementary automobiles, golf club memberships, game tickets, housing expenses, and loans. The type of fringe benefits, the dollar amounts for various expenses, and the timeframes for such benefits should be included in the contract.
- **Bonuses and Incentives.** “Bonuses and incentives are becoming more important to coaches. They may include signing bonuses, incentives based on team success, and in the case of college and university coaches, graduation rates of student-athletes” (p. 394). For example, it is common for a coach to receive a bonus for being named the conference or national coach of the year or for competitive success such as reaching the NCAA tournament.
- **Outside/Supplemental Income.** Examples of outside income and supplemental income include revenue from television contracts, equipment and apparel endorsements, summer camps and clinics, and income from speaking engagements. It is becoming increasingly common for coaches to receive income from their own coach’s television shows and the contract should specify if the coach has the right to independently negotiate outside income opportunities or if they remain under the purview of the institution.
- **Termination Clause.** Coaches need to pay particular attention to this area. “Termination for just cause” allows for the firing of the coach for reasons such as breaking the law, breaking rules of the sports organization, or for inappropriate behavior. In such cases, coaches will want to make sure the “just cause” reasons are clearly stated and that the contract includes sufficient due process procedures should the coach be terminated. For example, college coaches should expect contract language stating that major NCAA rules violations will result in termination. “Termination without cause” allows the sports organization to fire the coach for any reason, which obviously places authority in the hands of the sports organization rather than the coach.
- **Buy-out Clause.** A buy-out provision lets the coach or the sport organization pay a specified amount of money to end the contract. Some coaches have negotiated buy-out clauses that require the sports organization to pay them their full salary for the duration of their contract should they be terminated. Some sports organizations have negotiated to have college coaches pay back significant salary amounts should they break their contract.
- **Arbitration Agreement.** If a dispute regarding the conditions of a signed contract arises and there is an arbitration agreement included in the contract, then the dispute will be dealt with through arbitration which is generally less costly than through the courts.

For additional information, please refer to Cotten and Wolohan’s (2007) 4th Ed. book titled *Law for Recreation and Sport Managers*.

Iron Deficiency Anemia and **Performance**

By Bob Seebohar
fuel4mance

Iron is an extremely important mineral for good health and performance. The most important role iron plays is as a component of the protein hemoglobin, which carries oxygen from the lungs to the body's cells. A higher level of iron can mean a higher aerobic capacity and better performance.

Maintaining iron balance can be difficult for some athletes because iron is lost through sweat, urine and the gastrointestinal tract. Iron stores are quite difficult to maintain in some athletes, especially endurance athletes (females more than males). And because the iron from foods and supplements is not fully absorbed, athletes must pay particular attention to the quality and timing of foods eaten to prevent iron deficiency anemia.

SYMPTOMS

The easiest symptom to notice associated with iron deficiency anemia is fatigue that worsens with exertion. Fatigue is common and can have many different causes (such as other nutritional imbalances, illness or stress). If an athlete experiences normal fatigue throughout the day and is not worsened with exercise, the cause is likely not iron deficiency by itself. The following are also possible symptoms of iron deficiency anemia:

- Decreased performance
- Sleepiness and fatigue (outside of normal)
- Poor concentration
- Moodiness or irritability
- Always feeling cold

LET'S GET TECHNICAL

A full laboratory blood iron panel is the best way to assess an athlete's iron status. There are a number of clinical markers that describe iron status including serum iron, red blood cell count, hemoglobin, hematocrit, total iron binding

capacity and serum ferritin. Serum ferritin, a marker of stored iron, is not tapped into until levels of iron become too low to support demands. For example, if the body is using and excreting more iron than it is receiving from food, the ferritin level will slowly decline. If an iron deficiency is suspected, I recommend the athlete visit a physician who specializes in working with elite athletes and receive a complete blood count (CBC) and iron panel.

IRON PERIODIZATION

Based on the lab and geographical region, normal ranges will differ so it is important to receive a baseline test on each athlete. Ideally, this would be done during a transition cycle in their training program since there typically exists a linear relationship between iron stores and training status. Typically, high volume training can cause a decrease in iron stores; therefore, it is important for the coach to periodize an athlete's nutrition, specifically iron in this case, based on training load changes. Normally, I recommend a 3-6 week iron focus including iron rich foods and possible supplementation (see below) prior to an increase in training load or travel to altitude. This amount of time will allow the body to increase its iron stores to prevent a significant performance decreasing effect during the training cycle.



