

# Arthritis

By Michael Infante

## Introduction

Arthritis is a common and ailment affecting as many as 1 in every 100 Americans with legitimate estimates predicting a rapid increase on this figure in the next 10 to 20 years. Arthritis (which is a general term for a wide class of conditions typically relating to tendon or joint inflammation) is a source of great pain and hardship for millions of Americans of all ages and for a portion of this population is debilitating to that point that it has essentially made them physical invalids. Beyond the immeasurably quantity of human suffering caused by arthritis is the mountainous financial losses accrued by this essentially paralyzing condition and its traumatic impact on growth and development of young children. To make matters worse, treatment for many types of arthritis are limited in their number and effectiveness, and in many cases unidentified sources of affliction make pain management the best and only course of action. Skeptical attitudes regarding the seriousness of these conditions (based on ignorance of their true damage to society and the individual have lead to incomplete research and slow progress in “curing” or at least more progressively treating this incredibly damaging disorder.

## Section 1: Background and Problem Statement

(Healthy People 2010 did not have a section on arthritis)

- Web site #1: Centers for Disease Control and Prevention (Score: 28)
- Web address: <http://www.cdc.gov/arthritis/>
- Information: This Web site had information regarding the impact of arthritis on heart disease (it has a proposed and statistically evidenced role as a “barrier to potential physical activity” amongst adults trying to manage the symptoms of heart disease, a connection that is intuitively obvious although until recently unrecognized.) It also lists chronic disease indicators for those with arthritis and discusses risk factors both modifiable (infection, occupation and obesity for example) as well as non-modifiable such as age gender and genetics, in which cases the elderly, women, and those with a family history, respectively are at an increased risk. It has a frequently asked questions page where it addresses questions such as; what are the most common types of arthritis (A: in order: osteoarthritis, gout, fibromyalgia and rheumatoid arthritis) and is overall an excellent source of information regarding all matters relating to arthritis.
- Web site #2: Arthritis.com (Score: 30)
- Web address: <http://www.arthritis.com/>

- Information: Arthritis.com breaks down two of the most common and troublesome forms of arthritis in the United States and explains their very different causes, risk factors and treatments. Osteoarthritis or OA, it is explained “begins with the breakdown of joint cartilage, resulting in pain and stiffness” People with “stressful jobs requiring kneeling or squatting” are at a particularly high risk as OA most commonly affects joints taxed by work or manual labor such as finger knees, hips and the spine and in fact when it is found elsewhere it is usually indicative of unusual stress or previous injury. Rheumatoid arthritis on the other hand can be found in many parts of the body, including, “the blood, lungs and heart” as it is due to inflammation of joint lining (synovium) which can cause pain, swelling, warmth, redness and most seriously lack of normal muscle movement. Unlike OA which is a strictly impact related malady; RA is associated with fever, abnormal lumps of tissue, holistic pain and a general feeling of discomfort known as malaise. This Web site is limited in its scope though very detailed and informative on the couple of topics it does cover.
- Web site #3: WEBMD.com (Score: 28)
- Web address: <http://www.webmd.com/fibromyalgia/guide/fibromyalgia-overview-facts>
- Information: WEBMD’s fibromyalgia page includes information about one of the most “misunderstood and misdiagnosed” forms of arthritis. Fibromyalgia like all types of joint pain is characterized by joint pain and fibromyalgia patients like RA sufferers experience “wide-spread” muscle pain. What is unique about fibromyalgia is that it can league to depression, social isolation, “incapacitating fatigue”, incontinence, headaches and even insomnia. The cause of fibromyalgia is not known and although scientists have discovered a link between fibromyalgia patients and an imbalance of the nerve chemical serotonin little is known about how this might affect the disease which creates pain “in response to stimuli not typically considered painful” and as a result there is no cure but only a wide array of treatments ranging from oral medications to acupuncture, hypnosis, and chiropractic manipulation all in an effort to allay the pain of fibromyalgia sufferers. I found this Web site to be incredibly informative and comprehensive in its coverage of the mysterious disease of fibromyalgia.
- Web site #4: Arthritis.org (Score: 19)
- Web address: <http://www.arthritis.org/ja-alliance-main.php>
- Information: As well as having some of the basic information found on the other arthritis Web sites, Arthritis.org has an impressive section pertaining to juvenile arthritis, an often overlooked demographic of arthritis patients who nonetheless number nearly 300,000, a figure that makes arthritis one of the most common childhood diseases. Juvenile arthritis has no known causes can be problematic to diagnose and unfortunately can be particularly painful and tragic because the already extensive complications of adult arthritis are amplified and exacerbated by the fact that a child skeletal and muscular system are in a constant state of flux. The aforementioned exercise limitations often placed an adults by arthritis are especially troublesome for children who require activity

to promote healthy muscular development. Additionally the emotionally damaging component of disability is often hardest on children who lacking adult maturity are said to be in many cases most affected by the social and emotional challenges presented by the disease. I found this Web site to be very thorough and I would imagine useful for anyone dealing with JA.

