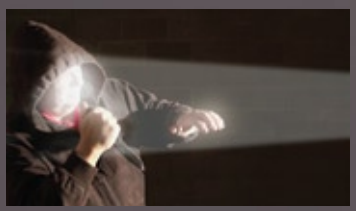
HOW TO USE A STROBING FLASHLIGHT



Strobes have become extremely popular on police flashlights, but this tool has its pluses and minuses.

EDWARD M. SANTOS

I TEACH LOW-LIGHT CLASSES NATIONWIDE and last year I noticed a dramatic increase in students who arrived for my classes equipped with strobe-capable lights.

As to the exact reason for this phenomenon, I can't tell you for sure. It could be the result of the manufacturers' aggressive advertising, a more economical price point on lights that have this feature, or the fact that strobe-capable lights have risen to the top of the latest "have to have" gear on many officers' lists.

The one thing I can tell you is that many of the students who arrive for my classes with their strobing lights ready to go are often not aware of the pros and cons of strobe light deployment. Many, in fact, believe that the disorientating effect of a strobe light exposure is a relatively new innovation.

It isn't.

THE BUCHA EFFECT

LET'S LOOK AT THE HISTORY of disorientation caused by strobe light exposure. The phenomenon that occurs when a person experiences dizziness and confusion when exposed to strobe lighting was first identified by a Dr. Bucha in the 1950s when he was asked to investigate a series of unexplained helicopter crashes.

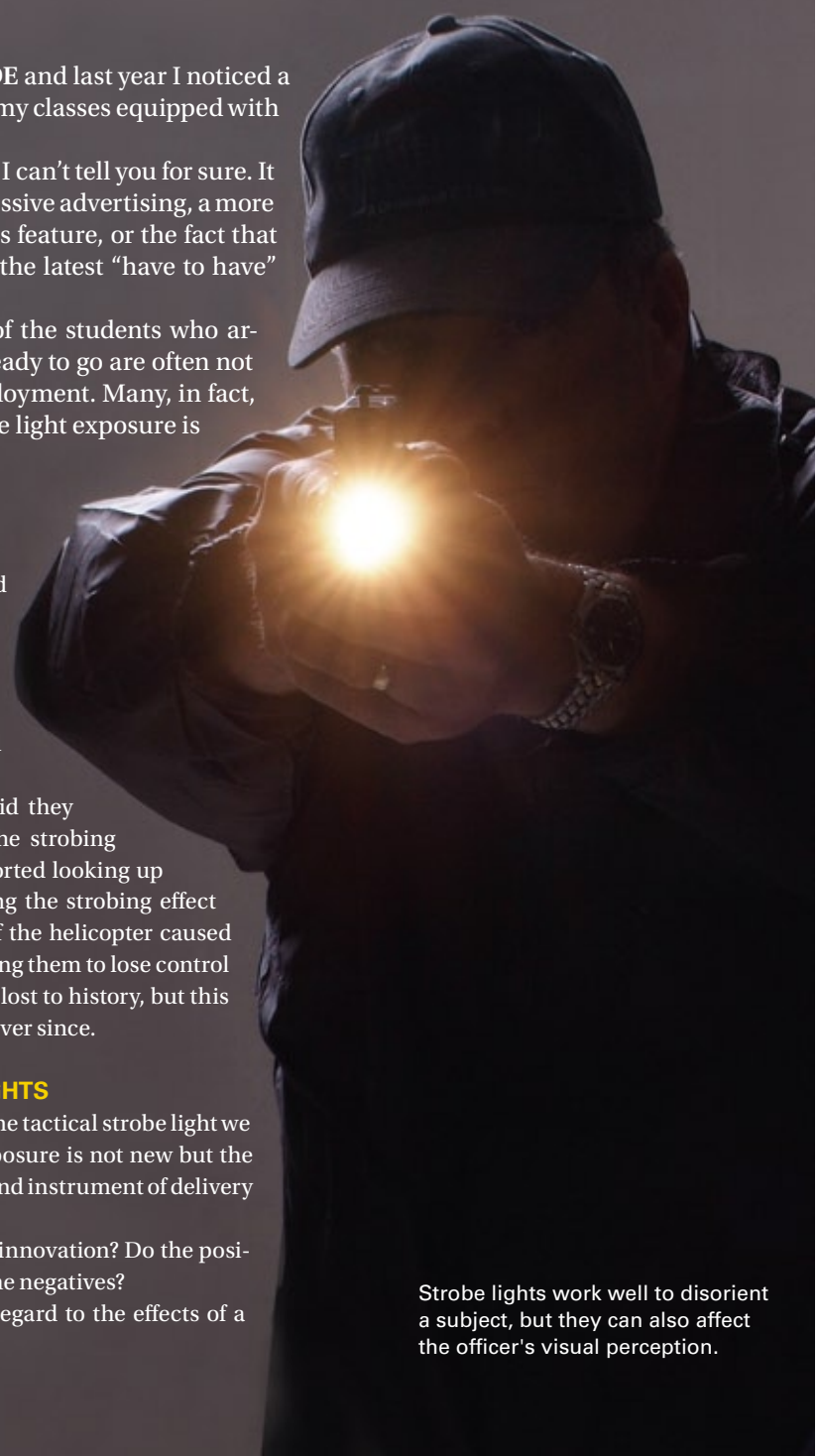
After the crashes, surviving crew members said they experienced dizziness and disorientation from the strobing effect of rotating helicopter blades. The crews reported looking up at the sky with the rotors spinning above, creating the strobing effect that caused the disorientation. The rotor blades of the helicopter caused the sunlight to strobe in the eyes of the pilots, causing them to lose control of their machines. Dr. Bucha's first name has been lost to history, but this phenomenon has been known as the Bucha effect ever since.