IMPROVE YOUR FERRITIN LEVEL

Training increases the demand placed on the body's iron stores but depending on the athlete and current iron stores, it is possible to improve iron stores through a well structured eating program. Heme iron (found in animal products) has the highest amount of iron and is absorbed in higher amounts in your body. Non-heme iron (found in non-animal products) is lower in iron and is absorbed in lesser amounts in your body. Non-heme iron is regularly consumed by vegans or athletes not eating animal products. The following is a short list of heme and non-heme iron containing foods:

Heme

Clams
Oysters
Sardines
Shrimp
Beef
Turkey
Liver

Non-heme

Enriched breakfast cereals and pasta
Beans
Dates and prunes
Enriched pasta
Green leafy vegetables (spinach, kale)
Blackstrap molasses
Pumpkin seeds
Kidney beans
Chickpeas

As mentioned before, heme iron is absorbed better than non-heme iron. To increase the absorption of non-heme iron containing foods, have the athlete consume a source of vitamin C at the same time that a non-heme food source is eaten. For example, drink a

glass of orange juice with spinach salad made with chickpeas and kidney beans or enriched pasta made with marinara sauce with crushed tofu added.

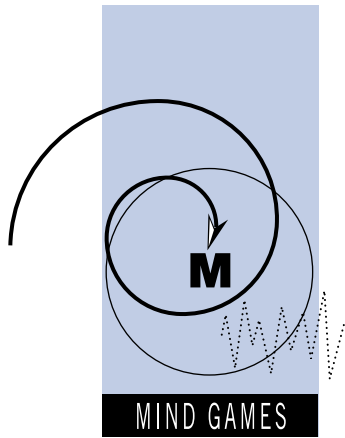
For athletes with diagnosed anemia (not self-diagnosed but from an actual blood test), it may be important to not only focus on eating foods high in iron but also taking an iron supplement. Consult with a sports physician and a sports dietitian before doing so as there could be complications of iron overload, namely the development of hemochromatosis (caused by a genetic defect that affects the ability to regulate and absorb the iron in the body). Taking iron supplements does not fall into the "more must be better" category and can have very dangerous side effects. In addition, supplemental iron (found in multivitamins also) may cause constipation in some athletes. There are many types of iron supplements and in the recent year, I have identified a type that is more absorbable in which the athlete requires less of and has very few to no negative gastrointestinal effect. Look for ferrous bisglycinate, also called ferrochel in some products. As with any supplement, be sure the product has been third party tested for contamination and there is written proof, with a certificate of analysis, of each batch the athlete takes. It is a good idea to file each certificate of analysis of each product should the athlete need to refer to it in the future.

Replenishment of iron stores typically takes about 6-8 weeks and in most cases of low-grade iron deficiency, supplementation is not necessary. Emphasize the consumption of iron rich foods with a good source of vitamin C accompanying it and be sure to have frequent blood tests performed on at-risk athletes and have these results interpreted by a qualified health professional.

Bob Seebohar, MS, RD, CSSD, CSCS, formerly a sport dietitian with the US Olympic Committee, is now a sports nutrition consultant with Fuel4mance, LLC.

Contact him at coachbob@fuel4mance.com or www.fuel4mance.com.





A three-step formula for competition readiness: From Preparation To Execution

By Sean McCann

USOC Sports Psychologist – Strength and Power

When an athlete prepares well, has the talent, but simply doesn't execute, it is frustrating and often puzzling to figure out what went wrong. At the Olympics, it is relatively rare to see a total performance collapse. When athletes underperform at the Games, the most common phenomenon is a series of small, atypical mistakes and changes in performance. Added up together, these changes and mistakes derail the performance just enough to create a below-average performance. Over the years, in my work as a sport psychologist, I have tried to determine what factors are present when athletes underperform and what it is that allows some athletes to perform at their best, time after time. After eight Olympics, I have observed a few consistent factors that result in strong performances.

