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**DUI UPDATES – EYE MOVEMENT
SIGNS AS IMPAIRMENT**

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Eye Movement Signs as Impairment

Any deficiency in eye movement or pupil response, especially if it is acquired or of recent onset, can impair a person's ability to see properly, and, thus, can affect someone's ability to safely operate a motor vehicle.¹

Drug impairment, including alcohol impairment, can affect eye movements in several ways, depending on the nature of the intoxicant(s) used. Drug use, including alcohol use, is understood to cause physiological changes that are of recent onset and acquired:

1. lack of smooth pursuit can impair the ability to see details (such as when reading a sign) or make accurate observations (as of the direction and speed of another vehicle) when there is relative motion between the observer and the target (one or the other is moving, or both are moving but at different speeds and/or different directions);^{2,3}
2. acquired nystagmus (either at or before maximum deviation) causes a reduction of visual acuity, primarily because of the suppression of visual processing during the fast phase of the nystagmus;⁴ and
3. lack of convergence can cause double vision (diplopia) when looking at objects up close or when frequently or repeatedly changing viewing distance between far and near (such as when looking back and forth from the road to the car's dashboard).⁵

Individuals with a long-standing abnormality or deficiency often learn to compensate in some manner. One example includes making a head movement rather than an eye movement when someone has a natural lack of smooth pursuit, not due to intoxication, illness, or trauma. Likewise, someone who has a constant and long-standing nystagmus may be able to detect and extract visual information between successive eye movements. Therefore, while the appearance to the officer may be abnormal, the person is not necessarily impaired.

References

1. Stapleton JM, Guthrie S, Linnoila M. Effects of Alcohol and Other Psychotropic Drugs on Eye Movements: Relevance to Traffic Safety. *J Stud Alcohol* 1986,47(5):426-432.
2. Leigh RJ and Zee DS. Chapter 1: A Survey of Eye Movements, p. 12ff. In *The Neurology of Eye Movements*, Fifth Edition. Oxford University Press: 2015.
3. Leigh RJ and Zee DS. Chapter 5: Smooth Visual Tracking and Fixation, p. 290ff. In *The Neurology of Eye Movements*, Fifth Edition. Oxford University Press: 2015.
4. Leigh RJ and Zee DS. Chapter 11: Diagnosis of Nystagmus and Saccadic Intrusions, p. 658ff. In *The Neurology of Eye Movements*, Fifth Edition. Oxford University Press: 2015.

5. Leigh RJ and Zee DS. Chapter 9: Vergence Eye Movements, p. 550ff. In *The Neurology of Eye Movements*, Fifth Edition. Oxford University Press: 2015.