## Section 2: Research

- Web site #1: “The Mediterranean diet model in inflammatory rheumatic diseases (via <http://www.ncbi.nlm.nih.gov/pubmed/>) (Score: 14)

Web address:

[http://www.ncbi.nlm.nih.gov/pubmed/19370182?ordinalpos=12&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed\\_ResultsPanel.Pubmed\\_DefaultReportPanel.Pubmed\\_RVDocSum](http://www.ncbi.nlm.nih.gov/pubmed/19370182?ordinalpos=12&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_DefaultReportPanel.Pubmed_RVDocSum)

- Summary of the research: The research on this Web site revealed that the Mediterranean diet model or a pattern of eating closely tied to the Mediterranean region (which includes Greece and Italy) which has a “main focus” on “foods from plant sources, limited meat consumption, small amounts of wine and olive oil as a main fat source” has been proven beneficial for not only rheumatoid arthritis, but diabetes, obesity, cardiovascular disease and cancer. The key ingredient to this is the olive oil, which contains oleic acid and a recently discovered molecule known as phenolic compounds olencanthal, an anti-inflammatory agent (inflammation being the problematic aspect of arthritis.) Researchers suggest that this type of diet could be a useful support to therapeutic treatment of arthritis patients.
- Web site #2: Rheumatic diseases presenting as sports related injuries. (Via <http://www.ncbi.nlm.nih.gov/pubmed/>) (Score: 15)
- Web address: [http://www.ncbi.nlm.nih.gov/pubmed/18937522?ordinalpos=2&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed\\_ResultsPanel.Pubmed\\_DefaultReportPanel.Pubmed\\_RVDocSum](http://www.ncbi.nlm.nih.gov/pubmed/18937522?ordinalpos=2&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_DefaultReportPanel.Pubmed_RVDocSum)
- Summary of the research: The research in this case reveals that many patients who fit the description of “young healthy athletes” seeking consultation for injuries related to a specific activity have increasingly been found not to have any “traumatic or mechanical” conditions typically associate with true “injury” but rather arthritis related conditions or other systematic pathologies such as rheumatic diseases that “initially mimic sports related injury.” Lower back pain often reported as injury has in fact in many cases turned out to be rheumatoid arthritis, neck pain thought to be related to sport has been found in many cases to be an atypical presentation of enclosing spondylitis gout, chondrocalcinosis, psoriatic enthesopathy and early rheumatoid arthritis. Doctors, it is then suggested when treating injury should more closely examine the “mechanism of injury, or lack thereof” before ruling out arthritis as a possible culprit, should employ and

that a “more complete workup ... including radiographs, magnetic resonance imaging and laboratory testing for auto antibodies” could more accurately identify inflammatory syndrome in young athletes

