The Physiology of Survival
A Scientific View of the Blauer Tactical S.P.E.A.R System

In the field of Close Quarters Combat (CQC) instruction there has long been a widespread lack of understanding of the neurophysiological effects of fear and adrenaline, and the so-called "fight or flight" response. This has been and continues to be a potentially lethal problem for anyone, whether civilian, LEO or military operator who is faced with the threat of real violence. I believe that an understanding of the survival stresses encountered in a real-life, real-time violent confrontation is of paramount importance for the effective teaching of CQC skills. Why? Very simple. In times of danger, in the ambush moment, in the shock and surprise of a real world attack one simple law applies: ***physiology rules***.

Over the past twenty years, Tony Blauer, the owner and CEO of Blauer Tactical Systems, has dissected the realities of violence from virtually every conceivable approach: psychological, emotional, and physical. As a result, he has created what he calls the S.P.E.A.R. system, which has been described as "the first behaviorally-inspired method of self protection" ever developed, or as he sometimes prefers to say "behaviorally inspired – genetically wired." S.P.E.A.R. is an acronym that stands for Spontaneous Protection Enabling Accelerated Response, which is the ultimate aim of the system – responding more readily and effectively to the threat of violence. Modern research has demonstrated that Tony Blauer's SPEAR System is based on the FACTS of neurophysiology. It is built on our hard-wired neurological responses to danger, and is thus more easily taught and easily retained than other systems of defensive tactics. Instead of relying on what so many trainers like to refer to as muscle memory, which, generally speaking, is a physiological mistake under times of high stress, the SPEAR system utilizes reflexive, instinctive movements to create a platform from which to first react to and then respond to an assault.

SPEAR System Fundamentals

Before delving into the actual physiology of the SPEAR system, it is important to understand some of the philosophical underpinnings of the entire TCMS approach to training. Perhaps the easiest way to summarize the approach developed by Tony Blauer is to use his words. He once wrote, "Preparation and "theoretical totality" in training requires complete integrity." What does this mean? It simply means that scientists in the field of human combatives must never be swayed by egos, traditions, systems or styles into controlling "experiments" in training. The pejorative ego typically wants to create, design and implement training strategies that make us look and feel good. However, very rarely does this type of training prepare students for reality.

The SPEAR system has its origins in this form of integrity in training. Many years ago, Blauer often worked what he refers to as a "sucker punch drill" with his students. What he discovered was that when one of his students tried to hit him from a "sucker punch/ambush" setup, martial art techniques typically failed 50% of the time – in the trained body and mind of a professional martial artist. From the perspective of self-defense, Blauer found this completely unacceptable. Almost by accident, Blauer began to note that in situations of real surprise, when a student would unleash a truly well-disguised sucker punch, this would always create a flinch response. As he began to analyze this phenomenon in greater depth, Blauer noted that every time the flinch was created by the sucker punch, the attack was never landed cleanly. After considerable exploration of this theme, further drills and refinements, Blauer was able to condense thousands of hours of this research into two simple, but vitally important, truths:

1. A stimulus introduced too quickly will by-pass the cognitive, muscle-memory systems in the brain and create a flinch response.
2. The flinch is a physiologic response that is highly reliable and functions as an effective protective mechanism.

As he states, "The startle/flinch response appears to be a sudden "reaction" to danger or surprise, but is really a sound, predictable and reliable process. Our built-in survival reflexes are actually much more reliable than our theoretical, cognitive muscle-memory programs! Therefore, the most responsible, reliable and retainable protective system would embrace and integrate these facts. This process is the foundation and inspiration for the SPEAR system."

Based on this understanding, Blauer began the systematic dissection of the use of the flinch as a responsive platform. Countless "live" experiments were conducted. Hundreds of real fights were examined and microscopically scrutinized and the system was and continues to be refined. In my opinion then, the SPEAR system is the result of what I would call "pure" scientific inquiry. The basics of real science are quite simple: propose a question, propose an answer, test the answer to see if it is correct, evaluate the results, refine the question and begin again. Tony Blauer has spent over 20 years following this very strategy. As a result, he has created, in the SPEAR system, a process that is not only backed up by recent neurophysiological research, but in fact DESCRIBES THE OUTCOMES of this research. It is a system that is at least a generation ahead of its time and it may very well be the most important development in CQC training for the foreseeable future because it is built on the premise and understanding that physiology is the controlling agent in an ambush moment.

