

Northwest Evaluator

The Pacific Northwest
Drug Recognition Expert Newsletter



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BODY SWAY AND THE HGN AND VGN TESTS

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During a recent traffic stop in Oregon, the trooper noted that the suspect's body swayed during the Horizontal Gaze Nystagmus (HGN) and Vertical Nystagmus (VGN) tests. The suspect also exhibited sway and other indicators of impairment during the remaining SFSTs. At a hearing to determine the admissibility of the HGN and VGN evidence, the defense argued that the presence of sway did not meet the requirement that the suspect keep his head still during testing and that the test results should be deemed inadmissible. Is this a valid argument?

Sway and Intoxication: *Ataxia*, commonly known as sway, is a slow, rhythmic movement of the body when an individual is trying to stand still. It can be side-to-side, front-to-back, circular, or any combination of movements. If sway becomes too great, the individual can lose his balance and fall over. Scientifically, sway is described by its amplitude, which is the distance of movement, and its frequency, which is the number of cycles of movement completed in a given amount of time. For example, one cycle of sway would be a movement from left to right and back to the left again.

Sway can be present even in normal, healthy individuals. However, in these persons, it will be detectable only with the use of specialized instruments because its amplitude is small. In addition, its frequency is low, typically 0.2-0.5 Hz. At the fastest frequency, 0.5 Hz, it takes two seconds to complete one full cycle of sway, while at the slowest frequency, 0.2 Hz, one cycle takes five seconds to complete.

Studies have shown that when blood alcohol concentration (BAC) reaches levels between 0.05 and 0.08%, the amplitude of sway becomes large enough to be observed without the need for any special equipment. Nonetheless, even though the amplitude increases significantly with intoxication, the frequency does not change. In other words, it still takes at least two seconds to complete a full cycle of movement, and the body motion typically does not become jerky or erratic.



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Several of the tests conducted during DUI investigations and DRE evaluations assess sway. Officers note the presence of sway as a possible indicator of impairment during the One Leg Stand, Romberg, and Finger-to-Nose tests, and during the instruction phase of the Walk-and-Turn test. However, the DUI and DRE training manuals are silent regarding the presence of sway during the HGN and VGN tests, except to note that the head should be held still during testing.

Sway and Eye Movements: During the HGN and VGN tests, the officer instructs the suspect to keep the head still and follow the moving stimulus with the eyes only. The intent is to assess eye movements independent of head movements. With high levels of intoxication, such independent movement of the eyes becomes difficult or impossible, and the suspect can only follow the moving stimulus by moving the entire head, or head and body, at a speed similar to that of the stimulus.

It is well known that the vestibular system produces eye movements during rapid movements of the head. These eye movements are produced by the Vestibulo-Ocular Reflex (VOR) and serve to hold gaze fixed on an object as the head turns. Turning the head quickly to one side will produce an eye movement of about the same amplitude and speed in the opposite direction. Intoxication will reduce either or both the amplitude and speed of the eye movement for the given head movement.

Assume that a suspect can move their eyes independently of the head, but that he/she sways during HGN and VGN testing. The first obvious question is: Will the VOR cause a nystagmus that can be confused with the expected findings of the HGN and VGN tests?

The answer is "no." Nystagmus that is observed during the HGN and VGN tests typically has a frequency of about 1.5-4.0 Hz, meaning that the eyes make their rapid, jerky movements between one-and-one-half and four times per second, which is at least three times faster than the frequency of sway. Also, because the VOR decreases with intoxication, it cannot produce nystagmus that is so many times faster than sway.

Likewise, because sway occurs in a horizontal plane, there is no way in which it could affect the vertical nystagmus observed during the VGN test. Therefore, sway cannot produce, enhance, or inhibit the types of nystagmus assessed during HGN and VGN testing.

The second questions to consider is: Will sway make it difficult for the officer to observe the eyes?

Again, the answer is "no." As noted above, the frequency of nystagmus that the officer looks for during HGN and VGN testing is at least three times faster than the frequency of sway. Even if the suspect does sway during testing, the frequency of sway is low enough that the officer can easily follow the suspect's eyes during testing.

