Your Health Reference Sheet
Topic: Arthritis
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Over 50 million Americans suffer from this painful, debilitating, degenerative, and often crippling disease. Arthritis, meaning joint and connective tissue inflammation, is associated with over 100 diseases that attack the joints and the muscles. These diseases range from autoimmune disorders; degenerative bone diseases; muscular diseases such as rheumatism, which is also known as fibromyalgia; and infectious diseases such as bacterial joint infections, fungal infections, and even gout. However, while arthritis is primarily associated with joint inflammation, its presence is an indicator of an even more serious problem—chronic inflammation. Chronic inflammation can affect the blood vessels, the kidneys, the liver, the skin, the eyes, and even the brain, and can strike at any time and at any age. It's for this reason that arthritis isn't considered a simple disease either in form, in diagnosing, or in how it's treated; because, in actuality, arthritis isn't a localized disease but rather a pervasive problem. The prevalence of arthritis and other rheumatic conditions associated with arthritis is very high in the United States and is projected to increase significantly as more Baby Boomers age.

General Description

If we're to understand arthritis, then we must begin by understanding the biomechanical mechanisms of it, meaning that we must understand the anatomy of a normal, healthy joint and the makeup of inflammation. A normal joint is held together by a joint capsule, which is designed to allow smooth movement between adjacent bones. A synovial membrane encloses the joint space itself. This thin membrane secretes synovial fluid, which lubricates the space between the cartilage-covered, joint-forming bones. The cartilage contains no blood vessels or nerves and receives its nutrients by diffusion from the synovial fluid and from the bone. Cartilage is a gel-like substance that acts like a shock absorber, and is essential for smooth and easy movement of the joints. Cartilage gets its elasticity from collagen fibers and its sponge-like quality from water. It's held together by a structure of big molecules called proteoglycans. Special cells in the cartilage produce the collagen and proteoglycans; but, as we age, the ability to restore and maintain normal cartilage structure decreases.

Inflammation is a living tissue response to mechanical, chemical, and immunological changes. Normal aging results in the excessive production of autoimmune factors that destroy joint cartilage and other tissues in the body. Inflammation is partially characterized by high levels of arachidonic acid products, which are metabolized along with two different enzymatic pathways: cyclooxygenase (COX) and lipoxygenase, leading to prostaglandin (PGE2) and leukotriene (LTB4). Researchers believe these are the most important mediators of inflammation because

they stimulate the secretion of collagen breakdown enzymes, and inhibit the formation of proteoglycans—the building blocks of cartilage.

Different Types of Arthritis

- *Osteoarthritis*: This is the most common form of arthritis and appears most often in weight-bearing joints where large amounts of cartilage are found. This includes areas like the knees, hips, and spine, and in the hands. Osteoarthritis is also referred to as degenerative arthritis. It develops slowly and usually affects only one side of the body. The first signs of osteoarthritis typically show up as morning stiffness, especially in damp weather, then pain in motion that worsens with prolonged activity. Osteoarthritis is primarily a condition of age that occurs because of the decades of use causing degenerative changes in the joints and because of the body's inability to repair itself. Although it affects more women than men, a man who is 20 pounds overweight doubles his risk of developing osteoarthritis in his knees and hips. *Injuries and general wear and tear on the joints, as well as food allergies, are common contributors to the development of osteoarthritis.*

- *Rheumatoid Arthritis (RA)*: This form of arthritis affects more than six million Americans, the vast majority of them being women. It usually begins between the ages of 25 and 50 and tends to affect the same joints on both sides of the body. RA is a chronic, autoimmune, inflammatory disease in which rogue immune cells attack the synovial membranes that cushion the joints. When this membrane becomes inflamed, it invades and damages nearby bone and cartilage resulting in pain, stiffness, loss of movement, and eventually destruction of the joints. However, with RA, the damage goes even farther because it causes inflammation of the blood vessels and the outer lining of the heart and lungs. *Common causes of RA include food allergies, calcium depletion, adrenal exhaustion, and prolonged use of aspirin or corticosteroid drugs that eventually impair the body's own healing powers*.

- *Juvenile Rheumatoid Arthritis (JRA):* This form of arthritis also causes a persistent inflammation of the joints, which is similar to RA in adults; however, it begins before 16 years of age. The cause is believed to be hereditary. This form of arthritis affects only a few of the joints in about 40 percent of the children who have it, and affects many of the joints in another 40 percent of the children affected by it. In the remaining 20 percent, it's systemic, meaning it affects the whole body. When JRA is systemic, it's accompanied by a fever and is diagnosed as a condition called Still's disease. Inflammation in only a few joints typically appears before the age of four (usually in girls) or after the age of eight (usually in boys). The areas which can be affected include the