- Web site #3: An African ancestry-specific allele of CTLA4 confers protection against rheumatoid arthritis in African Americans. (Via <http://www.ncbi.nlm.nih.gov/pubmed/>) (Score: 13)
- Web address:  
[http://www.ncbi.nlm.nih.gov/pubmed/19300490?ordinalpos=1&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed\\_ResultsPanel.Pubmed\\_DefaultReportPanel.PMC\\_FreeArticle\\_ad&linkpos=3&log\\$=pmcad1\\_article](http://www.ncbi.nlm.nih.gov/pubmed/19300490?ordinalpos=1&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_DefaultReportPanel.PMC_FreeArticle_ad&linkpos=3&log$=pmcad1_article)
- Summary of the research: This study unearthed an “ancestry specific allele” (CTLA4) commonly found in African Americans. European and Asian Americans have long accounted for the majority of rheumatoid arthritis patients in the United States with a significant 1% of their populations said to be affected. Though it was unknown why African-Americans seemed to be less affected by the disease, the CLTLA 4 allele may hold the answer. The allele which was shown in this clinical study to have preventative qualities and also to exist far more often in “black Africans” showing up in a much as 9% of a studied sample population of the Yoruba people and only twice in one thousand European Americans used as a control group. This is an interesting study as it potentially explains the previously mysterious resilience of African Americans to rheumatoid arthritis and can help to raise awareness amongst European and Asian Americans about their increased risk.
- Web site #4: Myasthenia gravis associated with etanercept therapy. (Via <http://www.ncbi.nlm.nih.gov/pubmed/>) (Score: 14)
- Web address:  
[http://www.ncbi.nlm.nih.gov/pubmed/19373885?ordinalpos=1&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed\\_ResultsPanel.Pubmed\\_DefaultReportPanel.Pubmed\\_RVDocSum](http://www.ncbi.nlm.nih.gov/pubmed/19373885?ordinalpos=1&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_DefaultReportPanel.Pubmed_RVDocSum)
- Summary of the research: The research in this article indicated that etanercept, which is an “antagonist of tumor necrosis factor” and a popular medication used to treat rheumatoid arthritis, was found to have prompted the development of myasthenia gravis in a patient taking the drug, who would later experience an abatement of symptoms following the abandonment of drug treatment. This is an interesting and unfortunate development for several reasons, first because arthritis is an ailment for which there are unfortunately few effective forms of treatment, etanercept among some of the more successful and because etanercept had actually been propose as a treatment for myasthenia gravis, a serious condition highlighted by weakness of the muscles, sometimes localized but often affecting large parts of the human muscular system. If Etanercept were to be conclusively liked to such a serious side effect (it was previously believed to have none) it would be a blow to the medical efforts of alleviating and

addressing the symptoms associated with arthritis, although clearly more research is needed.

### Section 3: Statistics

- Web site #1: California Department of Public Health (Score: 25)
- Web address: <http://www.cdph.ca.gov/programs/CAPP/Pages/default.aspx>
- Summary of the statistics: The California Department of Public health estimates that more than 46 million Americans are affected by arthritis (an astounding number that depending on which national census numbers you choose to compare it to places this at around 20% of the population.) 22 % of Californians (note the similarity between this figure and the national average as a validation of the sample size) suffer from Arthritis related conditions with roughly a 3/5 majority composed of female patients. It is estimated by the CDPH that 27 million 133,000-336,000 Americans suffer from lupus, 3 million suffer from gout, 5 million are affected by fibromyalgia, 1.3 Million have Rheumatoid Arthritis, and whopping 27 million Americans have osteoarthritis a fact that makes it by far the most common arthritic condition in America.
- Web site #2: Arthritis: Timely Treatments for an Ageless Disease (Score: 29)
- Web address: [http://www.fda.gov/fdac/features/2000/300\\_arth.html](http://www.fda.gov/fdac/features/2000/300_arth.html)
- Summary of the statistics: This Web site has some very troubling statistics that are easy to understand and quite plainly spell out some of the grimmer realities of arthritis. While most people believe that arthritis affects only the elderly, the truth of the matter is that 3/5s' of arthritis patients are under the age of 65. Additionally the FDA estimates that the 40 something million people (46 according to the California survey, though it is listed as only 42 here) affected by arthritis will shoot up to 60 million by the year 2020 with an estimated 12 million sufferers qualifying as "disabled." Interestingly the FDA points out that while arthritis is an often overlooked disease because it is not lethal, the estimated cost, of health care and disability pay related to arthritis and other arthritic conditions comes to 65 billion annually or the equivalent of a moderate recession.
- Web site #3: Center for Healthy Living: Western Washington University (Score: 21)
- Web address: <http://www.wvu.edu/healthyliving/education/arthritis/statistics.shtml>
- Summary of the statistics: According to Western Washington University, although arthritis itself is not lethal, arthritic conditions have been found to be related to 9,500 deaths each year as well as 75,000 hospitalizations. There are 8 million people in the United States with physical limitations due to arthritis and 36 million each year will require ambulatory care visits. Overall 49 million people have at least self-reported

(diagnosed or otherwise) and most (more than 50% of people over the age of 65 would, if examined under an x-ray find arthritis in at least one joint. I thought these statistics were very clearly displayed and helped to give a solid picture of the range and scope of arthritis as serious health problem.