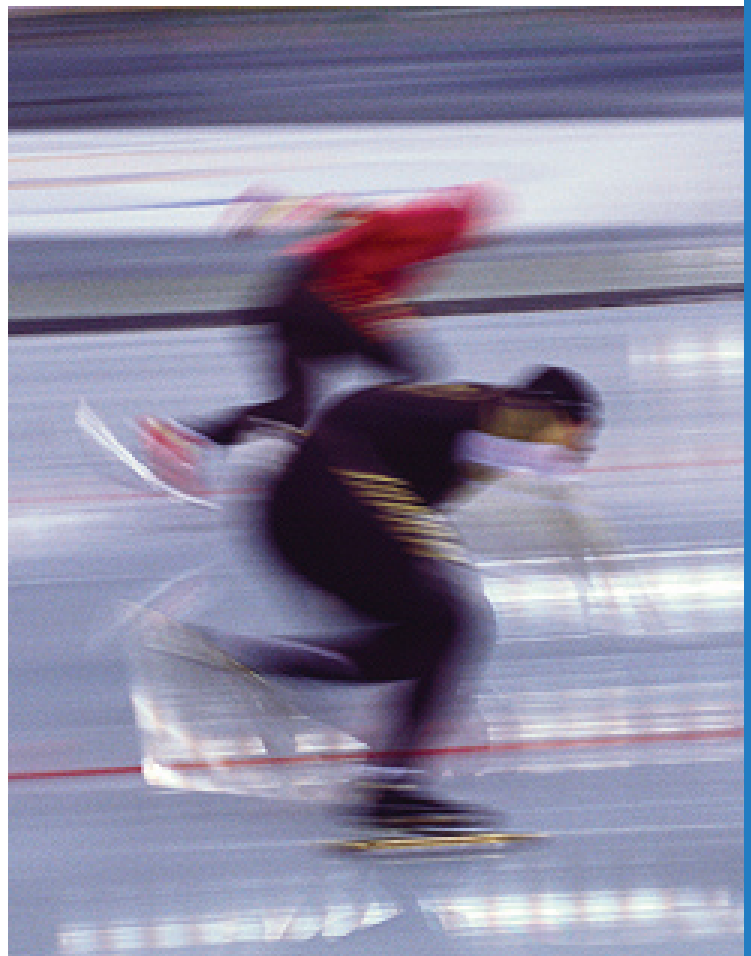
KEY TO STRONG PERFORMANCES- BEING IN "EXECUTION MODE"

*When you're out there in the big league **pressure** cooker, a pitcher's attitude -- his utter confidence that he has an advantage of will and luck and guts over the hitter -- is almost as important as his stuff." Bill Veeck*

Athletes do not have to be "in the zone" or having a "peak experience" to perform well under pressure. But there are some basic characteristics of an athlete's mindset when things go well. I call it "execution mode", a state of mind in which an athlete has simple thoughts, a very clear idea of what she needs to do, and complete confidence that executing this clear idea will mean success.

- 1. Simplicity and Clarity of thoughts.** For best performances, athletes are operating with a stripped-down, uncluttered mind. Technique has been reduced to a shorthand. Strategy is a simple idea. The internal mind is quiet, but the senses are open and aware. Thoughts are almost completely in the present.
- 2. Certainty regarding focus.** During best performances, there is no confusion or uncertainty about where the mind should be. Athletes are sure they are on the proper performance path, which makes it easier to keep proper performance focus. Certainty and the absence of doubt reduces self-consciousness.
- 3. Confidence in approach.** Athletes who perform well are completely confident that what they are doing is correct. With this confidence, they can fully commit to the simple, clear ideas above. They know exactly what they are trying to execute, and they trust. They trust that executing this plan will be enough for success. This trust and confidence decreases the tendency to become defensive, and increases the ability to stay relaxed, athletic, and aggressive.

Virtually every athlete in every sport I have talked to about these issues agrees that these three factors are present in great and good performances. Most consistently strong performers will agree with these ideas but they often say that they hadn't really thought



about these factors or given them a name. For most successful athletes, they discovered how to get into that state of mind by trial and error. I believe coaches can help a much larger number of athletes get into execution mode by setting it as an explicit goal for competition and explaining that there are three steps on the path to execution mode.

EXECUTION MODE- THE END STAGE OF COMPETITION PREPARATION.

While developing an effective competition plan is an ongoing task for elite coaches and athletes, this column will be limited to the short-term process that takes place within the time frame of a competition. What steps does a well-prepared and talented athlete take from the arrival at a competition to the point of successful execution?

It should be helpful to your athletes to break down the path to execution mode into three separate and essential steps. These are the three steps that all successful athletes must learn to incorporate into their competition preparation process.

Let’s take the example of a national team that arrives at an international competition site, two or three days before competing. There are lots of tasks to accomplish to be ready to compete. It is important to note that athletes can not be and should not be in execution mode during that entire time. There is a time and a place for questions, analysis, critique, expectations, complex thinking, distractions and coaching during this time period, but as athletes move closer to competition, an athlete’s mindset must change. The following list of changes, gives a sense of the differences between an athlete’s mind upon arrival at a competition and the moment that competition starts.