BENEFITS OF STROBING LIGHTS

FAST FORWARD to the recent spike in popularity of the tactical strobe light we see today. The human response to strobe light exposure is not new but the creation of the strobing flashlight and the method and instrument of delivery continues to evolve.

Is the strobe light a gimmick or a viable tactical innovation? Do the positive benefits of strobe light deployment outweigh the negatives?

Here are some of the claims that are made in regard to the effects of a strobe light exposure.



Strobe lights work well to disorient a subject, but they can also affect the officer's visual perception.

★ Disorients the suspect
★ Diminishes an assailant's night adaptation
★ Causes a disruption to the subject's vision, which affects his or her ability to use force
★ Provides a visual and psychological hurdle to aggression
★ Decreases the suspect's direct and peripheral vision
★ Induces fear

Let's take a more in-depth look at some of these claims.

Flash/strobe disorientation is the result of an "after image" or temporary visual imprint caused by a brief exposure to high-intensity light levels. This image varies with light level and time duration or frequency of the exposure. The disorientation occurs as specific light frequencies affect the brain and the light cycles through those frequencies too fast for the brain to adjust.

Strobing tactical lights do not allow the photoreceptors to reset, which shocks an individual's vision. Strobing bright light forces the brain's perception input to arrive in segments, thus creating after images as the brain labors to fill in or complete the partial image created by the momentary exposure of the strobe. These after images compound with each strobe exposure, which increases perceptual disparity.

Police tacticians have long recognized the blinding caused by placing the hotspot of a high-intensity light in a subject's eyes. Add the disorientation caused by the strobing of a quality bright light and the benefits are obvious. However, these benefits also come with some disadvantages and tactical concerns.

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TACTICAL CONCERNS

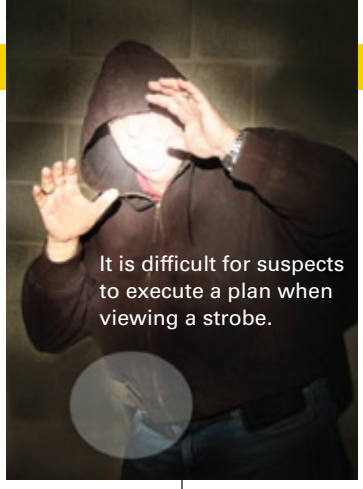
When deployed without the benefits of an accompanying constant light (cover officer), a strobe light may make the user experience an inability to see or recognize subtle/deliberate slow movements made by the suspect.

In training classes I am routinely able to move my hands eight to 10 inches before my threatening motions are recognized by the student who is exposing me to the strobe. Of course, my movements must be very slow and deliberate in order to avoid detection by the student.

Also, exposure to any bright light in a dark environment after low-light adaptation has been achieved will in fact deteriorate a subject's night vision. However, I have not been able to verify the claim that strobe exposure will diminish night vision adaptation to any greater degree. Much in the way that a brief exposure of a bright light in a person's eyes from a flash into a mirror while clearing a bathroom will cause some discomfort and a momentary disoriented state, we do not lose our established night vision to any significant degree. In multiple tests with students on the live fire range, I have not seen any significant loss of target identification or engagement after the strobe exposure has been ended and the eyes are given just seconds to adapt.