- Web site #4: NHIS Arthritis Surveillance (Score: 27)
- Web address: [http://www.cdc.gov/arthritis/data\\_statistics/national\\_data\\_nhisp\\_text.htm](http://www.cdc.gov/arthritis/data_statistics/national_data_nhisp_text.htm) (I realize I already used the CDC page once but this is actually NHIS information that was merely linked to this page, and even at the risk of losing credit for a repeat address I thought this information was too significant to not include.)
- Summary of the statistics: The statistics on this page which I thought were very plainly and helpfully presented (in the form of a table) go a step further than most arthritis statistics pages, which merely give information about the number of people affected because it actually explores the extent to which people are affected. This is important I believe because I think there is a misconception that arthritis is thought of as a painful nuisance rather than being legitimately debilitating disease. The NHIS reports however that in addition to the 4.8 million people who report trouble “climbing” (a ladder) the 3.6 who have trouble “carrying” a ten pound wait and the 7.8 who cannot stoop or bend over, there 2.8 million people who have trouble sitting down and 1.8 who report difficulty grasping small objects. I thought that this was very significant because I don’t believe many people know how serious some forms of arthritis can be.

#### Section 4: Consumer Information

- Web site #1: Consumer Information Center: Rheumatoid Arthritis. (Score: 24)
- Web address: [http://www.pueblo.gsa.gov/cic\\_text/health/rheumatoid/current.html](http://www.pueblo.gsa.gov/cic_text/health/rheumatoid/current.html)
- Summary of the information: This Web site has a wealth of information regarding new scientific advances and breakthroughs in the field of diagnosing and treating rheumatoid arthritis. It explains a new approach by the medical field towards RA with a focus, on why the disease develops as means of understanding how to prevent it and how studies with sibling rats are helping scientists better understand possible genetic factors that may play a role in the development of RA, a branch of thinking that had previously been neglected. The research goes on to talk about how vaccinations and proposed biopharmaceuticals are in development so that one day scientists may not only able to treat RA but genetically predict its occurrence and it is hoped, prevent it altogether. Although this is certainly exciting and informative information, it assumes a modest knowledge base in the subject (had this been the first Web site I researched rather than the 13<sup>th</sup> I myself might have been lost) therefore I would not recommend it as a resource to someone who knew nothing about RA.

- Web site #2: Harvard Medical School: Top 10 Things that don't cause Arthritis.  
(Score: 22)
- Web address: <http://hms.harvard.edu/public/disease/arthritis/page3.html>
- Summary of the information: This page is actually a branch of Harvard's main Arthritis page, which to answer the posed question, I believe is an excellent source of information to an arthritis laymen as it explains the disease and its various manifestations in a comprehensive straight forward manner with no assumption of previous knowledge on the part of the reader. I chose to link this particular page because it dispels some common misconceptions about the causes of arthritis, information that I think is particularly important for those just learning about the disease. Some of the myths dispelled are that cracking knuckles and cold weather can exacerbate the disease (there is no evidence of this) that inadequate calcium intake is a source of arthritis (osteoporosis? Yes. But not arthritis) and that overuse can lead to arthritis (the Web site points out that if this were true right handed people would suffer more often in their dominant hand, but in practice this is not the case.)
- Web site #3: [rheumatology.org](http://www.rheumatology.org) Arthritis Information Sheet: Reactive Arthritis.  
(Score: 22)
- Web address:  
[http://www.rheumatology.org.au/community/documents/Reactivearthritis\\_000.pdf](http://www.rheumatology.org.au/community/documents/Reactivearthritis_000.pdf)
- Summary of the information: From a consumer information standpoint this was one of the best Web sites I found, in its heading it identifies its purpose as a, "sheet ...written for people affected by reactive arthritis. It provides general information to help [them] understand how [they] may be affected" The site lives up to this mission statement as it meticulously and relatably breaks down one of the least "covered" (by other medical authorities) branches of arthritis in an easy to follow question and answer format. The site covers the symptoms of reactive arthritis (pain in the joints and ankle, pain in tendons, and back, rashes on the soles of feet and palms, and pain and redness of the eyes) as well as its causes (most commonly Chlamydia bacteria resulting from sexual intercourse or salmonella as a result of food poisoning) and its treatments (typically anti inflammatory drugs or antibiotics.)
- Web site #4: [jointhehealth.org](http://www.jointhehealth.org) (Score: 20)
- Web address: <http://jointhehealth.org/aboutarthritis-diseasespotlight.cfm?id=9>
- Summary of the information: This page is about Reynaud's phenomenon a significant secondary disorder related to arthritis. It is worth mentioning in a paper on arthritis because it is a very serious affliction of many sufferers of the arthritic condition lupus, and a malady that comes up again and again in literature related to arthritis. The Web site explains that Raynaud's phenomenon is "a condition, in which there is an exaggerated blood vessel tightening in response to cold or emotional stress, restricting blood flow to