<i>Mindset When Arriving At Venue</i> →	<i>Mindset When In Execution Mode</i>
Paragraphs	Bullet Points
Left Brain	Right Brain
Critic	Cheerleader
Past, present, and future	Present only
Questions	Answers
Wide Open	Filtered
Student	Graduate
Abstract	Concrete
Analytical	Action-Oriented
More	Less
Considering	Committing

STEP ONE- BUILDING A FOUNDATION

Arriving at a big competition, there is much to do, much to think about, and much information to gather. This is the point where the last years, months, and days of preparation in general must be integrated with the specific issues of this competition. As coach, you must be sure your athletes are aware of location specifics, that they are prepared for anything unique in this environment, that their equipment is in order, that their technique is solid, that they understand all the logistics of this competition, and that they believe they can do well here. If your athletes have questions, distractions, concerns, or doubt, you want them to surface and get addressed here and now, rather than later. Remember, athletes will not be able to move to the next step, unless they are sure that their foundation is solid. You may not like that your athletes have basic concerns about their technique or equipment two days before the World Championships, but if you don’t let athletes express and work through those concerns now, be ready for these issues to surface under stress, right as the competition begins.

As a coach, it may be helpful to recognize that you are going through a parallel process. You arrive at a new venue, figure out the best route to the venue from your hotel, determine where and when the coaches meeting is, work through logistics, wonder about your athlete’s state of mind and body, wonder if you have prepared them properly, look for any special opportunities or challenges this specific venue creates, develop a mental map of your environment, set up your coaching tools, have more discussions, think through any other details, manage any personal distractions, and only then, can you move on to the specifics of getting each athlete ready to compete. You need a solid foundation to coach effectively, and your athletes need a solid foundation before they can move on as well. Together, you must be convinced you are ready for step two.

STEP TWO- IDENTIFYING SPECIFIC PERFORMANCE KEYS

Step two is the easiest step to overlook or skip. Step two is the conscious narrowing and transformation of thinking from the general to the specific. Step two moves from broad strategy to specific tactics. Here an athlete moves from basic technique to the application of technique for this specific competition. Step two requires decision making, calculation of risk, and a search for the most essential performance keys. This step is the point where an athlete may have to admit their limits, or get out of their comfort zone, but still find a way to get the best result possible. An 800 meter runner may be more “comfortable” running from the front, but determine that this is a poor strategy given the tendencies of his competitors in this race. A wrestler may “prefer” an attacking

high-risk/high-gain strategy, but decide that against this opponent a better result is likely to come from a calculated “counter-move” style.

Sometimes the calculation and decision making of step two is an open discussion between athlete and coach. For example, a ski racer may worry that a line is too risky and aggressive, but acknowledge that holding back here will not produce a podium result. In this case, the ski racer and coach may have to work hard together to see the best strategy and help the athlete believe she can execute it.

As a coach, you will know your athlete is ready for the final step when they can answer the question- “What are the two or three things you must do to perform well?” To answer these questions well, they must consider their own abilities, the specific competition challenges, and begin the process of commitment. Commitment always means letting go of options, and making a choice. As a coach, you must help your athletes see that there is only one best choice for success. From this choice flows a few specific performance keys that will become the blueprint for thinking in execution mode.

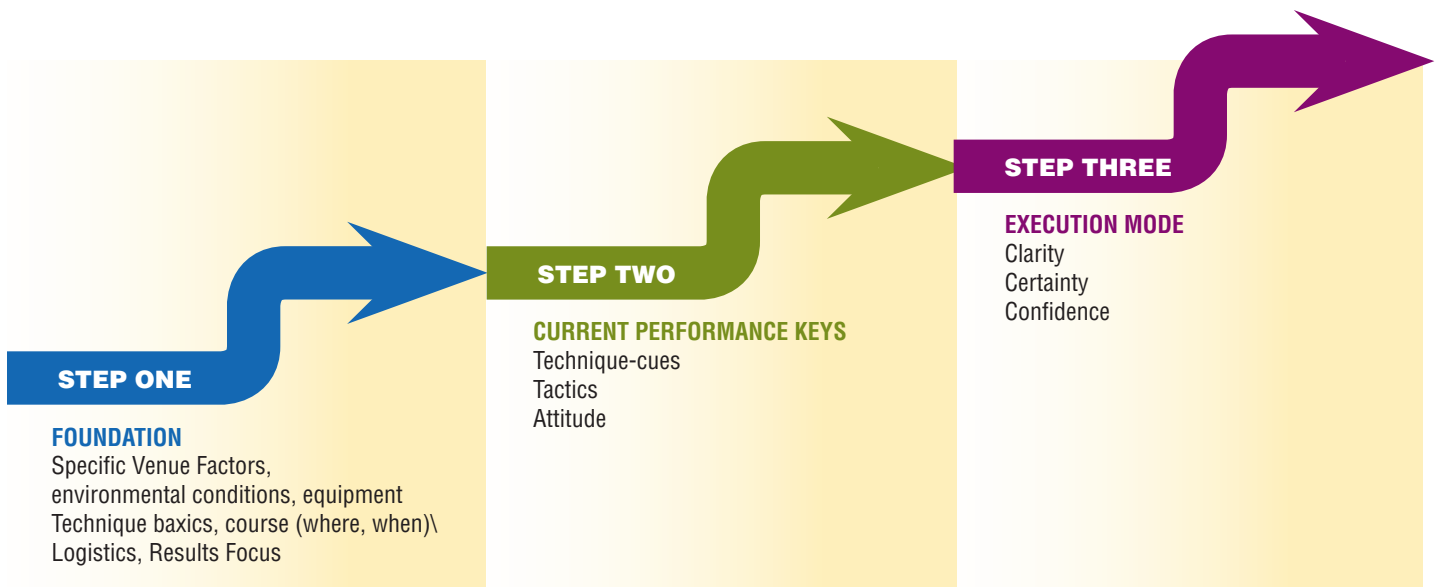
STEP THREE- MOVE INTO EXECUTION MODE.