As to the claim that strobe exposure causes a disruption to vision that affects the suspect's ability to use force, I agree.

This is obvious to anyone who has ever applied the strobe exposure to another person. It is often stated that humans are 70



It is difficult for suspects to execute a plan when viewing a strobe.

percent to 80 percent visual. This is true. And it is very difficult to formulate any type of plan, coordinate physical movement, or manifest any effective aggression without an intelligent assessment to build on. This is impossible to do while experiencing a strobe exposure.

During a lethal confrontation, lack of information/intelligence can be stress inducing in itself. Much in the same manner as stated above a strobe exposure will provide a visual and psychological hurdle to aggressive movement or behavior. It is the fear of the unknown in many cases. During a strobe exposure, a suspect is unable to identify the officer by size, number, physical presence, exact location, environmental conditions, and much more. Without many of these points of intelligence, the suspect is incapable of developing a plan with any expectation of success.

That strobe exposure decreases the suspect's direct and peripheral vision is another claim we must look at realistically. Without question, direct and peripheral vision are decreased.

However, is there a significant increase in this vision deterioration as a result of the strobe exposure over just a constant bright light? If the suspect and the officer remain stationary, I say there is not a significant increase as a result of applying the strobe. Exposure to a quality bright constant light will significantly decrease the suspect's direct and peripheral vision. In student testing, I have not seen any measurable difference between applying the strobe and a bright constant light.

While performing the above-mentioned tests, I did recognize a benefit of the strobe exposure to the officer when the officer moves toward the suspect. In many cases the officer is able to advance or close the gap to the suspect without detection. This same movement is not as successful without the strobe. Using the strobe, the officer is often able to move as much as 25 feet without detection.

Despite popular belief to the contrary, the strobing in itself is not a fear inducer. It is the disorientation and confusion caused by the strobe exposure that leads to fear in some people. In most cases when you can limit the suspect's ability to gather and process intelligence you can increase the potential for fear. The strobe exposure certainly provides this limiting factor and can be particularly effective due to the accompanying disorientation experienced.

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USING STROBES ON THE STREET

Before we discuss any strobe light application methods, let's discuss what I believe to be one of the biggest hurdles faced by my students as they attempt to learn strobe light techniques. The method of accessing the strobe feature continues to be an issue with many light designs. This issue deserves to be discussed in

this forum as the switching method needs to be at the top of your list as you evaluate a light for purchase.

Each manufacturer has its own method of switching between strobe, constant/momentary on, and various intensity outputs. I have to say that I am not crazy about any particular switch design currently available. I also realize after working with one manufacturer for more than three years on this issue that there is no simple solution.

Ideally the operator should have the ability to switch from constant or momentary on to strobe without any fine motor skills necessary. The switching between light functions should be effortless, without gimmick, and certain even under stress when a

STROBING FLASHLIGHTS AND WEAPON LIGHTS

ALMOST EVERY MAJOR POLICE FLASHLIGHT or weapons light manufacturer is now offering lights that feature strobing. Here's a quick look at some of the more popular makes and models and how the strobe is triggered for each.


5.11 TACTICAL


BLACKHAWK


BRITE-STRIKE

5.11 TACTICAL ★ LIGHT FOR LIFE SERIES

Law enforcement gear, apparel, and footwear manufacturer 5.11 entered the flashlight market a couple of years ago with the full-size (11.5 inches long) Light for Life UC3.400. The company now also makes a mid-size model, the 8.75-inch PC3.300. Both flashlights recharge in 90 seconds thanks to capacitor technology and both offer strobe features. The full-size light sports a 270-lumen strobe that is triggered by two clicks of the "on" button. To activate the 200-lumen strobe on the mid-size model, you push and hold the "on" button.

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BLACKHAWK ★ NIGHT-OPS LINE

BlackHawk's Night-Ops line of tactical illumination tools includes the Gladius Maximis flashlight and the Xiphos NT weapons light. Both have strobe features and both are named for swords carried by ancient soldiers. The Gladius Maximis is a 6.23-inch flashlight with a maximum output of 120 lumens and a runtime of 90 minutes. To activate the strobe, the operator turns the tail ring and pushes the tail switch. The Xiphos NT is a 3-volt, rail-mounted pistol light with 90 lumens of output. Its strobe feature is activated by tapping the "on" lever twice.

www.policemag.com/freeinfo/16341

BRITE-STRIKE ★ BLUE DOT 198

Designed by police officers for police officers, Brite-Strike's Blue Dot 198 line offers several models with strobe features. The lights take their name from their maximum output of 198 lumens, and they are available with a variety of different functions. The functions are activated via an end cap switch. To turn on the strobe, the operator cycles through high, low, and strobe modes by pushing the end cap button.

