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## Prevent Arthritis and Cure Back Pain

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### Arthritic Pains

The separation of low back pain from rheumatoid joint pains elsewhere in the body is inaccurate. The mechanism of pain production in these joint conditions seems to be the same. They denote the same physiological phenomenon in the body. Their "regional" separation is a matter of convenience for the involvement of different specialties. For the one, one goes to a rheumatologist and for the other to an orthopedic surgeon or a chiropractor. The outcome is the same in both, pain management rather than its cure. Basically both conditions have the same pathology, except they are in different locations.

About 50,000,000 Americans are said to suffer from some type of arthritis pain. At any time, about 30 million people suffer from back pain. Each year a few million people are said to be functionally disabled from back pain. In the U.S., \$16 billion is annually spent on back pain treatment. \$80 billion is lost annually in productivity and wages as a result of back pain. These commonly quoted statistics, even if partially accurate, indicate a devastating problem for the American people. Statistically, the same ratios of occurrence to gross population may be representative of what goes on in other industrial countries.

### New Insight Into the Phenomenon of Pain

In the chronically painful joint conditions of the lower spine or the joints of the hand and legs, the actual chronic and recurring pain itself is a signal of *water* deficiency in the area where the pain is felt<sup>1,4</sup>. The pain occurs because there is not enough *water* circulation to wash out the local acidity and the toxic substances. These regional joint pains are one of a series of newly understood emergency and crisis thirst signals of the human body. For more information read the book, *Your Body's Many Cries for Water*<sup>1</sup>, (available through <http://www.arthritis-trust.org>). It depends on where the localized drought has settled in before the pain is felt. Low back pain has two components. One, the muscle spasm that causes the pain. Two, the disc degeneration that puts more strain on the tendons and ligaments in the spinal column. Either component of the back-pain-causing conditions is initiated by the onset of chronic dehydration.

Basically, all joint surfaces possess cartilage padding. Their bone structures are separated by a firm layer of cartilage which holds a vast quantity of water in its composition. It is the water content of the cartilage that provides it with the ability to glide over the opposing surface and facilitate the necessary lubrication for the joint movements. Thus, prolonged dehydration that leaves the cartilage short of water will produce a greater friction and sheering stress at the cartilage contact points in the joint. In the process of shunting more circulation to the joint through its outer capsule, for its lubrication and repair process, pain is also produced. This joint pain is an indicator of local dehydration and the inability of the joints to cope with the extra

### Intelligence Behind the Designing of the Body

When the cartilage is dehydrated its gliding ability is decreased. The cartilage cells sense their dehydration and begin to give out their alarm of pain. Because they would soon die and peel off from their contact surfaces when they are used in their dehydrated state. The environment of cartilage is alkaline. In dehydration it becomes acid. This acidity will sensitize the nerve endings that will register pain.

You all know that blood is made in the bone marrow. The actively growing blood cells in the bone marrow take priority over the cartilage at the contact surfaces of the bone for the available water that goes through the bone structure. The blood and serum circulation to the cartilage covering any bone is from its base and through its connection to the bone. The serum that reaches the cartilage will bring with it the necessary raw materials that are needed for the replacement of the layer that will wear-off as a result of friction and sheering stress with its opposite cartilage contact points. When pain occurs in symmetrical joints, it is the indication that the brain assesses the strain to be equal for all joints and therefore assumes these joints are not fully prepared to endure a particular level of pressure until the one or all of them are fully hydrated. This type of pain has to be treated with a regular increase in water intake until the cartilage is fully hydrated and washed of its acidity and toxins. Often the pain travels from joint to joint, if it does not appear at the corresponding joints in the other limb at the same time. "Chronic pains" have two components: local and central nervous system (brain) registered pain. The locally felt pain is relieved by the intake of analgesics. The brain level pain is not relieved by analgesics. These pains are more easily relieved by the intake of adequate water.

### What Happens to a Dehydrated Joint?

Cartilage is a gelatinous living tissue, the cells of which like to live in an alkaline environment. The alkalinity of the medium is dependent on the flow of water through its substance that would wash the acid away. *Salt* helps to extract the "acidity" from the inside of the cartilage cells and pass it into the water that will carry the "acid" away from the medium. This is a constant process. For this process to be effective, two elements are vital, water and salt. Adequate salt supply is essential to prevention of "arthritis pain," be that pain in the joints of the hands or the joints of the spine. It is the salt level in the serum that also builds up its fluid volume and makes it abundant for its flow through the cartilage.

The joint cartilage cells begin to die at a faster pace because of the constant high acidity and abrasive friction in the dehydrated joint. The dying cells need to be replaced. When there is damage to the cartilage because of its over use and under repair, the sensors in the area will begin to indicate a desperate need for urgent reparations. Under such circumstances, although ineffectively, attempt is made to supply the water needed by the new cartilage cells from the blood supply that feed the capsule of the joint. This action only helps supply some lubrication inside the joint but is not all that effective in maintaining the rate of cartilage growth from its base to replace the dead tissue. In the lining of the joint capsule there are certain cells that have the power to secrete local hormones to stimulate repair activity at the same time as they begin to produce pain. Several things happen when these hormones are secreted.

1. The dying tissue is broken up from inside the cells and the broken fragments are extruded only to be ingested by the "garbage collectors" and to be recycled.

2. More blood circulation is brought to the area, even if it has to come to the nearest sites in the fibrous capsule covering the joint. It is the swelling and stretch in the joint capsule that causes stiffness and eventually added pain.