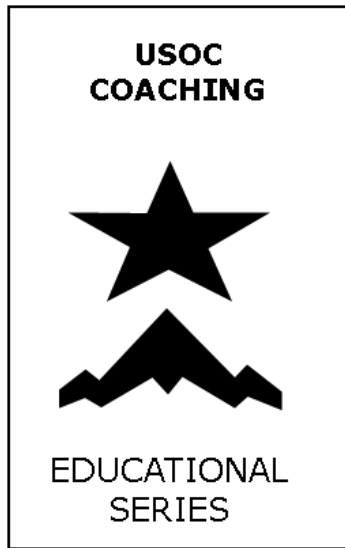
If you have ever coached a supremely confident athlete on a performance roll, you have seen an athlete who has figured out how to flip the switch and get into execution mode. While it is easy to see that this athlete exudes confidence and certainty, and

knows how to keep thoughts simple and clear, it is harder to see that this is a product of work rather than a personality trait. The work allows an athlete to trust and helps the athlete manage worry. Worry is a kind of multi-tasking, which always interferes with high performance. An athlete who worries is usually stuck on step one or two.

No athlete will be able to consistently get into execution mode without having done the work in steps one and two. As a coach, you can help by developing a system that walks your athletes through this process. In a recent Olympic Coach column, I wrote about the value of pre-competition routines. One way to think about effective routines is that they are a mechanism to take an athlete into execution mode. Routines reduce the multi-tasking of worry, keep thoughts simple and clear, and help an athlete feel confident.

As a coach, perhaps the most helpful thing you can do to get your athlete into execution mode is to name it, and emphasize that this way of thinking and behaving is a specific goal for competition. Some athletes may never have thought about it, and most athletes have not thought about it as a multi-stage process. The figure below may help explain that there is a time and place for all kinds of thinking at a competition, but that an athlete should be moving towards a specific kind of thinking when the clock starts or the whistle blows. Some coaches who see this figure quickly realize that this model also describes the process of coaching. Are you a coach who can get into your execution mode?





Development, Enhancement and Sustainability of Expert Performance in Sport

On November 13 -14, 2008, the United States Olympic Committee hosted a conference focusing on Expert Performance in Sport. This was the last conference in the 2008 Educational Series. Five of the top experts in the World presented to coaches and Coach Educators about their research and it's implication to sport. This article provides key points made by each of the presenters on their topic.

K. Anders Ericsson, PhD, studies the cognitive structure of expert performance in domains such as music, chess and sports, and how expert performers attain their superior performance by acquiring complex cognitive mechanisms and physiological adaptations through extended deliberate practice. He has edited several books on expertise and most recently *Expert Performance in Sports* (2001) and *Cambridge Handbook of Expertise and Expert Performance* (2006) and *Development of Professional Expertise: Measurement of Expert Performance and Design of Optimal Learning Environments* (in press).

KEY POINTS FROM K. ANDERS ERICSSON *Development of Skills in High Level Performances*

- Practice for practice sake is not beneficial to improve expert performance. “Deliberate practice”- practice with goals and expectations along with monitoring by a coach are what make a difference. This can be done through “individualized training activities especially designed by a coach or teacher to improve specific aspects of an individuals performance through repetition and successive refinement. To receive maximal benefit from feedback individuals have to monitor their training with full concentration, which is effortful and limits the duration of daily training.” (Ericsson and Lehmann) The idea is that the athlete stretches themselves into areas where they have to full concentrate to gain benefit.
- Expert’s become expert with 10,000 hours or ten years of deliberate practice. Less accomplished performers have lower numbers of hours spent in deliberate practice. The most important aspect is the number of hours spent in deliberate practice refining their skills. Time appears to be the major factor, not ability or talent. Child prodigies are starting their training and have more hours of practice at an earlier age.
- Expert’s can see the situation and make decision regarding the situation quicker than beginner’s.
- Practicing skills by themselves is a hallmark of expert performers at all stages of development. Expert chess players spent more than 6,000 hours studying chess games of the masters, not playing chess games. The student was trying to predict the next





move of the expert player and compared their move to see if they made the same move—if not – what did the expert see.

