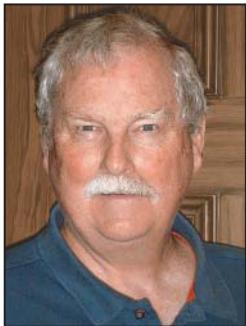


BY MICHAEL KEYES

THE SHOOTING CYCLE ?

Competition shooting is hallmarked by several traits including consistency, efficiency, and accuracy. At the highest levels each shooting style is simple and automatic with some variation depending on the sport involved. Each sport also has a specific shooting cycle, that period from first focusing on the target until the shot is over, in which these traits have to be at their highest peak. For the most shooters this means the time when you set your position for the next target and visualize your shot until the shot is taken and followed through. Shotgun shooters call the target setting in motion a timed series of events that cannot be taken back. Rifle and pistol shooters have the luxury of stopping the cycle and resetting if conditions warrant. Most of the time, however, once the cycle is put into motion, the rest should be automatic.



Dr. Michael Keyes

Many years ago I had the privilege of working with a number of world class shooters. In that period of time I also was a member of a research council that funded much of the basic science of shooting sports in the United States. Those were the days of discovering alpha waves, timing of shots between heartbeats, strength requirements for the various sports and a lot of other facts about shooting and shooters. Much of this information was just verification of things suspected for years while other studies were more academic and of little practical use at the time. Almost all of it was done in the sterile conditions of a laboratory.

As the US Shooting Team physician, I was more interested in practical applications of research than the theoretical (although I appreciated any advance in theory) so we took some of the findings from the lab and tried the techniques in the field. I was fortunate enough to have several world class pistol shooters available to me including Ragnar Skanåker who was helping to coach the US team at the time. We decided to try a field experiment with Galvanic Skin Response (GSR) while shooting a 25 meter target with free pistol. GSR is a way of measuring electrical conductance in the skin which in turn indicates an emotional response. I talked with each of the shooters to determine what sorts of emotional response were present when they shot and all indicated that they felt pleasure and satisfaction when they had a good performance.

During the trial I noted that these shooters had clear GSR responses indicated by a sudden sinus wave on the instrument. Each time a shooter had a sinus wave appear while taking the shot, the score was a 10. In fact we could predict the score using the GSR with 100% accuracy. When the GSR did not occur, the score could be a 10 but was often a 9 on the standard target.

These were very easy targets and world class shooters shooting under ideal conditions with no stressors, so the scores were not unexpected. The unexpected discovery was that we noticed a timing window in which shooters not only shot a 10 but also had a positive GSR.

One of the recent laboratory discoveries was the now familiar concept of minimum oscillation. Researchers had shown that shooters tended to have small movements that "settle in" after a period and then become larger again as the shooter tires. All of this occurs in a short period for pistol shooters because they have only muscle support of the weapon. Theoretically the ideal time to shoot is when the movements are at a minimum and the shooter focused on the front sight.

We found that elite shooters had very specific and reproducible timing when it came to this "sweet spot" in their shooting cycle and that it was present even under match conditions. When a shooter started to tire or had anxiety issues on the line during practice, their cycle became altered from the ideal. This was a good time for the coach to intervene and discuss the issue with the shooter. In turn the shooter could set an internal timer to be used during a match to give a warning that he or she needed to rest for a while. Another GSR/Timing issue that we discovered was that a shooter could have several good scores as his or her performance was worsening. After two or three non-GSR events occurred we noticed that the score worsened until the shooter took a short time out.

The tool we found to be most useful was a timer. I was able to program my computer (a Radio Shack Model 100, this was the 1980s) to time the shooter from lift to bang and to evaluate each shot and the timing of the cycle. If the shooter started to shoot outside of the window that was established earlier on, performance would soon suffer. A short period of relaxation usually allowed the shooter to get back into a good performance cycle. In addition by avoiding these poor performances in practice the shooter was able to improve more efficiently.

The actual shooting cycle – that period from the first motion towards shooting the shot until the shot is over - is longer than the lift to bang cycle mentioned above, but this is the most consistent way to measure a pistol shooter. You can pick any beginning event as long as it is the same each time and get the results mentioned. I found that you can predict elite tennis players service accuracy the same way.

The shooting cycle occurs for all competition shooters at all levels. Beginning shooters are usually not concerned with the cycle because they are still trying to learn basic technique. Yet even at this level a shooter should have a knowledge of what needs to be done. A description of the shooting cycle is also a description of the most efficient techniques used in shooting. As a beginner eliminates those things that impede consistency and accuracy, they find that they will improve.

