

THE WETC PSYCHOLOGY NEWSLETTER

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Neuropsychology and Psychiatric Injuries

Ultimately, all issues in psychology and psychiatry get back to the nervous system and the brain. Among other things, the brain controls all thoughts, feelings, and behaviors. If we have a psychological disorder, it's the brain that is not functioning correctly. Additionally, if we have had something like a traumatic brain injury it is likely to show up in our behavior. Unfortunately, we do not know a great deal about how the brain works. In this regard, it is important to understand that it is not possible to overestimate the complexity of the human brain. More specifically, not only are there 100,000,000,000 neurons in the human brain, but there are about 1,000,000,000,000,000, or one thousand trillion synapses or connections between the various neurons. Considering those numbers it will be a very long time before anyone figures out precisely how the human brain works, what happens when things go wrong, and when they do, how to fix it. Nevertheless, we do know some things and for heuristic purposes a good way of thinking about the brain is that it is an extraordinarily complex computer with some programs that are built in prior to birth and others that are constantly being modified by experience.

When it comes to functioning, the brain is constantly monitoring and regulating the body's actions by continuously receiving incoming or sensory information and taking action in controlling bodily functions. Large portions of what the brain does, such as control breathing, heart rate and digestion, is done automatically without any conscious awareness. As evolution has progressed, brains have become larger and more complex resulting in increasingly variable and adaptive behavior. One of the physical differences between the human brain and those of other mammals is that the human brain is substantially larger when one considers the ratio of brain size to body size

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The brain is divided into a number of areas that generally correspond to its different functions. For psychological and psychiatric purposes a relatively limited, but powerful number of areas are important. One such area is the frontal lobes, a part of the brain located in the front of each cerebral hemisphere. It is the frontal lobes in general, and a portion of those lobes called the neocortex in particular, which are responsible for such functions as attention, thinking, memory, planning, self-control, reasoning and abstract thought. When it comes down to specific human functioning, that is where the action is

Unfortunately, despite advances in the neurosciences in the last 50 years, while statements about the relationship between specific brain physiology and psychological functioning are generally known, when it comes right down to it no one really knows specifically how these portions of the brain perform their complex human functions. We also do not understand how our brains work to produce either personality or psychopathology. Moreover, we are not close to understanding the mechanisms of consciousness or understanding if our behavior is the result of free will or determinism or if that issue is better explained in some other way. Perhaps another 100 years of study is needed, but that's just a guess. However, for the time being we have to be content with what the neurosciences have to offer, one branch of which is neuropsychology.

Neuropsychology as an academic endeavor is the study of various parts of the brain with the goal of understanding its structure and function as it relates to psychological processes and behaviors, including but not limited to those mentioned above.

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Experimental neuropsychology is an academic discipline that tries to relate structure to function. Clinical neuropsychology, or what those of us in the non-academic and medical-legal areas simply refer to as “neuropsychology,” is the application of knowledge of the structure and function of the brain to assessing and treating individuals who have suffered an injury or illness of the brain that has caused a functional problem. Neuropsychologists in this area often deal with closed head injuries caused by traumatic blows to the head, strokes, chemicals, and a variety of degenerative disorders such as Alzheimer’s disease, multiple sclerosis and Parkinson’s disease. As we shall see, neurology and neuropsychology are inextricably interwoven.

In trying to understand and help individuals with neurological problems that express themselves in behavior, neuropsychologists use psychological tests and other psychological assessment techniques to provide information about an individual’s neurological status. In this regard, it is well known that neuropsychological evaluations are performed for the purpose of assessing possible neurological decrements. As such, the results of neuropsychological examinations are often used by board certified neurologists who are attempting to assess neurological injuries and/or other conditions that lead to dysfunctions that are relatively subtle and that might not necessarily be revealed with even state-of-the-art imaging techniques that are typically used in radiological examinations of the nervous system such as CAT scans, PET scans or MRI’s. In this regard, neuropsychologists are very adept at finding these subtle decrements as well as measuring more obvious impairments.