The "Fight or Flight" Fallacy

The SPEAR system evolved out of countless drills, physical experiments, and ongoing research (often of the dashboard cam variety) and is solely focused on surviving the "ambush" attack on the street. From both a philosophical and a pragmatic perspective, we are only truly in danger in an "out-of-control" moment, which is simply another way of saying when we are ambushed. From a purely physical perspective, the ambush moment initiates a lightning-fast, whole body response that is coordinated by a small portion of the brain known as the amygdala. What is vital to understand here is that the fear and desperation created by a sudden attack causes first what I like to term the "flinch or freeze" response which is then FOLLOWED by the well-known "flight or fight" response.

Numerous effects have been noted, seen, and experientially and experimentally proven to occur during times of high stress/combat. The very real possibility of any fight in today's society quickly turning lethal places personal combat in the highest category of potential stressors. Just a few of the effects of high adrenaline on the body are:

Tunnel vision
Increased heart rate
Increased cardiac output
Increase in blood flow to skeletal muscles
Pupillary dilation
Auditory exclusion
Tachypsychia
Precognition
State of fugue
Amaurosis fugax

All of these potential effects of high stress environments and the engagement of the adrenal stress response in the body have only one goal: survival. No less an authority than Massad Ayoob advises his students to remember that the "fight or flight" response manifests itself in effects such as a period of extreme strength, an increase in speed, a gross decrease in fine motor abilities as well as an increased ability to ignore pain. In other words, strength goes way up and dexterity/coordination goes way down.

However, what is vital to understand is that all of these responses which are built into the "fight or flight" system of the body are only a part of the story. In fact, what very few people have realized in the development of the CQC field, is that this response is in fact a SECONDARY response of the body to an immediate threat and occurs SECONDARY to the incredibly fast response of the amygdala. For developing a training methodology that most efficiently enhances real-world survival, understanding this distinction is vital: *amygdalic reaction, first – fight or flight response, second*.

Neurophysiological Evidence

Based on the above perspective, there are two vital areas of neurophysiology that must be understood in relation to CQC training:

1. Physiological survival mechanisms hard-wired in the nervous system of the body will by-pass any learned defensive system that is based on the ability to access cognitively-based and developed responses to danger if the threat is introduced too quickly.
2. While the flinch response can never (and should never) be removed from an organism except via radical surgery or brain damage, the system can be trained to convert the flinch into a dynamic tactical response platform.

As stated above, the most important area of the brain that we must consider in a study of human response to fear or the threat of violence is the amygdala. The amygdala is a bilateral, almond-shaped area of the brain. In early neurophysiological studies, the amygdala was considered to be part of the "limbic system" of the brain: a region that was described as the old, instinctual portion of the brain that was primarily given over to threat response. Generally speaking however, many modern researchers now believe that most of the processing of fear and its subsequent effects on the body are related to primarily to the amygdala alone and one of its many nuclei.

The amygdala is home to the many behavioral aspects of fear. Animals that have been experimentally examined after surgery to remove the amygdala usually display absolutely no organic fear. What is fascinating about this process is that buried in the reflexes of the amygdala are intuitive and instinctual reactions to potential threats. For example, a normal laboratory-born and raised mouse will have all of the normal fear reactions occur upon exposure to a cat for the first time: without having ever seen, smelled or encountered one. However, after amygdala removal, the mouse will cuddle up to the same cat without a hint of fear behavior. By the same token, human subjects, when shown photos of different "unfriendly" facial expressions, show an increased amygdalic response. Hence, we know that the amygdala contains, instinctive and intuitive fears, but also that it can learn.

One vital piece of the amygdalic puzzle that must be understood is that the central nuclei of this region receives INPUT from every sensory system of the body. Thus the amygdala can create responses to danger signals represented in the visual, auditory, olfactory, tactile or gustatory systems. In other words, the amygdala can instantly respond to any sensory input into the body that indicates danger, regardless of the source. You may be sitting at your desk and suddenly flinch at the sound of breaking glass behind you. You may jump up and begin looking for the source of smoke that is tickling your nostrils. You may flinch and cover your head at the sight of a bottle flying toward you in the air just from a hint of movement caught in your peripheral vision. All of these activities begin with the amygdala.

