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PRESSURE-PO

A TEAM OF DOCTORS TRIES TO FIND OUT JUST HOW SAFE THEY ARE

by Chris Thomas

Disclaimer: *Black Belt* magazine does not recommend or condone the use of pressure-point strikes or manipulations to knock out any training partner or volunteer. Such techniques should be practiced only under the supervision of a qualified instructor.

From the time George Dillman began to demonstrate *kyusho-jitsu* (pressure-point fighting), which he learned from Hohan Soken and Seiyu Oyata and then spent the past 15 years perfecting, people have criticized him and his students for teaching and performing pressure-point knockouts. The criticism has ranged from simple caution ("Since we do not really understand what is happening, are we certain this is safe?") to outright condemnation ("Pressure-point techniques are dangerous, and demonstrating pressure-point knockouts is reckless and irresponsible.").

It is clear that some of those who criticize the demonstration of knockouts as "too dangerous" use this as a smoke screen to conceal the fact that they themselves cannot do the techniques. ("Of course I can do these moves, but they are too dangerous for me to demonstrate on you.") However, among legitimate practitioners—and especially the instructors in Dillman Karate International—there exists great concern about this very issue.

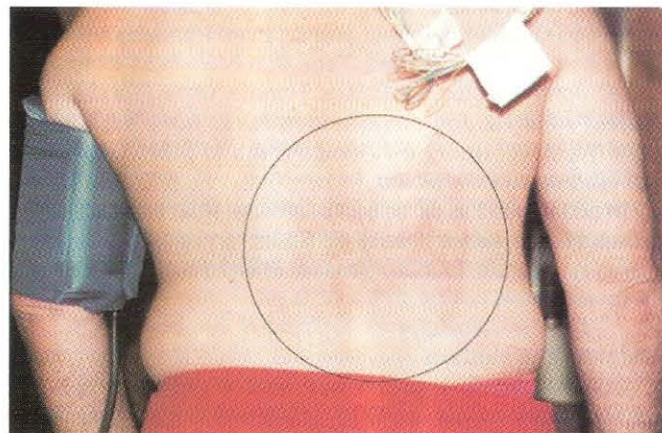
How safe are pressure-point knockouts? Karate expert George Dillman (right) and Dr. Charles Terry (left) wire up subject Ed Lake to search for some answers.

People who are knocked out using pressure-point techniques seem to be fine after they are revived. This shows that pressure-point fighting is actually a humane method of self-defense, Dillman insists, because it renders an assailant unconscious without causing any lasting physical damage. But how can anyone say for certain that no harm is caused?

Searching for the Answer

In an effort to examine the relative safety of *kyusho-jitsu*, a team of scientists using state-of-the-

Kim Dillman (left) performs a knockout strike on seated subject Bill Burch.



After the execution of a "kidney knockout," a clear imprint of the karateka's hand can be seen on the subject's back.

art biomedical monitoring equipment collected data on 17 pressure-point knockouts. However, one point should be clearly stated at the outset: It is impossible to conclusively prove a negative, especially when dealing with systems as complex



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as the human body. In other words, scientists can never prove beyond a shadow of a doubt that pressure-point techniques cause no harm. All they can do is look for evidence of harm. In the absence of such evidence, the relative safety of the techniques can be reasonably presumed.

The scientists involved in the study were Mark Stecker, M.D., neurologist and team leader; Charles Terry, M.D., psychiatrist and member of Dillman Karate International; Terry Patterson, Ph.D., neuro-physiologist; Michelle Murphy, EEG (electro-encephalogram) technologist; and David Barclay, research assistant.

The study participants included George Dillman, Kim Dillman, Ron Richards, Bill Hatt, Avish Parashar, Mike Worth and Todd Quan from Pennsylvania; Evan Pantazzi from Massachusetts; Bill Burch and Tom Cameron from Illinois; Ed Lake, John Ralston and Jack Hugate from Florida; Mark Kline, Arthur Hearn and Brandon Ayres from New Jersey; John Westover from New Hampshire; and Steve Downs and Jeff Skorupski from Maine.

