Make a Difference – Integrate Sport Science Philosophies into Your Coaching Plans

Every coach has the opportunity to develop their sport no matter what level they are coaching. Every level of coaching is important to the development of players and it would be inaccurate to say the role of the coach working with younger players isn't as valuable as the coach working with seventeen year old players. Without coaches instilling the love of the game at an early age and building a skilled foundation there would be no talented and committed teen players. The affect coaches have on the growth of sport is tremendous but we don't always see the opportunities we have to make a difference. Integrating sport science philosophies into your coaching plans will reap awards for your players and team as well as our sport here in Manitoba.

About five years ago, when developing a plan for Team Manitoba for the Western Canada Summer Games I began analyzing my soccer experiences here in Manitoba. It was obvious from recent results from National competitions both from the club and provincial level that there was great opportunity to improve our philosophies and perspectives here at home. There is always an opportunity to develop our sport. As coaches we are taught to focus on the technical and tactical aspects in our training sessions as this is what we know best and have the greatest competency. These are extremely important and a key to success on the field, no doubt, but it is important for us all to take the time to look at the big picture – how can we develop "soccer athletes". Understand we all put in countless hours and work hard at what we do, but we need to step back for a moment and ask ourselves, what we can do better. Learning never stops, for us as coaches and for our players.

Without a doubt, introducing sport science philosophies such as proper nutrition, conditioning, biomechanical analysis and sports psychology at all levels will help our players and teams develop in our province. We have all heard of these philosophies used by winning coaching staff and athletes at high profile athletic events such as the Olympics. When I heard the media interviews with players talking about their training, I always felt these philosophies must be too complex and only for elite internationally competitive athletes. The fact of the matter is these philosophies can be integrated at all levels and the good news is that there are resources available for coaches to integrate these aspects into their programs. I'm a coach just like

you, not a doctor of sport science or a specialist in the various areas but it can be done and done well. Just as we select our players for our rosters, we need to select the right support and resources needed to ensure our programs are the best they can be. Hopefully by sharing Team Manitoba's experience, you will understand the value of these sport science philosophies and make a difference yourself with the team and players you currently coach. If each one of us can begin taking a step forward towards this goal, Manitoba will score results.

I've always believed in the soccer talent in Manitoba. There is a passion here for the sport. Unfortunately at National competitions, our teams struggled consistently with the same weaknesses hindering Manitoba's success. I realized that history would continue to repeat itself unless we changed. One of the most obvious obstacles was the fact many Coaches and players themselves did not "believe" they could "win" at high level competitions. I heard coaches and players make comments such as "Manitoba can't expect to win" and "We don't have the money here to invest in programs like British Columbia Alberta, Ontario and Quebec have". Also pointed out to me was the fact that other provinces had a greater pool in which to select their teams.

My answer to them was it really doesn't matter how big the pools are, or how much bigger their programs are, the reality is, it all comes down to the eleven versus eleven players on the field and the majority of the times the battles are fifty-fifty. The lack of confidence just didn't sit right, as a player you knew it did not matter how much money you had to win a game – you just needed to want it and perform at your best. If you don't believe you can win, you won't, plain and simple. If the players "Believed" they could win and were 100% committed to hard work – anything was possible. As a side factor, my definition of winning may be different than some – "winning is when we all give 100% and perform at our very best".

The second weakness of Manitoba was the fact that the majority of our players lacked the cardiovascular endurance required to perform their best for the duration of the game. They had talent but not the stamina. Reality is the cardio exercises in our training were not enough to increase long term stamina.

The good news was the fact that these weaknesses, not believing and cardiovascular endurance could be changed. We all evaluate our players on "mental toughness" and if we can evaluate them on this aspect then we have a responsibility as a Coach to find ways to improve their mental preparedness. I played striker and goalkeeper for many years and there was something about being the "underdog" that made us want to beat the other team even more and we did. In a dream world, it would be great to package that passion. I wasn't sure how to change the players' attitude, but knew it could be achieved. We had to change their perceptions of themselves. We needed players that "believed" and that was one of the factors in my final selection of players. Improving cardiovascular endurance I knew was attainable; if you ever trained for a marathon and experienced the changes in your own stamina you will understand the results can be incredible.