As the shooting cycle becomes more reproducible, shooting the shot becomes more automatic and performance improves. Of course, there is a lot of work that goes into becoming a master level shooter including mental training, physical fitness, and technical mastery. But all of it is reflected in the shooting cycle.

Dr. Michael Keyes has written over 200 articles on mental training for Shotgun Sports and is author of the book Mental Training For The Shotgun Sports. He is a former physician for the U.S. Shooting Team, Tennessee state pistol champion and coach of several national championship teams, he currently practices in Fond du Lac, Wisconsin. You can e-mail him at mikeyes@charter.net.

“I already loved shooting, so that made me love it even more.”



T.L : Well, it depends on where I am in the season. But before an important competition I shoot everyday for four hours, and run or do some other exercise four times a week.

R.K : How does shooting integrate into your day-to-day life with studying or working?

T.L : I graduated from secondary school in 2009 and after that I have only been shooting.

Since you have to practice so much to get to the top, I had some trouble in focusing on shooting and doing well in school at the same time. So I made a choice to take a break from school for a couple of years, and find out where my aptitudes lie.

A job is very difficult to find because employers are very reluctant to hire someone who has to practice everyday...

R.K : Would you give a recommendation for beginners on how build up a training scheme?

T.L : It's really important to find a person you can rely on and who can lead you towards your goal. You don't have to shoot so much in the beginning. During my first years, my focus was on developing good technique and shooting more for quality than quantity. The first two years I practiced mounting my gun almost every day. To achieve a constant and repetitive gun mount is absolutely essential. So, in my first two years I might have shot some 10 000 rounds in total, which is very little compared to the other members of the Swedish team.

R.K : Beyond your shooting training, do you regularly exercise other sports to stay physically fit?

T.L : I'm going to the gym or go out running 3-6 times a week, depending on

whether it's off season or if I have a competition. I have never been a fan of that type of exercise, but I have realized that I feel much better and my head feels much clearer after running. You don't have to run fast, run for hours or for long distances to achieve that: 20 minutes only can already be enough.

R.K : Are you nervous when you're on the stand at an important event? If so, how do you control your nervousness?

T.L : Of course I'm nervous! I have found that deep breathing helps, and I also listen to music before I shoot.

R.K : Therese, after your outstanding results at Maribor, Munich and Sydney you have to be considered a «regular» at the ISSF championships. Looking ahead, what are your next goals in the sport?

T.L : I'm on a quota place in Sydney, but I'm still not sure that I am the one to go, since it's between me and another girl. So my goal for this year is to take that place - but also to improve and be counted among the top shooters.

R.K : With an Olympic medal in the range of the possible, how do you feel about a participation in the Olympics?

T.L : I will be thrilled if I reach the Olympics 2012, but if not so I will do my best to get to the next one. I really want to participate in at least two Olympics.

R.K : Thank you very much, Therese. We're keeping our fingers crossed for your further success as a shooter!



AN INTERVIEW WITH

Therese LUNDQVIST

By Ralf Kröling

« I had the chance to meet Therese for the first time at the Krieghoff International stand during the 50th ISSF WCH (Munich 2010). It was refreshing to find a top athlete from a discipline totally different from the one I am used to, and be able to easily and immediately engage in small talk. The excellent atmosphere provided by the Krieghoff team made it even easier. Over the past few months, I have been following Therese's performance during the ISSF events, and with the assistance of Krieghoff's Sales and Marketing Manager Mr. Ralf Müller, we are pleased to present readers with some of her insights and motivation.» Kobi Abraham

R.K : Therese, in 2009, you not only won the ISSF World championship at Maribor, but established a new world record in your class. Did this success influence your attitude towards your sport?

T.L : I already loved shooting, so that made me love it even more.

R.K : You started skeet shooting in 2004, at the age of 14. How did you become involved in shooting in general, and what makes skeet your discipline of choice?

T.L : Both my parents shoot, so I was virtually born on a shooting range. I started with rifle shooting, but there was not enough action in that for me. When I was 12 I tried different types of clay shooting. I actually liked trap better at first, but my father thought I had more talent for skeet, and skeet was also more popular in my club, so that's how it came about that I finally chose skeet.

R.K : The «learning years» are tough years. How long did it take until you achieved consistent results and became a «player» in competitions?