In addition to the participants, other martial artists (such as Dillman's first *sensei*, Harry G. Smith, an original student of *isshin-ryu* karate founder Tatsuo Shimabuku) assisted and observed.

Defining the Method

Subjects to be knocked out were wired to an EEG to monitor brain waves, an ECG (electrocardiogram) to record heart rhythms, a sphygmomanometer to take blood-pressure readings, and a fingertip pulse/oxygen meter to provide information on pulse rate and oxygen saturation of the blood.

Tests of cognitive impairment were also performed. The subjects were told two words as they were collapsing from the

out." This technique involves "setting up" the kidney with a strike to a point on the triple warmer (or *san jiao*) meridian located in the arm. Then the subject's back is slapped at the kidney "associated" and "alarm" points, which lie near each other on the gall bladder and bladder meridians, respectively.

As Dillman struck, the subjects stiffened up and dropped flat on their face like a falling tree. This dramatic knockout caused the scientists great concern, but they were relieved when they saw that the post-event EEG and ECG readings were normal. This was an important preliminary result because if the doctors had identified anything which provided clear evidence of harm, the study could not have proceeded.

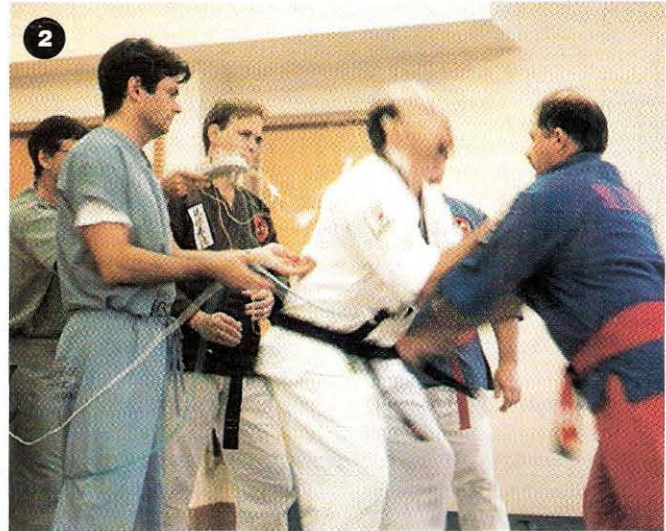
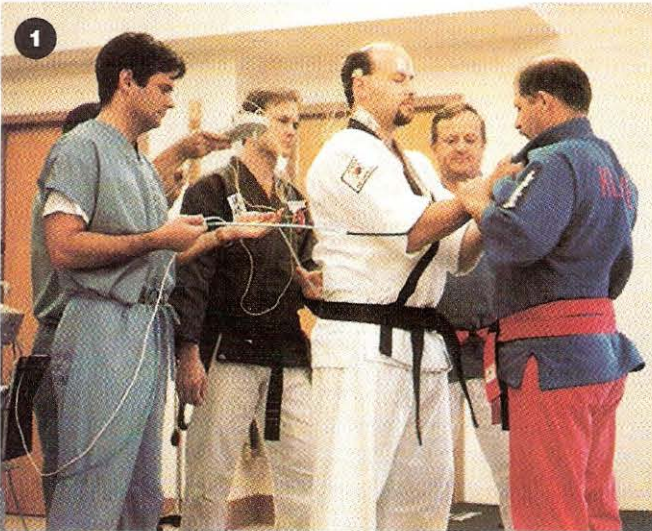
This kidney knockout is one of the few pressure-point maneuvers to leave a mark on the subjects. After revival, the subjects' uniform top was removed, revealing a clearly defined hand print at the point of impact. The hand print—which included palm lines and was surrounded by an area of reddened and raised flesh—resembled the aural images recorded with Kirlian photography. In many ways, the mark looked like it was caused by heat rather than impact.

The first sample immediately revealed the problems which would plague the study. The signals—in particular, the EEG signals—were partially obscured by artifact. Artifact might be compared to static on a television set. It arose from two main sources: the jiggling of the EEG leads on the scalp as the subjects were struck and fell, and muscular tension.