Even more vital to understand than the sensory INPUT into the amydala is its OUTPUT. This vital nuclei connects directly into the brainstem of the body where all of our instinctual responses and reflexive responses to danger are stored. One of the easiest ways to visualize this is to think of what is known as the flexor withdrawal reflex. If you touch a hot stove, your body doesn't waste time telling the conscious portion of your brain that the stove is hot and that you should remove your hand before it gets badly burned. Generally, when you touch something very hot, your body's sensory system feeds this information into the brainstem and your hand and arm move away from the danger quickly: in fact, extremely quickly. It is not until afterwards that your "thinking" brain, the cognitive portion of the cerebrum, catches on to what just happened. This is a beautifully designed protective mechanism of the body that does not require conscious thought. In fact, modern researchers believe that many of the amygdalic responses to danger do not involve the cerebrum, the cognitive/thinking portion of the brain) at all. The reflexes bypass our learned behaviors and, with apologies to Nike, just do it. As one neurophysiologist writes:

"Stimuli goes via the thalamic pathways (medial geniculate) to the amygdala (lateral nucleus, central nucleus). At the same time the information is sent to the cortex which tries to identify the situation 'consciously'. ***By the time the cortex has figured out the situation, the amygdala has already started to defend against possible dangers.*** The information received by the amygdala from the thalamus is unfiltered and biased toward action. In contrast, the cortex's job is to prevent an inappropriate response rather than an appropriate one."

Or, as Joseph LeDoux, the pre-eminent researcher of fear and the amygdala so eloquently states,

"In simple terms, there's an emotional computer in your brain called the amygdala. It rests quietly until it perceives a threat. When the amygdala determines that danger is present, it shifts into high gear, marshaling the resources of the brain in an effort to protect you and yours from harm. This system was designed by evolution to detect and respond to predators and other kinds of natural dangers that threaten survival or territory, and it governs both innate and learned fears…The key to the amygdala is its neural wiring. It receives nerves that carry messages from all the senses: sight, hearing, smell, touch. If there's danger lurking in the messages carried by any of these, the amygdala is activated, and quick as a flash nerves coming out of it send messages to bodily organs that respond in ways to keep you safe. ***The amygdala works automatically, without "you" having to get involved in the act... Part of the reason for this is found in the nature of the connections between the amygdala and the cerebral cortex, where our thoughts, hopes, and plans occur, and through which we exercise control over our emotions (to the extent we can). It turns out that the amygdala is in a much better position to influence the cortex than the other way around."***

As mentioned above, one aspect of the amygdalic response to threat that is vitally important, is that it can learn. Numerous experiments have shown that while it is virtually impossible without radical brain surgery to completely eliminate the instinctive "flinch" response to danger, it is possible, through training, to modify the flinch response. A good example of this can be seen in the explosive entry tactics used by SWAT teams, etc. Consistent training of teams is necessary to prevent "flinch and freeze" responses to the noise generated by explosives and other door-breaching equipment. This fact, that while the flinch response can never be eliminated but that it can be modified, is the very basis of the SPEAR system. Blauer refers to this concept as "converting the flinch into a tactical movement."

The real beauty of the Blauer SPEAR System is that its tools, tactics, strategies and training methods both address and capitalize on this amazing genetic system. The system is based on the "flinch response". It acknowledges that the body will react without the benefit of our conscious brain where we store all of our typical "martial art" techniques and combatives training. This dichotomy is of paramount importance in understanding the SPEAR system as well as some of the dangers inherent in traditional combatives training. What is most impressive to me personally is that Tony Blauer was able to develop this system from scratch, without the benefit of this recent research. The intuitive understanding of the human body and its functioning inherent in the SPEAR system is a testimony to Blauer's extreme perceptiveness, creativity and intelligence.

Physical Platform of the SPEAR

Through observation, Blauer has determined that there are three basic and distinctive "flinches" that are present at times of danger:

1. Push away danger – This is easily visualized by imagining the instinctive response to a car suddenly slamming on its brakes directly in front of your car.
2. Head Shield – When most people visualize a "flinch" response, this is the motion that is typically imagined. The hands, forearms, elbows come up to protect the face and head, the shoulders rise, and head retracts.
3. Shield and Turn – This form of the flinch is associated with a threat that is picked up with the peripheral vision. This involves an arm, forearm and elbow shield that is raised to the side of threat with a circular/angular movement down and away from the line of the threat. Again, this is easily visualized by thinking about the movement induced at a baseball game when someone yells "Watch out!" from beside you.

Each of these flinches carries with it certain movement characteristics that are unique – a discussion of which is beyond the scope of this article at this time. However, they also all share some distinctive similarities. The flinch response generally lowers and widens the center of balance to increase mobility, the arms are placed into defensive positions that cover centerline (and vitally important) targets, the eyes focus intently on the threat, the breath is exhaled quickly which is a component of both absorbing shock from an incoming blow and delivering a blow with power and the fingers are webbed and spread for additional coverage and protection.