In developing their specialized skills, neuropsychologists have obtained either a Ph.D. or a Psy.D. degree in psychology and have taken additional postdoctoral training in the area of neuropsychology.

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However, with minimal exceptions that are confined to a few DSM-IV-TR disorders, discussed below, when a neuropsychologist evaluates a patient, the tests and evaluation techniques they use typically do not provide any information concerning the likelihood of a psychiatric injury. Thus, while a neuropsychologist may draw some conclusions about a patient’s psychological status, their statements typically are not supported by the data found in a more traditional psychological or psychiatric evaluation. However, neuropsychologists can arrive at DSM-IV-TR diagnoses such as Dementia Due to Head Trauma (294.1), a disorder characterized by multiple cognitive deficits, including memory impairments, that is caused by some traumatic head injury such as what might occur in an automobile accident. Another possibility is a Cognitive Disorder Not Otherwise Specified (294.9), which would include findings of memory and/or attention impairment following a head trauma that has caused a concussion. More possibilities include a variety of dementias, which are characterized by multiple cognitive deficits including memory impairment due to a variety of physical problems including Alzheimer’s disease, various cerebrovascular diseases, infections due to HIV, traumatic brain injuries, brain tumors, etc.

While neuropsychologists can diagnose the disorders discussed above, those disorders completely overlap diagnoses that typically would be made by a board certified neurologist. Accordingly, to consider the diagnosis of those disorders as evidence of a psychiatric injury would be to support a double recovery for both a neurological injury and a psychological injury as a result of a single set of impairments. In short, although neuropsychological reports are a form of psychological reports written by psychologists they typically do not provide information about the possibility of a psychiatric injury that is distinct from a neurological injury, as the concept of a psychiatric injury is defined by Labor Code section 3208.3. However, that being said, clinical neuropsychologists also can provide information about how a neurological injury may affect and/or be affected by psychological variables. They also can provide information about whether a patient’s difficulties are likely to be due to brain pathology or emotional factors.

Although neuropsychological evaluations involve taking histories, reviewing medical records and interviewing patient’s, the main tool used in those examinations are standardized tests

These are tests that have been given to large numbers of the population so it is possible to compare the results of the person tested with the norms for individuals in their demographic group. Neuropsychologists typically administer a relatively large number of tests, called a battery, in a face-to-face manner. Test batteries are sometimes designed by the neuropsychologist to answer specific questions and at other times standardized batteries are used. Overall, most neuropsychological batteries measure problem solving, planning, organizational skills, selective attention, inhibitory control, intelligence, several aspects of memory, and language functions including speech, reading and writing.

There are also a variety of pre-arranged test batteries which combine a range of tests to provide an overview of cognitive skills. These are usually good early tests to rule out problems in certain functions and provide an indication of functions which may need to be tested more specifically. One such battery is the Luria-Nebraska

neuropsychological battery and another is Halstead-Reitan Neuropsychological Battery. Each contain a variety of instruments to measure different functions

In short, neuropsychologists are psychologists with advanced or postdoctoral training in evaluating brain functions and correlating specific cognitive and emotional impairments with specific brain pathology. As such, a neuropsychological assessment is most helpful in aiding a neurologist whose techniques, including CAT scans, PET scans and MRI's, cannot assess specific and subtle behavioral deficits by providing detailed information about the extent of an individual's impairment that is due to a neurological injury. However, except for some relatively minimal exceptions, the neuropsychologist's diagnostic findings are not particularly useful in assessing psychiatric injuries as defined by Labor Code section 3208.3 since they are mostly dealing with neurological injuries or pathologies.

This is the thirty-fourth of a series of monthly newsletters aimed at providing information about psychological evaluations and treatment that may be of interest to attorneys and insurance adjusters working in the areas of workers' compensation and personal injury. If you have not received some or all of our past newsletters listed on the next page, and would like copies, send us an email requesting the newsletter(s) that you would like forwarded to you.