An EEG measures very small electrical signals from the brain. At the moment of impact, muscles in the subjects' face would sometimes tighten. Because electrical signals from muscular tension are generally more intense than signals from the brain, they tended to drown out the brain signals.

Extensive computer processing of the signal can filter out

Ed Lake (right) prepares to perform a knockout (1). The subject grabs Lake's lapel to simulate an attack. Lake then strikes the stomach-25 point (2). As the subject collapses, doctors and assistants rush to catch him (3). After data collection (4), the subject is revived.



pressure-point strike. After revival, they were asked to repeat those two words. They were also asked questions to determine their orientation: their name, the date, how to spell "world" backward, and so forth.

"The question is, What's the mechanism here?" Dr. Patterson said. "Physiologically, what is it that happens? To the best of my knowledge, no one knows. Does the blood pressure drop to zero? Does the EEG flatten out? Do you get massive pupil constriction or dilation? These are unknown. No one's ever looked at it."

For the first sample, Dillman performed a "kidney knock-

some of this artifact, but it was important to reduce the effect as much as possible. So as the testing progressed, helpers worked to catch and carefully lower the subjects to minimize the problem. It was also necessary to delay the revival process for several seconds.

Typically, an unconscious volunteer is revived immediately after a knockout with a light slap and a massage along the back of the neck. (In Western medical terms, this stimulates the spinal accessory nerve; in Oriental medical terms, it restores the *yang chi* to the head by stimulating the gall bladder meridian.) But this process was also producing more



Dr. Charles Terry (right) checks the wiring of a knockout subject.

though he described himself as feeling dazed and light-headed.

The subjects showed signs of stress during the research. Because they were mostly young and in good health, the members of the group should have shown average or below-average blood pressure. However, prior to receiving the knockout techniques, most of the subjects had a blood pressure that was recorded as significantly higher than normal. This was clearly a response to the anxiety of waiting to be struck. Dr. Stecker wondered if this state of higher blood pressure and elevated adrenaline might in some ways resemble the heightened state of arousal an attacker would have in a self-defense encounter.

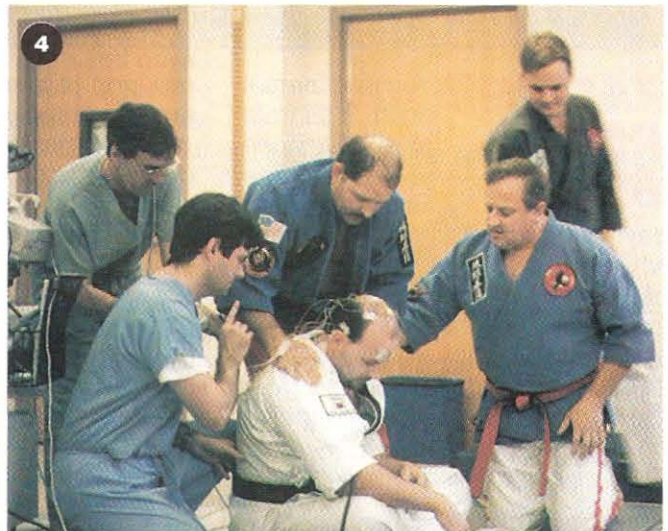
As the testing progressed, the doctors were relieved and surprised that they were not finding the potentially harmful outcomes they had considered a possibility. Dr. Patterson described one of the anticipated results, a sudden slowing of the heart: "If you're looking for a dramatic heart-rate response, swim along the top of the pool, take a normal breath and [do a surface] dive—you'll get a massive bradycardia. The heart rate drops right out. It will become amazingly low, and it will stay there for a while, step back up, overshoot a little, drop back down and come back up again. I was expecting to see at least that sort of bradycardic effect."

In fact, there seemed to be no particular trend in terms of physiological response to the application of pressure-point techniques. For example, the heart rate of the subject of the kidney knockout showed an upward trend. A knockout performed on the gall bladder meridian produced a downward trend in the subject's heart rate, and a knockout performed on stomach point No. 9 (a point associated with the carotid sinus) produced no change in heart rate.

artifact. So at the request of the doctors, the subjects were simply lowered as the readings were recorded. Then, only after the doctors had obtained sufficient data (which fortunately took less than 20 seconds), was the revival performed.