These weaknesses had to be addressed if Team Manitoba was to perform their best at the Western Canada Summer Games and later the Canada Summer Games. To improve would mean learning and changing what was comfortable, not easy, but for improvements to be made changes had to happen. There are many different aspects involved in Sport Science and the more questions asked resulted in more opportunities for learning for both the coaching staff and players.

Dr. Dean Kriellaars a professor at the University of Manitoba and a "walking encyclopaedia" in sports science worked with us and introduced a comprehensive cardiovascular and conditioning program for the player which was soccer specific. Dean asked the players at their first workshop "if they would like to be able to run circles around the competition?" They all wanted that and knew they needed to have the stamina on the field. He explained the science behind the progress they could achieve and it was at that moment the players committed to the program. We held workshops, retreats, regular training sessions, participated in running events and fitness testing.

There were unexpected obstacles along the way. Once we began to introduce this type of training to compliment our technical and tactical sessions, the problem was not with the players . . . surprisingly it occurred with other coaches. Coaches were questioning our practises and why we were spending time on this aspect and

questioned the benefits. Some coaches advised their players not to participate in this training or didn't support their players' development. Letters and emails were sent to the Manitoba Soccer Association complaining which just proves that change is not easy for all of us to grasp. The doubt subsided with the results, but not after a lot of opposition. In fact, no one could claim that Dr. Kriellaars did not know what he was doing as there was science supporting his applications. I encourage you to never quit any initiative when you know it will make a difference and is in the best interest of your players and team - even if it "stirs the pot".

The players stamina improved tremendously and well beyond our expectations. We were amazed at the results in the players with Dean's training. I knew we would see improvements on the field, but to be honest with you the impact was greater than I anticipated. They were able to remain mentally focused and skilled on the field due to their strong conditioning which allowed me to introduce new tactics and strategy on the field. We have all witnessed a really talented player perform well at a beginning of a game, make the right strategic moves and perform well until he looses his "steam" - cardiovascular strength. It is like watching the air being sucked from a balloon – he doesn't resemble the same player as he can't think straight and looses ball control. This scenario can be eliminated by introducing the cardio conditioning. Our players had stamina which paid off at each game time and again. Imagine yourself at the Western Canada Summer Games, Team Manitoba is tied at the semi-finals with Alberta (National Champions) to advance to the gold medal round and both teams equally talented and giving it every second on the field. They have already been on the field for over 95 minutes and the game is not over yet, we are about to go into penalty shootout and one slip could cost you the game . . . Did our players loose steam? . . . Did they loose their ability to focus? . . . Strategize? . . . Control? . . . No . . . The training paid off as their peak cardio conditioning allowed them to "play their game". I'm forever sold on integrating cardiovascular training into our soccer programs, as the results are amazing. We were fortunate to have Dr. Kriellaars as part of our team, and his strategies can be implemented by any team. He has definitely left a legacy that will live on. Dr. Kriellaars holds regular running sessions for many different groups and has other associates he can recommend as well if you are interested in working with him.

Our team participated in a Sport Manitoba long term player development training video which demonstrates how coaches can integrate conditioning into their programs. Dr. Kriellaars assisted Coaching Manitoba, Sport Manitoba and the Sport Medicine Science Council of Manitoba on the resource video "Sport Manitoba Athlete Development Volume 1: Learn to Train and Train to Train" which addresses all level of player development and I highly recommend it to any coach interested in adding this to their resource library.