- Skilled performance is not correlated to IQ.
- Expert performances are more consistent in duplicating their skills than recreational level athletes.
- Experience is necessary and can not be substituted for.
- The building blocks for success are: Solid Fundamentals- Refined representations- speed and articulation.

Richard A. Schmidt, PhD, is known as one of the research leaders in human motor behavior (or human performance); Dr. Schmidt has more than 35 years' experience in this area and has published widely--150 articles and three books. He currently runs his own consulting firm, Human Performance Research, in Los Angeles, where he works in the area of human factors and ergonomics. Human factors are the field of study concerned with the interaction of (a) human capabilities/limitations and (b) the design of "things" (broadly defined, such as toasters, cars, software, etc.).

KEY POINTS FROM DICK SCHMIDT:
Principles of Practice for the Development of Skilled Actions

- The difference between "Blocked" and "Random" practice were analyzed for effectiveness. An example of blocked practice was a child learning multiplication tables and the teacher continued to ask $5 \times 5 = ?$. After a period of time, the child does not think

about the answer or the process and just responds. An example of random practice would be that the coach is working on three different aspects (1, 2 & 3), the coach would have the athlete work on 1, then 3, then 1, then 2, then 3, then 2. The athlete would not know what to expect at practice and would have to "retrieve" information to perform each task. One of the key points is not to practice similar skills one after the other as some confusion may occur. (Example: Dribbling around cones, shoot free throw, dribble around cones, shoot lay-up, shoot free throw, shoot lay-up, dribble around cones).

- Block practice is good for performance of the skill, but random is better for competition skills.
- It is important for athletes to develop "retrieval skills" for playing sports and making decisions in games. One way to help develop those skills is "spaced practice". You work on the skill and a couple of hours/days repeat the skill to see if the athlete can retrieve it from their memory.
- FEEDBACK-the single most important factor in learning a skill.
- The coach typically provides feedback to the athlete, although the athlete can learn to provide themselves with feedback based on the both process and outcome.
- Various types of feedback:
 - Augmented- The coach provides "augmented feedback" either about the outcome or the quality of the action.
 - Summary- Provide feedback back after 5, 10 or 15 performances of a skill. To retain the skill after it is learned, summary feedback after 10 or 15 performances is beneficial.
 - Instantaneous- while this is the tendency for most coaches—this is the least beneficial type.
 - Continuous and Concurrent- this type of feedback is less effective for retention.
 - Bandwidth- The coach establishes a high level and a low level of acceptable performances and makes comments only when the performance is on either side of the "bandwidth".

Dr. Peter Vint is a senior sport technologist with the United States Olympic Committee's Performance Services Division. Dr. Vint received his B.S. in Sports Science Research with a minor in Mathematics from Northern Illinois University in 1989, and his M.S. in Biomechanics from the University of Delaware in 1993. He earned his Ph.D. in Biomechanics at Arizona State University in 1997 and was subsequently employed as an assistant professor in Biomechanics at the University of North Carolina at Greensboro. Prior to accepting his current position with the USOC, Dr. Vint held a postdoctoral fellowship in motor control at Arizona State University and was hired as a research scientist with a human factors research firm in Tempe, Arizona.

KEY POINTS FROM PETER VINT:

Feedback Theory and Application: Best Practices and Practical Solutions

- Three types of instructional styles are:
 - Explicit- Coach defines process- athlete just acts
 - Implicit- athlete figures out the relationships and rules themselves
 - Guided Discovery- coach provides clues and athlete establishes relationships and rules
- Six feedback considerations
 1. Provide feedback and design practices to maximize learning and competition performance
 2. Provide feedback that athletes cannot obtain themselves.
 3. Help athletes become introspective and independent.
 4. When ready, provide athletes opportunity to control delivery of feedback.
 5. Prioritize feedback so it can be acted upon in the time frame considered.
 6. Provide feedback more frequently during early skill acquisition phase, less frequently later (fade out the feedback).
- Deterministic Modeling- helps the coach by showing the relationships between a performance/skill and the factors that contribute to the performance or skill. It is a flow chart of factors that help a coach prioritize training emphasis and determines factors that contribute to performance. The process helps the coach define the direction of training.
- Making a rubric—once the coach understands the skill and the components of the skill- a rubric can be designed to provide an evaluation tool. The coach can isolate sections of the skill to evaluate and provide feedback to the athlete.

