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Nerves play key role in body's functions

By Brandi Schlossberg

Serving as the receivers and transmitters of information throughout our bodies, nerves play a crucial role in overall health and daily function. These bundles of fibers send signals to the brain, allowing it to exert control over both voluntary and involuntary bodily functions.

"A nerve is a biological electrical pathway to transmit information to and from parts of the body to perform and interpret sensation, movement and control," said Dr. Edward Perry, neurosurgeon and fellowship-trained spine surgeon with SpineNevada, which has offices in Reno, Sparks and Carson City.

"Nerves allow the brain to receive information about the world around us and inside our bodies in order to function appropriately and normally," said Perry, who is affiliated with Carson Tahoe Health.

According to Perry, one common nerve-related medical condition is neuropathy, an issue that affects the receiving or transmission of signals and can be caused by diabetes or a deficiency in certain B vitamins. Other conditions that can damage or otherwise affect the function of the nerves include degenerative spine disease, direct trauma, repetitive use injuries and pinched nerves.

"A pinched nerve occurs when pressure is placed on a nerve, usually from swelling due to injury or pregnancy, and can result in pain, weakness, numbness or paralysis," said Dr. Deven Khosla, a neurosurgeon with Sierra Neurosurgery Group, which is based in Reno with clinics throughout Northern Nevada. "Symptoms may be felt in areas far from



the actual site of damage — a phenomenon called referred pain.

"Referred pain can happen when the damage causes altered signaling to other areas," Khosla added. "Examples of this would be sciatica and disk herniation causing nerve root compression."

Experts report the risk factors for nerve problems or

conditions that affect the nerves include trauma, old age, a family history of neurodegenerative disorders, diabetes and alcoholism, among others.

When it comes to diagnosing nerve disorders, Khosla said doctors usually begin with a physical examination, which involves testing reflexes, walking and other directed movements, along with muscle weakness, proprioception and the sense of touch.

"This initial exam can be followed with tests such as nerve conduction study and electromyography," said Khosla, who is affiliated with Northern Nevada Medical Center. "When a spine cause is suspected, MRI exams may be ordered to diagnose the patient."

Once a diagnosis has been made, doctors can begin to put together a treatment plan. Among the treatments available for nerve problems are proper nutrition, diabetic care, physical therapy, palliative injections, procedures to block the nerves and corrective surgery.

"Surgical treatment is reserved for those patients with correctable causes of nerve or spinal cord damage," Khosla said. "Even though some nerve syndromes can't be reversed, physicians can treat pain with medications that reduce the sensitivity of damaged nerves."

People who are experiencing symptoms that seem related to a nerve condition may begin by seeing their primary care physician, then be referred to a specialist.

"Neuropathic conditions require a neurologist or neurosurgeon to see you and examine you carefully," Perry said, "to determine likely causes and order the proper tests for diagnosis."