Another component Dr. Kriellaars introduced was the strength training which focused on the muscle groups the players needed to execute the moves on the field and also assist in reducing injuries. The players shared their injury history and conditioning programs were built to strengthen the muscles groups that were injury prone. We all understand the amount of injuries that can occur in soccer and every coach wants to avoid losing a player due to injury. Unfortunately, injuries can still happen due to field conditions and accidents, but we can avoid injuries related to weak muscle groups. The players felt the difference in their muscle groups and we avoided repeat injuries due to weak muscles.

I have to admit, that uncovering the sport science "secrets" really presented all involved with a great learning experience. One journey led to another journey. An opportunity came available for the Western Canada Summer Games' teams to apply for a biomechanical analysis with Dr. Marion Alexander, Professor at the University of Manitoba and her master students. I knew the work with Dr. Kriellaars was working with the players and it was out of curiosity on the benefits of biomechanical analysis that led to our application for the analysis. Surprisingly, we were the first soccer team in Manitoba to submit an application for this analysis with Dr. Alexander. Dr. Marion Alexander is a professor in the Faculty of Kinesiology and Recreation Management, and a Research Associate in the Health, Leisure and Human Performance Research Institute in the Faculty. Dr. Alexander teaches the undergraduate courses in Human Anatomy, Kinesiology, and an advanced course in Biomechanics of Sport and Exercise. She is also the Director of the Biomechanics, Sport and Human Performance Laboratory and the Head of the Sport and Human Performance Research Group. They perform analysis for a number of sport teams and players.

Before we knew it, the application was accepted and we were experiencing another "huge" learning curve. A lot of us have heard of Dartfish analysis, but I had no idea the power this type of analysis can have on the "tactical and technical" part of the game, especially when facilitated by the experts in the field of biomechanics for sport and exercise. Our players were individually filmed in technical and tactical positions – shooting, heading, etc. as well as offensive and defensive positioning (moves). Once the analysis's was completed in the lab, Dr. Marion Alexander and her team presented the results to us at a workshop. The muscles, angles, positioning, body stance and movements were all analyzed and compared to ideal positioning and to professional players. They discussed what muscles groups are utilized in the positions; where strength was required; at what point and angle forces need to be applied and much more.

In addition, the offensive and defensive positioning were discussed and the players saw their strengths and weaknesses. The players were captivated with the results and anxious to improve their techniques. Each analysis was performed in front of the group so the results both weaknesses and strengths were seen by all which meant they all learned. Following the workshops, parents confided with us that the players were practising their techniques on their own time. Now the players had a better understanding of the reasoning behind some of the tactics introduced in our training and the results in the technical and tactical part of their game on the field improved. Each player received their own dvd with their detailed analysis.

Two years after our initial analysis our team performed another analysis prior to the Canada Summer Games. Dr. Alexander and her team were able to evaluate and compare the results. Considerable improvements were made in each and every player both technically and tactically. Once again, the benefits of sports science proved itself on the field. Dr. Marion Alexander and team specialize in enhancing player performance and our team reaped the benefits. If you are asking yourself, "how does biomechanical analysis fit in with my coaching?" It was very interesting for players to see that some of the techniques that were taught in training over the years could be improved by paying more attention to the player's body position, angles with the ball, etc. So we can all "sharpen our saws" and pay closer attention to correcting poor

techniques at every level. It makes a difference in the power the players can have in kicking the ball and playing their positions.

Hopefully you are beginning to understand there are ways we can develop our programs, ourselves and our players by integrating sport science. Another huge sport science tool was the application of sports nutrition into our program. Jorie Janzen, Sports Nutritionist worked with our team for four years. You've heard the expression that if there is no "gas in our engine you can't go anywhere" this says it all. You can have the nicest car but with no gas it's going nowhere. If you put regular gas in a diesel engine you also won't be able to go far. The same is true for our players and nutrition. If they are eating the right foods, at the right time it will affect their performance on the field. Once again, we embarked on another educational experience holding workshops and addressing any problems players had with respect to nutrition and hydration. I also learned that the players needed more education on supplements as they did not have the right information to base their choices. When we learned dehydration was a major cause of fatigue and poor performance and that 6% dehydration can lead to approximately 24% decrease in performance on the field, I paid close attention and realized nutrition had to be on our side. Dehydration also increases the risk of cramps, heat exhaustion and delays an athlete's recovery after a competition.