Expert athletes could view film and recognize patterns of play that they had previously seen. This skill allows them to process information in a more meaningful manner to their play – they see patterns and structures.

A. Mark Williams is Professor of Motor Behavior at the Research Institute for Sport and Exercise Sciences, Liverpool John Moores University, UK. His research interests focus on expertise and its acquisition across domains, with a particular focus on expert performance, skill acquisition and effective practice and instruction. Over the last 10 years, he has received more than \$4 million in external support and has been funded by Research Councils such as the Economic and Social Research Council and British Academy, by commercial companies such as Nike and Umbro, by Federal agencies such as the Office of Naval Research, and by National Governing Bodies of Sport such as the Football Association, UEFA, FIFA, the English Cricket Board, Sports Coach UK and UK Sport. These grants have largely focused on issues related to skill acquisition, simulation training and effective practice and instruction.

KEY POINTS FROM MARK WILLIAMS:

Anticipation Skill in Sport: From Testing to Training

- There is no difference between an expert performer and beginner as far as visual measures—experts do not have superior visual function or visual acuity. The difference in the expert and beginner is how the expert processes the information that the eye intakes.
- Anticipation skills are used to try to predict the movement of an opponent or object.
- Expert athletes have the ability to pick-up advanced postural anticipation cues. Positioning of hips, shoulders and feet provide the expert valuable cues as well as the speed of the ball or opponent. They are much better developing cues prior to ball contact. Expert uses more and more varied cues than a beginning athlete, who uses a smaller number of postural cues.
 - Expert athletes could view film and recognize patterns of play that they had previously seen. This skill allows them to process information in a more meaningful manner to their play – they see patterns and structures.
 - Using eye tracking equipment, research shows that experts use more effective visual search strategies. Expert athletes look at different areas, for different periods of time than beginners. Beginners tend to watch the ball more and the expert is looking for the pattern of play and searches more of the field. It is more reactive than anticipatory with the beginner.
- Expert athletes have a greater knowledge of situational probabilities. They have seen the situation and can anticipate probable action. They develop a hierarchy of probability.
- An enhanced awareness of tactical opportunities is an expert skill. Experts determine the next move prior to receiving the ball.
- Postural recognition occurs in future elite athletes at around 12. However, those athletes measured had more practice hours than the sub-elite group. It is based on experience.
- In testing shooters, there is a period of eye fixation- “quiet eye period”- those shooters who could maintain the time of eye fixation tended to be better shooters.
- From Theory to Practice: Identify postural cues to teach athletes—you can use video to assist in this, by showing the action that you want the athlete to react to (i.e. goal kick, volleyball set and spike) and asking the athlete to react to the action seen. Experts respond with 90-95% accuracy and with training the beginner will see an increase in response time.
- Athlete anxiety is lower with guided discovery than with explicit direction.