T.L : In Sweden we have a saying that it takes 10 years for an athlete to be really good. So far, I have only been shooting for 7 years, so. I'm still in my learning years, although things have been going very fast for me. My breakthrough was, of course, 2009, with the ISSF European and the World championships, and a world record last year when I competed in the Skeet Women Junior class for the first time. I became more established on the field and in my scores.

R.K : As a beginner, did you have «idols» on the shooting scene whom you wanted to emulate? Do you think that today you might be an example for others?

T.L : After the Olympics in 2000, I touched the gold medal belonging to Pia Hansen, the Swedish double trap shooter. That was indeed a big trigger for me, because I wanted one, too. I'm still a quite young shooter, so I don't think anyone sees me as an idol, but, hopefully, I will have a long career ahead of me and will have time to achieve more.

R.K : Do you remember a special moment or event that meant a setting of the course for your shooting career? And, in contrast, what was the moment of the deepest frustration?

T.L : I remember one competition in my first year, when in one round I shot 5 targets more than my personal record. No one expected me to shoot that well after only a year. It was also the first competition I did not end up in last place, and I was the youngest shooter by 10 years. When I was finished everyone was so happy for me, and I remember thinking that shooting was the most fun in the world. You always have ups and downs in your career, but when you are in a down phase you only have to keep practicing. I'm a big competitor, so when things are rough I practice more and harder, and there has never been a time when I wanted to quit.

R.K : In skeet, as in all technical disciplines, you depend on your equipment to a certain degree. What do you think, which role does equipment play, when it comes to unfolding your full potential as a shooter?

T.L :

A shotgun might be less critical than a rifle, but stock fitment is definitely a crucial factor. I have always been very concerned about the weight of the gun and its balance.

I'm not that strong, which is why I like guns which are light in the barrel. That way I can compensate and shoot fast, which is the key in skeet. As I said, the stock is most important, and when Krieghoff sponsored me, they also fitted a custom stock for me. That one turned out to aim perfectly.

R.K : Your latest successes you won with a Krieghoff K-80. Was this also the shotgun you «grew up» and started your career with?

T.L : No, I had a really old Winchester which was about to break at any moment. . . I competed with that one in the 2006 ISSF European, and soon after that I obtained the precursor of the K-80 that I use today which I received in 2008.

R.K : Would you outline your daily or weekly training routine for us? Do you change your training routine before important shooting events?



Managing Editor
Kobi Abraham

Publisher
Atea-Tech AG
Route Industrielle 2
CH-1806 Schaffhausen
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Tel: +41526333719
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Printing
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Design & Lay Out
IMAPRO
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Photography
Edouard Curchod
Studio Curchod

Translation
Judith Appleton
Martina Landis

Contribution
Phd. Kåre Nicolaysen
Dr. Michael Keyes
Heinz Reinkemeier
Alexander Kudelin
Eli Hunter

Photo credit
Viktoria Yordanova
Heinz Reinkemeier
Ralf Müller
Pierre Pittet
Mike Hecker



Dear Readers,

More than ever writing about people is challenging, and is even more challenging for an athlete/writer who understands other athletes' unique character and motivation.

In this issue we have increased the cooperation between companies and the athletes they sponsor, resulting in interesting interviews and stories. I hope it will give insights and motivation to our readers. Sponsors will feel more comfortable about investing in our sport when presenting them with exciting

people to reflect their image to the public, providing their clients with extra added value because of the athlete's approach to life and not only because of our sport activity or discipline.

Alexander Kudelin continues to supply us with fruitful information on the SCATT, and we are working hard to adapt the information for ease and fluency to be accessible to a variety of readers.

After our February issue was launched, we were told about an academic research study on the influence of heartbeat and are delighted to present it to you in this edition.

Last but not least we have started a new artistic project with promising athletes. You can find a hint on page 20 until we present its full range in the following edition (Winter).

We are trying hard to bring more information to our readers about shotguns, so don't be surprised to see more and more about it in our future editions.

Enjoy browsing and remember that together we can increase the popularity of our beloved sport.

Kobi Abraham

Kobi Abraham

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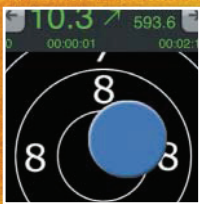
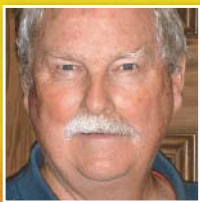
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Therese

LUNDQVIST (SWE)