If you don't have access to a sports nutritionist there is a lot of good books and brochures available that will explain what players need to eat pre-competition, during competition and post competition. Also very important is "when" and "how much" the players need to consume. The advantage of working with Jorie was that she was able to educate us on the specific needs of the players and develop a nutritional plan based on our competitive schedule. She also worked with several players who needed additional support. Old habits can be hard to break, we had to ban "junk food" and soft-drinks from the buses to get the point across until the players understood the philosophies of sports nutrition. I've seen coaches purchase soft-drinks for their teams when they travel not really thinking of the impact these drinks have on the kids.

Another extremely important fact learned was the recovery nutrition – how the players replenished their systems at half-time was really important for the second half of our game. I was amazed at the facts Jorie presented on what nutrients are lost during 45 minutes of play on the field and the fact that if these nutrients aren't replenish if would affect performance. Replenishing these nutrients again within fifteen minutes post game was also key to recovery. Any coach who has participated in a major competition or tournament where their team plays several games over a few days understands the effects of poor recovery. Jorie gave the players a list of food items ideal to replenish the lost nutrients and fluids. The entire team was asked to begin experimenting with the items to see what worked best for them personally. We also learned that it is important to introduce these habits before competition so the players aren't introducing anything new to their systems during competition. We found that bananas and chocolate milk at half-time and immediately post our games worked best for the players and it became a tradition for the team over the four years.

Sport science has incredible value and impact on how our teams perform and really needs to be part our programs. We have a responsibility to learn as much as we can and ensure our players are fully ready for the challenges they face on the field. Besides the physical challenges, the mental challenges are just as important. I mentioned the fact that there was a lack of belief at the beginning of the journey by the players and coaches in the system that Manitoba could win at these competitions. This perception changed quickly as we introduced sports science to the players. By "believing" your players can achieve their goals and giving them all the tools possible to support them, they begin to understand they can achieve what they set their mind to do. Our team developed a motto "Dream it, Believe it, Achieve it" which symbolized who we were. How we spoke to the players was always positive, supportive and encouraging. The mental aspect can make or break a player and I have no respect for coaches who do the latter. We worked with several different sports psychology representatives that prepared them for the games Steven McDonald, Melanie Gregg and a few others. There were a few players that since they were younger experienced mental obstacles that affected their performance. As a team we discussed various scenarios in the game and our reactions. The players worked on combating behaviour that affected their confidence on and off the field.

The teams' mental preparedness was amazing at tournaments and competitions. These players matured over the four years and gained valuable lessons on how to succeed and what it means to win regardless of what the final score is at the end of the game or competition. These are lessons that they will carry with them throughout their lives. How we communicate with our players has a great impact on their self-confidence and their ability to cope with stress. Just recently the 2010 Winter Olympic campaign utilized "Believe" as their motto and reminded me of the power "believing" had on our team. Team Manitoba achieved much success over the four years (medals, awards, players scouted nationally and internationally, scholarships, journey to Brazil, and much more), . . . but the greatest accomplishment was the fact they regained their belief in themselves. All athletes need to "believe" in their abilities and mental preparation is a vital part of their preparation.

The players are not the only ones on the field learning, we as coaches need to continue to challenge ourselves so we can provide the best opportunities for our players. Hopefully by sharing Team Manitoba's experience you will recognize the contributions sport science can have on your players and team. I encourage you to explore these sport science philosophies, trust me . . . it is amazing what you will learn and discover along the way. It will make a difference.

Coach's Valuable Resources: Sport Science

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