Measuring the Effects

As would be expected, different people responded differently to the application of pressure-point techniques. Some appeared only slightly dazed or disoriented afterward. Others



were completely limp and unresponsive. Interestingly, however, the level of perceived consciousness and the level of disorientation did not always coincide.

For example, one subject, who never appeared to lose consciousness, was completely unaware of the two memory words spoken to him. He was unable to spell "world" either backward or forward, and was generally confused. Another subject, who collapsed like a rag doll and remained completely limp and unmoving until the revival was administered, heard and easily repeated the two words, and he successfully completed the other cognitive tasks—even

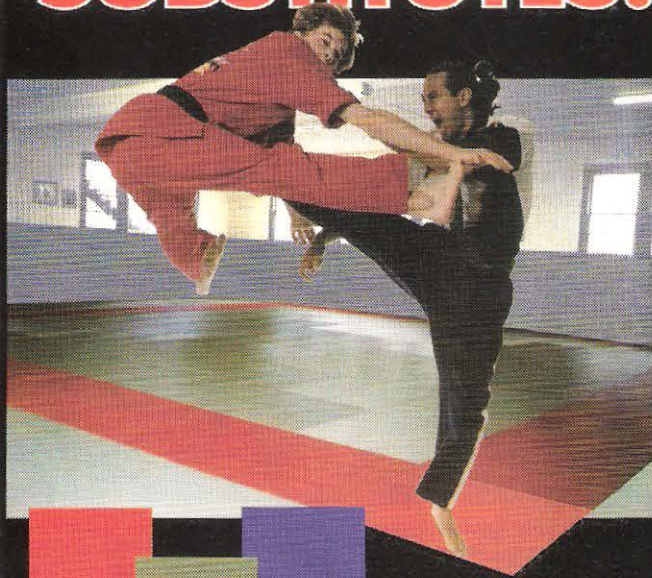
Explaining the Phenomenon

Dr. Stecker was intrigued by what was *not* happening. "We know it's not a seizure," he said. "We know it's not cardiac arrest—at least not for a long period of time. We know that the blood does not desaturate. Whatever it is, it's incontrovertible that it does something to the person. You can't miss that."

But Stecker was not at all bothered by this. In fact, he seemed quite pleased. "It turns out that if we find nothing, that's the most exciting thing of all because then it's something that we don't yet have a good explanation for," he said.

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"If it stops the heart, big deal! We understand that. But if it's something completely different, it would be nice to understand what that is. The best part is to learn something new."

As the day progressed, the scientists began asking about the possibility of having the subjects lie down or sit during the knockout. Although this is not common in pressure-point practice, the last two volunteers were knocked out while seated. As they collapsed, they were cradled in the arms of a catcher while the data were collected. This method produced clear measurements with minimal effect. Because each of the last two subjects had been knocked out at the beginning of the day, it also provided an indication as to any cumulative effects of the techniques.

Once the study was over, the long process of data analysis began. Dr. Stecker plans to submit the results to a medical journal. He is also imagining how future studies might be designed, wondering how using neuro-inhibitors, beta-blockers or narcotic antagonists might alter the effect of the techniques and provide clues about the underlying mechanisms.

But for this first scientific look at pressure-points methods, the most important question was, Are these techniques dangerous?

"This was a pilot study," Dr. Terry said. "The data we collected provides us with possible directions for future research. But this much we can say: We did not find any conclusive evidence to suggest that the subjects are harmed."

This is a cautious scientist's way of saying that he found nothing that would support the claim that the application of pressure-point techniques poses a threat to an attacker—or a seminar volunteer.

As stated previously, it is scientifically impossible to "prove" a negative, and an initial study such as this is highly limited in scope. Nevertheless, these findings do provide credible, objective evidence to support George Dillman's statement that kyusho-jitsu is a safe and humane form of self-defense.

About the author: Chris Thomas is a freelance writer and martial arts instructor.

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