**KEY POINTS FROM MARK WILLIAMS SECOND PRESENTATION:
*Practice and Instruction in Sport: Challenging Tradition!***

- Learning- “ ... a set of processes associated with practice or experience that leads to a relatively permanent change in the capability for movement”. Performance- “... observed behavior”.
- Expert athletes spent more time in non-coached deliberate play than athletes who were released from teams.
- Athletes in the Soccer Academy in England spend 18 hours a week in practice. The breakdown of that practice is four hours of team practice, five hours of individual practice and nine hours of deliberate play.
- For effective learning—the coach should only demonstrate when necessary, only after initial practice on task, have variable and randomness in practice and provide the least amount of feedback.
- The challenge for the coach is to come up with a way to provide the least amount of instruction.
- Conveying information to athletes-- most coaches demonstrate. The learner picks up the relative motion and/or the coordination pattern of the movement. Demonstration is most effective early in learning. Demonstrations are less effective when trying to refine or scale an existing movement pattern. It is hard to pick up the subtle differences in movements through demonstration.
- Can demonstrations be detrimental? It is possible that demonstrations stifles creativity in learning, it puts the focus on the technical aspect over what you want for an outcome (action). Children will focus on your feedback, over feedback model the form demonstrated.
- Optimal time for practice is 1-1.5 hours in length but that depends on the nature of the skill/work to rest ratio.
- Practice when fatigued is detrimental to performance in the practice session. An athlete has to performed when fatigued in competition (sport dependent).
 - Specific practice- repetitive practice of a skill under constant practice conditions (Dick Schmidt’s Blocked practice) better for performance in session.
 - Variable practice- variety within practice conditions (Schmidt’s- Random) is better for learning.
 - Manipulating a variety of factors that might occur during competition is the challenge for the coach, such factors as distance, speed, height or direction of skill.
- Contextual Interference—Block practice is low in contextual interference. The athlete can focus on one skill with out interference of other skills in the context of the sport. Random practice is high in contextual interference as the athlete practices several skills in a random manner. Low contextual practice is better for performance in a session with high contextual practice is better for overall learning.
- Combining variable practices with high contextual interference skill with the skills being markedly different is the best method.
- Feedback
 - Feedback is more important early in the learning stage.
 - It is a factor in the correct development of the skill being learned.
 - The coach wants learner to develop the ability to detect and correct own errors.
 - Feedback frequency should be decreased over time.
- Prescriptive v. Guided Discovery coaching
 - Prescriptive coaching is where the coach provides all the cues for learning and prescribes activities. Learning is more efficient initially, but skills are more likely to break down under pressure.
 - Guided-Discovery coaching is where the coach guides the athlete into learning the skill by providing opportunity for athlete to learn the skill and the coach provides cues when needed. The skills the athlete learns are more adaptable and unique, they are more resistant to forgetting and less likely to break down under pressure, but it takes more time for the athlete to learn initially.

The next program in the Educational Series will be the Training Design Symposium- March 4-6 in Colorado Springs at the Olympic Training Center.



USOC DIRECTORY FOR
**THE COACHING
RESOURCES STAFF**

HOT OFF THE PRESS

ELITE LEARNERS

Going along with our theme of elite learning—nice article on Elite Learners under Pressure from the English Institute of Sport—
http://www.eis2win.co.uk/pages/news_elitelearnersunderpressure.aspx

ANTI-DOPING RESOURCES

The list of prohibited substances is changing—make sure you take the time to check out the list. The US Anti-Doping Agency has made it really easy for athletes and coaches by using their website and typing in the medications name.
<http://www.usantidoping.org/dro/>

USADA has produced some great material for middle and high school students (and even coaches). Check out their website called ThatsDope.org, here is a link to one section and hit the play Doped Up button to find out the health ramifications of Doping in a cool format: <http://www.thatsdope.org/whatsdoping/see.html>

The World Anti-Doping Agency has produced a Coaches Tool Kit that is available on-line at <http://www.wada-ama.org/en/dynamic.ch2?pageCategory.id=673>

COACHING TEMPLATES

The Australians have a series of Coaching Templates that can be used, everything from Injury Reports to Season Planners—to check them out go to: <http://www.ausport.gov.au/participating/coaches/tools/Templates>

OLYMPIC COACH E-MAGAZINE

The U.S. Olympic Committee Coaching and Sport Sciences Division reminds you that our quarterly magazine, OLYMPIC COACH, is now available electronically as the OLYMPIC COACH E-MAGAZINE.

This quarterly publication designed for coaches at all levels can now come to you via e-mail. The quarterly e-mail provides a summary of each article in the magazine with a link that takes you directly to the full-length article. The best news is that OLYMPIC COACH E-MAGAZINE is available to all coaches and other interested individuals free of charge.

CHIEF EXECUTIVE OFFICER

Scherr, Jim 719/866-4701
FAX 719/866-4141

CHIEF OF SPORT PERFORMANCE

Mike English (Interim) 719/866-4501
FAX 719/866.4166

PERFORMANCE SERVICES

Ingram, Doug- Managing Director for Performance Services 719/866-4851

Dave McCann – Manager, Coaching 719/866-4539

Ashley, Alan- Team Leader for Acrobatic and Combat Sports 719/866-4971

Barnett, Wes- Team Leader for Strength and Power Sports 719/866-4820

Heinrich, April- Team Leader for Team and Technical Sports 719/866-4854

Kearney, Jay T.- Team Leader for Endurance Sports 719/866-4978
FAX 719/866-4850

INTERNATIONAL GAMES

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FAX 719/632-4164

INFORMATION RESOURCE CENTER (LIBRARY)

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FAX 719/632-5352

OLYMPIC TRAINING CENTERS

Mike English - Managing Director of Athletes, Facilities and Service- 719/866-4501

Glenn Roseboom - Director of Colorado Springs OTC 719/866-4739
FAX 719/866-4645

LAKE PLACID

Favro, Jack - Director 518/523-2600
FAX 518/523-1570

SAN DIEGO

Tracy Lamb- Director 619/482-6101
FAX 619/482-6200

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