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INOVA ★ T-4 AND T-5

Recently acquired by Nite Ize Corp., Inova is best known for its keychain lights, but the company makes some excellent duty lights. The T4 is a rechargeable model with an output of 200 lumens. A mid-body switch activates high, low, momentary, and strobe modes. The T5 is a nine-inch-long lithium battery-powered flashlight with a maximum output of 200 lumens. It also has a four-mode mid-body switch.

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INSIGHT TECH-GEAR ★ ARCTURUS LINE

Insight's 150-lumen Arcturus lights come in two versions: a rechargeable and a lithium battery-operated model. The light's functions are activated by pressing the tail cap. Two quick clicks triggers the strobe.

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STREAMLIGHT ★ WEAPON LIGHTS

Featuring C4 LED technology, Streamlight's TLR-1 and TLR-2 (with laser sight) now offer strobe mode. Both lights have a maximum output of 160 lumens. The strobe is activated by clicking the paddle switch twice and then holding it down. Like prior versions of the TLR-1 and TLR-2, the lights are machined out of aircraft aluminum with black anodized finish. Both weigh less than five ounces.

www.policemag.com/freeinfo/16345

SUREFIRE ★ Z2-S LED COMBATLIGHT

Compact and powerful, SureFire's five-inch-long Z2-S LED CombatLight is a rugged duty light with a 160-lumen maximum output. The CR-123A battery-powered flashlight has a runtime of two hours. And its beam is not only powerful but also very smooth thanks to its precision micro-textured reflector. Strobing is activated by three rapid clicks of the tail cap.

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INOVA


INSIGHT TECH-GEAR


STREAMLIGHT

lack of tactile function is to be expected.

In addition, gloves are often worn during many of these critical situations. Before buying a strobing light, ask yourself how well the switching method will work while wearing gloves. Do not limit your evaluation of strobe lights to lumen output, brightness, or brand. Be sure to experiment with the various switching solutions offered and anticipate their effectiveness under stress-related conditions.

Operating in a low-light environment requires many elements and skills to be successful and maintain a position of tactical advantage. There is not enough room in this article to discuss low-light tactics in their entirety. I will, however, discuss strobe light considerations as they relate to control.

Suspect control is one of the most important aspects of low-light applications but also the most underused and misunderstood concept. Let's think of the many advantages you realize by applying light as a control tool.

With the light in his eyes, the suspect is preoccupied and uncomfortable and will not be able to direct an effective threat your way. He will not be able to look for escape paths, and he will have a very difficult time determining how many of you he is faced with. His discomfort, disorientation, and inability to see clearly in your direction all result in a situation that will be much easier for you to control. The chances are much greater that he will become compliant rather than raise the level of his resistance.

I am not talking about a major change in your tactics. All I am asking you to do is to make a small adjustment in the application of your light/firearm deployment skills. Place the hotspot of the light in the suspect's eyes. (See photo on page 33). There will be enough peripheral light to see the hands even if they are left down by his side. More than likely, the hands will be brought to his face in an effort to shield away the light. If a cover officer is available, a constant-on light should be deployed in addition to the strobe so you can maintain the best visibility of the suspect.

These are but a few of the considerations surrounding strobe light operation in law enforcement. Do I use one? You bet.

When used appropriately a strobe light can be a very powerful tool in your tactical tool box. As with any tool, its effectiveness depends on our ability to understand its limitations, benefits, and overall function.

There is no replacement for practice and skill refinement. The basis for any deployment system or technique is manipulation skills and ultimately the further refinement of those skill sets should be your goal. If you choose to add a strobe-capable light to your arsenal, become familiar with its operational controls and know when to use it.

Ed Santos is the author of "Rule the Night Win the Fight: a Practical Guide to Low-Light Gun Fighting." He has been teaching firearms and tactics for more than 25 years and has studied low-light operations for more than 20 years. Santos is a retired Army officer and a reserve deputy in northern Idaho.