3. There is an associated protein breakdown and more amino acids are mobilized for the "pool" that may be needed for the repair of

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4. In the inflammatory environment inside the joint, some white cells begin to manufacture hydrogen peroxide and ozone for two obvious purposes. One, to keep the joint space sterilized and prevent bacteria from infecting the joint cavity. Two, to supply with adequate oxygen to the cells that are engaged in the repair process and, because of their local isolation and the stagnant nature of the inflammatory exudates, have less of an access to the blood oxygen.

5. There is a local "remodeling growth factor" that promotes the growth of tissue along the line of greater force.

6. Knowledge gained from its on-going experience by the brain is put to use for the rest of the body. The remodeling and "fortification" of the other similarly structured joints will also be carried out. This seems to be **the reason why rheumatoid joints of the hands will often show a mirror image inflammation and eventual deviation of the actual joints on both sides.**

#### **Back Pain**

In the spinal column, the weight of the body is supported by the 23 discs between 24 vertebrae. The discs are housed inbetween the plates of cartilage that are stuck to the opposing flat surfaces of the vertebrae. The *end-plate cartilage* attached to its flat weight-bearing surfaces is part of the structure of each vertebra. During the movement of each of the spinal vertebrae, the disc is meant to minimally glide between the *end-plate cartilage*, located on its upper and lower surfaces. Seventy-five percent of the weight of the upper body mass is supported by the hydraulic properties of the discs that absorb and hold water in their central cores. In dehydration (not drinking water on a regular basis) and when the gross body mass constantly squeezes out the water content of the discs, not enough of the lost water can be replaced. The dehydrated discs with their shrunken cores will gradually become less supportive of the weight of the body. The discs lose their wedge quality and the spinal joints become less firm. In their well hydrated and taut state, the discs themselves do not physically move, but get continuously squeezed of water, and then absorb it all over again and expand to function as the natural shock absorbers that they are.

In their dehydrated state, the discs can be made to shift physically backward and press on the local nerves. When this happens in the lower spinal region, the pain becomes projected into the one or the other leg. This pain is called *sciatic pain* and is far more serious than the local pain in the back. It means the spinal joint structure has become so disorganized that one of the discs that have to shock absorb for the spine -- in 95% of cases the lowest lumbar disc that has to shock-absorb for the spinal column above it -- is now out of its normal position and is pressing on the nerve. Dehydration and bad posture are the basic factors involved in the production of this condition.

At extreme and prolonged dehydration, the disc substance and their padding quality is drastically reduced until the vertebrae begin to touch one another at their *facet joints*. Facet joints are four small vertically positioned joints, two on either side of the back of each vertebra. These joints anchor each vertebra to its counterpart above and below. The facet joints are only there to steady the movement of the vertebra when they twist and turn. They are not supposed to become weight-bearing in the same way as the flat parts of the vertebra. When as a result of the loss of supportive padding of the discs, the facet joints become weight-bearing, true and devastating back pains begin. The fluid circulation system to the disc space and the disc core depends on the creation of "*intermittent vacuum*" in the disc space. The process involves a series of movements that include slow and rhythmic bending of the spine with its convexity forward (bending the body backward as opposed to bending the body forward). The spinal column is made of 24 vertebrae and 23 discs. The design of the spinal column is such that it packs these components in a state of vacuum.

Vacuum provides the adhesive force that holds these parts together and fills all of the empty spaces in each joint with water. The vacuum sucks water in and the pressure of weight squeezes it out -- the mechanism of circulation in the vertebral joints. This natural process is enhanced during the walking movement. Of course, the body must be well hydrated for the water to leave the circulation and go into the disc spaces when the force of vacuum in the joint spaces is increased. By the way, I have developed a new self-help posturing technique for "*vacuum reduction*" of sciatic pain (even herniated disc causing paralysis of the leg) in less than one hour. You need to read my back pain book, or see the video I have prepared on back pain to learn the technique and permanently save yourself from back pain and its complications. (See *How to Deal With Back Pain & Rheumatoid Joint Pain*, F. Batmanghelidj, M.D.<sup>2,3</sup>, available through <http://www.arthritis-trust.org>).

#### **Osteoarthritis**

When the cartilage in the joint dies, the bone to bone contact begins, be it in the back, the legs, or the hands. Whereas the cartilage cells had a water-given resilience and survived the trauma of movement against one another, the hardened bone surfaces produce a friction force against one another. This friction force will produce an inflammatory process that destroys the bone surfaces. Thus osteoarthritis of the joint will establish -- a second stage process to dehydration that first destroyed the cartilage surfaces.

#### **The Simplest Prevention and Cure of Them All**

The body needs at least two quarts of water daily. Water itself as opposed to caffeine-containing fluids and alcoholic beverages that further dehydrate the body. Water should be taken at regular intervals. Its intake should become a habit. One cannot rely on the thirst perception to recognize the urgency to drink water. As we grow older, we lose our thirst perception. We begin not to recognize that we are thirsty. My rule of thumb: for every ten 8-ounce glasses of water one should add about 1/2-1/4 teaspoon of salt to the daily diet; if the food is already salty, the lesser amount. If the food is bland, the full measure. Frequent cramps in the leg muscles should be taken to mean salt shortage in the body.

With the new information about the emergency calls of the body for water -- and the role of water and salt in the integrity of joint functions -- I can predict a virtual disappearance of back pain and rheumatoid joint pains as we enter the 21st Century. We now have the insight and knowledge as to why these pains did occur, and can prevent their occurrence. These pains should be in the future only in the dictionaries and medical textbooks and not be seen in our joints and devastate our bodies. To achieve such an ideal situation, we need to learn as much as we can about the many roles of water in our body. We need to learn about chronic dehydration and what it does to the body. The information is now available and can be accessed by further reading.

#### **References**

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