

Spine Pain? Change Alignment

© Loraine Lovejoy-Evans, PT, DPT

Driving down the road and briefly letting go of the wheel can tell you a lot about your car's alignment. If the car pulls strongly to one side it is an indication that the alignment is not normal and continued driving without changing this will eventually cause early tire wear.

It is amazing to me while working with patients in my practice of physical therapy, how well they take care of their cars but expect their physical body to continue to work normally without adequate maintenance. With attention at the first sign of gentle pulling away from straight, a much quicker, less-costly tune up will be required and there will be far less damage. It will make the tires last much longer. However, waiting until the car has to be wrestled to maintain the wheels inside the driving lane can be quite costly in replacing all 4 tires or worse yet-a potential blow out of the tire resulting in a dangerous car accident.

The human body is the same in the sense that a normal alignment will keep the joints functioning optimally without damage. Like a car, the body sends signals through the nervous system to the brain to indicate there are problems in the alignment. The earlier these signals are heard and attended to, the less attention they will need and the less wear will occur at the joints. When we tune these signals out and make the task in front of us more important than our alignment, we set our system up for eventual failure.

Symptoms that a car is out of alignment can include: uneven or rapid tire wear; pulling or drifting away from a straight line; wandering on a straight, level road; or spokes of the steering wheel turned off to one side while driving on a straight and level road. Signs or symptoms that a spine and human frame is out of alignment can include: Waist band of pants sits at a funny angle instead of straight; one pant leg may appear longer than the other requiring different seam lengths; one shoulder may be significantly higher than another; glasses do not sit straight on the face; standing in shorts or no clothes shows one leg to be straight while the other is bent; a rib may protrude farther forward on one side compared to the other; skin folds are at differing heights from side to side; or pain with reduced strength or range of motion.

In a human, if the bony structure is not properly lined up or in plumb, the muscles that pull on the bones to move the body part are in a position of improper mechanical advantage so they will not work normally. This poor alignment leads to abnormal forces through parts of the joints, where the bones are actually hitting each other rather than where they should be spreading the forces evenly through the joint surfaces. If this poor alignment is allowed to continue without adequate correction it can lead to break down of the joint structures-soft squishy bits on the ends of bones (cartilage, tendons, or ligaments) and break down of the muscles with weakness and decreased ability to move through normal ranges of movement. Eventually this will lead to break down of the bony structures=arthritis (osteoarthritis). This can ultimately lead to so much pain and disability that a surgery may be required to correct the bony failure. There is no guarantee that surgery will make the pain or disability go away. I know of no warranty for the human body and have never heard a surgeon guarantee a certain fix.

In a car, wheel alignment is done through adjusting angles of the tires to make certain they are squared: perpendicular to the ground and parallel to each other. This truing will extend tire life to maximal and help the car track straight. Humans, on the other hand, can improve alignment by making simple adjustments to reduce the tension on muscles that are pulling the bones out of alignment. By restoring normal alignment faster, more joints can be prevented from going out of alignment so treatment is less intense and a shorter course is needed. If you walk around the car every day before getting in, you should notice a tire getting low and if you get air in it quickly you can prevent uneven wear from occurring. If you missed that it is running low, more damage can occur before you notice it. Some people might not notice until the wheel comes off.

The nervous system acts like the crew on the deck of an aircraft carrier. Yellow shirts direct the aircraft from the deck and above on the control tower; blue shirts move the aircraft; green shirts maintain the aircraft; red shirts are responsible for weapons; purple shirts take charge of fueling; and white shirts handle safety and health. The nervous system has receptors out in the periphery of the body (deck of the aircraft) using signals like walkie-talkies to communicate with the brain (back up to the control tower).

Each receptor type listens for a specific input and once it hears this it radios this signal back to the brain and waits for a reply of what to do about it. For example let's say, a yellow receptor in the nervous system is waiting for any sign of temperature change; blue listens for chemical irritation; green waits for vibration; red looks out for pressure changes; purple is observing for quick stretches; and white watches for sharp sensation. When the specific signal reaches the nervous system receptor-such as a sharp sensation-the white shirts sends this signal up and is VERY QUICKLY told by the brain to move the body part away from that sharp thing NOW! The colors are merely represented here as an example of how the system works-each of the nervous system receptors has a specific name but those get really confusing (proprioceptors, baroreceptors, or nociceptors etc). I think using blue, green and purple work better for my example.

When the nervous system receptors in the joint that are watching for a quick stretch get their signal, their response is to yell at the muscle and tell it to fire with a stronger contraction or recruit the muscle just like a Sargent in the US Army yelling at his rookies to stand up straight and stick out their chest. This recruitment of muscles is used all the time. It is the reason your leg swings after the tendon below the kneecap is hit with a reflex hammer. We also use it in every sport. When the quarterback in football, or pitcher in baseball bring the ball behind their back before they throw it-this helps recruit more strength to the triceps muscles so the arm straightens faster and more forcefully which throws the ball farther and faster. In a sprinter or swimmer, they squat right before the gun goes off to get a quick stretch in the quadriceps tendon to make the leg muscle more powerful. In the non-athletic body, it works the same way. When you bend over from the waist to pick up something and stand up suddenly, the nervous system heard this quick motion and tells muscles to fire. The muscles then contract and tighten, pulling the bones with the muscle so the joint can no longer line up appropriately which causes the joint to work in a less-than-ideal manner and over time can lead to dysfunction.

This information from the nervous system to the muscles can be turned down with gentle but very specific stretches, which can reduce the tightness of a muscle-thereby letting the bone slide back to a normal resting position and improve the alignment of the joints and overall spine. There are several ways this can occur, through manipulation of the spine by someone directly pushing or pulling on body parts for you, which works on the joint but not the nerve telling the muscle to fire. My suggestion is for you to learn some simple tools to improve this for yourself using an osteopathic stretching technique.

My favorite way to do this is through a very gentle stretching program. By holding a stretch in a non-painful, supported manner (i.e. using pillows to hold the body relaxed) for a very long time (90 seconds) this can reset the meter from the nervous system to the muscle and improve alignment. Learning to do this technique takes some time and practice, but once you have it mastered it can save you from increasing pain and dysfunction. Primarily, it allows you to take control of your own life and physical health.



Before

After

Gary states; "I have noted a significant reduction in back pain and I now have the ability to stand straighter. This permits me to conduct choirs, practice and perform at the piano, and continue our forestry program (limbing trees, splitting wood, stacking wood, etc.). I can resolve most of the symptoms through the methods I have learned in physical therapy. I had gone through chiropractic therapy for 2 years and still could not stand up fully and the pain persisted. I am now pain free and standing tall. I would, and do, recommend this program to all of my friends."



Before

After