There are also several observations and studies which demonstrate that sway does not affect the results of HGN or VGN testing. During a recent alcohol workshop, about a dozen volunteer drinkers were tested when sober, at the end of the drinking session, and about an hour after the last drink. BACs after drinking ranged from 0.06 to 0.13%. When sober, none of the subjects swayed noticeably and none exhibited HGN or VGN clues. When intoxicated, most of the subjects swayed, with the sway becoming more noticeable at higher BAC levels, as expected. However, neither of the certified SFST instructors who tested the intoxicated subjects reported any difficulty conducting or assessing the HGN and VGN tests because of the sway.

Dr. Marcelline Burns of the Southern California Research Institute has conducted two pilot studies of Field Sobriety Tests in a marine environment. She reports that although certain tests, such as Walk-and-Turn and One Leg Stand become difficult or impossible to perform on a rocking boat, and that factors such as sun glare, reflections from the water, and wind must be controlled, the HGN and VGN test results are not affected by the motion of the boat.

In a study conducted last year, the results of the HGN and VGN tests were compared when test subjects were standing, seated, and laying down. There were no practical difference in the test results for the three postures. Because sway could not have been a factor in the seated and laying down

Postures, the implication is that any sway that occurred when the subjects were standing could not have affected the HGN or VGN test results.

CONCLUSION: The head movements that accompany body sway are not the same frequency as the eye movements that are assessed during HGN or VGN testing. Even if the suspect sways during testing, sway will not produce, enhance, or inhibit the types of eye movements assessed during these tests. Sway will not make it impossible for an officer to correctly observe the eye movements.

Most importantly, the judge in the hearing agreed with the prosecution that the defendant's body sway did not affect the HGN and VGN tests, nor did it affect the officer's observations during testing. Consequently, he ruled that the HGN and VGN evidence was admissible.

CHOCOLATE-COVERED MUSHROOMS SEIZED

In early March, a box of chocolate-covered mushrooms worth up to \$35,000 was seized by Portland Police, prompting authorities to issue warnings to the public about the illegal drugs.

The suspects manufacturing the psilocybin mushrooms dipped in chocolate were preparing to ship them to the East Coast before the narcotics were seized, said Sergeant Brian Schmutz, a spokesman for the Portland Police Bureau.

Police fear children may mistake the mushrooms, which are wrapped in colored foil, for candy. Schmutz said that the chocolate-covered drugs are only available on the streets, where they sell for \$20.00 each.

Psilocybin mushrooms are a controlled substance, and accidental consumption of them can be extremely dangerous. While chocolate-covered mushrooms have appeared in other cities, this is the first time they have been seen in the Portland area.

Because they are dipped in chocolate and wrapped in foil, the mushrooms are probably being sold to young adults and teenagers.

The Portland Police Bureau suspected that the shipment was destined to the East Coast. The drugs are being shipped through common mail carriers, such as Federal Express and postal services. Portland police are working with the Drug Enforcement Agency, the Port of Portland, and the Multnomah County District Attorney's Office to investigate and prosecute the case.

Source: KGW News

IN HAWAII, METH KILLS MORE THAN ALCOHOL

Hawaii is confronting a major methamphetamine problem, with officials saying that Honolulu is an increasingly popular port of entry for dealers and users.

According to the Honolulu Medical Examiner's Office, deaths associated with crystal meth have nearly doubled in two years. Last year, 62 people died as a result of the drug, surpassing the 55 deaths related to alcohol.

"This is very unusual, and it shows just how severe the ice problem is here. Nothing but alcohol was ever the primary substance for as long as we all can remember," said Elaine Wilson, chief of the Alcohol and Drug Abuse Division of the Department of Health.

Law Enforcement officials say the growing meth problem is behind an increase in crime. The larceny theft rate in Hawaii is the highest in the nation.

In addition, the Arrestee Drug Abuse Monitoring program shows that 40 percent of the adults arrested in Honolulu in 2001 tested positive for methamphetamine. The rate represents the highest percentage in the country.

Source: Join Together On-line

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