Blauer has taken these three flinches, broken them down into their component parts, and then determined the manner in which each can be best converted into a tactical movement based on his observations of their similarities and differences. The SPEAR functions as a synergistically developed movement that is extremely fast and powerful.

Because the "flinch" response to the threat actually initiates the movements and creates the SPEAR, it is also important to understand that these three flinches are hard-wired neural loops. Just as the automatic response of your hand touching a hot stove (known as the flexor withdrawal reflex) is an instinctual and incredibly quick movement, so is the flinch response. The output from the amygdala into the brainstem areas that are in control of our reflexes creates massive coordinated muscular contractions, postural shifts, changes in eye focus and pupil dilation, etc. in response to a threat. Furthermore, the physical motions of the flinch require very little modification/conversion to become extremely sound from a tactical movement perspective.

In short, the physical platform created by the three flinches, while different, are inherently the same as they begin in the amygdala, are then carried out by reflex loops and are easily modified to increase tactical superiority.

Conclusions:

Keeping the above background material in mind it is possible to draw some definitive conclusions about the SPEAR system and its applicability to the CQC needs of anyone – civilian, law enforcement officer or soldier.

Ease of Assimilation – Because the SPEAR system is based on, built around and trained via the reflexive movements of the body, there are no "techniques" to memorize. As discussed above it is imperative, for real world survival, to have a system that is built upon a gross motor/ reflexive toolbox. The cognitive dissonance and amygdalic reactions that are virtually guaranteed in a real world fight wreak havoc on the typical trained, fine motor responses taught in most CQC systems. The SPEAR is a completely intuitive system that once embraced in theory, becomes readily available in the physical arena.

Non-Perishablility – Because of the inherent stability of the human nervous system and the hard-wired nature of our reflexive responses, the SPEAR is extremely non-perishable. In simple terms, babies flinch, kids flinch, teens flinch, adults and elderly people flinch. The instinctive reactions of the amygdala are hard-wired from birth and thus the very physiological basis of the SPEAR system makes it an incredibly efficient, non-perishable system that can be readily accessed at any time – despite a lack of consistent training. This is one of the major aspects that differentiates the SPEAR system from other CQC practices.

Universal Applicability – Blauer often refers to this concept as the "power of one". Again, in accordance with research, there is no need in the SPEAR system to memorize, train and "develop muscle memory" for a large variety of "techniques" to meet a threat. The SPEAR system allows for the application of one tactic (meaning the three-dimensional application of physical, mental and emotional skills) to meet any threat. There is tremendous value in this concept from a practical teaching and training perspective as well as a pragmatic tactical perspective. The SPEAR system allows a very reasonable level of skill to be reached by virtually anyone with normal physical reactions because it is not based on athleticism, fine motor control or physical conditioning. While all of these factors are, of course, important, the SPEAR system allows for the natural protective mechanisms and skills of each individual to be accessed. Tactically speaking, research has proven that as the number of available options increases, so does reaction time. In other words, having one available alternative, in a situation that requires the fastest possible reaction time, is the best situation available – as long as the available option is capable of meeting the threat. It is in this realm that the SPEAR system most uniquely shines in comparison to other training methods available.

These three factors are the "founding fathers" of the SPEAR system – speed of acquisition, ease of retention and universal applicability. In his efforts to construct a generic system of self-protection, Blauer was forced to confront these three distinct challenges. The SPEAR system is the result and is now proving itself by saving lives all over the world.

Blauer was once asked by a student what he considered to be the primary aspect of any fight. The clear, succinct answer given was, "The result!" This passion for teaching real world survival has been and continues to be the sole motivation for the existence of TCMS. With this concept as the consistent guiding principle of his company, Blauer has constantly been challenged to innovate, create and explore the most effective methods available for self-protection. In the constantly growing, evolving and improving SPEAR system, Blauer seems to have found the answers.

About the Author:

Dr. Eric Cobb is a chiropractic physician with a lifelong interest in hard-core CQC training. With over twenty years experience training and teaching a variety of martial arts, he has traveled the country and world training with different instructors in a wide variety of arts. Dr. Cobb was initially drawn to Blauer Tactical Systems as a skeptic, based on its claims to be a scientific approach to CQC. After three years of training and independent research into the SPEAR system, he is now one of its chief advocates. He states, " I believe that the Blauer SPEAR System goes a step beyond the classic "fight or flight" response dictum and utilizes the body's most basic reflexes as a platform for training and response. This creates a faster, more skilled, and SAFER operator in shorter time than many would believe possible. It is revolutionary – and it is based on good science."