certain areas of the body-most often the fingers, but sometimes the toes, ears, or the end of the nose.” This is an obviously serious condition because lack of blood flow can lead to decreased sensation, response and function of body parts and in very serious cases necrosis (or death of living tissue) and if left untreated gangrene. With the influence of modern medicine the latter consequences are very rare but nonetheless Raynaud’s remains a serious complication for those already suffering with other forms of arthritis. I believe this complex disorder is well presented even to the untrained eye on this Web site.

## Conclusions

- Section 1: Background and Statement
  - Best Web site: Center for Disease Control and Prevention
    - This is not only the best Web site in this section but also the best Web site I researched and one of the best health Web sites I came across. It has a libraries worth of cross referenced and medically reviewed information on all things related to health and arthritis, virtually every other Web site I came across recommended going to this page and with good reason, it is in my experience the definitive online source for medical information.
  - Worst Web site: Arthritis.com
    - I really tried not to use any Web sites that I didn’t think were good, so in this case, “worst” is a relative term. This Web site actually had a lot of information about the topics covered but it earns the title of “worst” because of the four Web sites listed, it was the most limited in its range of coverage, touching only on two of the many forms of arthritis.
- Section 2: Research
  - From the research portion of this paper I learned a great deal. I learned about how diet can help boost the body’s immunities to arthritis as well as a host of other inflammatory disorders and that yet unknown molecules found in the foods we eat may hold the key to preventing immune system vulnerabilities that lead to these painful and debilitating disorders. I learned that many of the “injuries” diagnosed in the United States each year are not actually trauma related incidents but the result of systematic diseases that until recently had been unrecognized in their presence in the lives of not only the old and infirmed but in the young and active. I learned how our genetic code itself can predispose or protect us from and how this knowledge may one day help us realize the goals of effective genre therapy, and I also learned that even in the modest selection of treatments available to us there are limitations, complications and side effects that can only be eradicated by further research hand attentiveness to the problem.
- Section 3: Statistics
  - From the statistics page I learned about the staggering number of people in the United States who are affected by the many forms of arthritis. I learned about the

prevalence of each of the variants of arthritis and that contrary to popular opinion arthritis is the problem of everyone not only the elderly. I learned about the enormous impact of arthritis on the economy (whether through lost wages, health care or disability) and learned about the extent to which arthritis affects its many victims (leaving literally millions unable to perform simple tasks like sitting or standing.)

- Section 4: Consumer Information
  - The best Web site: rheumatology.org
    - I picked this as the best Web site (from the standpoint of consumer information and education) because I thought its Q+A approach, lack of medical jargon and systematic breakdown of reactive arthritis could provide even the most uninformed individual with a working knowledge of all facets of the condition. Though it lacked some of the depth and technical data of some more technically oriented site's I thought that rheumatology.org thoroughly accomplished its goal of providing a broad and basic informational page.
  - The worst Web site: Consumer Information Center: Rheumatoid Arthritis
    - Once again, "worst" is a relative term because I actually found this page to be quite interesting, but I listed it as "worst" because it seems to me that it was written with an already educated audience in mind (it begins to discuss, proposed and imagined treatments of rheumatoid arthritis before providing adequate background on the disease itself. While this may not be out of place in a medical journal, the Web site proclaims itself as a "consumer information center" and I believe it falls short truly "educating" the medically unversed general public.

<b>Back to Betty C. Jung's Web site</b>	<a href="http://www.bettyjung.net/">http://www.bettyjung.net/</a>
<b>Back to Web site Critique Reports Directory</b>	<a href="http://www.bettyjung.net/Pch201wsreports.htm">http://www.bettyjung.net/Pch201wsreports.htm</a>

## Presentation Outline Template

### Background/Problem Statement

- Why is your topic a Public Health Issue? Arthritis painfully and debilitating affects millions of Americans, there are few effective treatment for some forms of the disease, and in many cases its causes (and thus modes of prevention) are largely unknown.
- Definition: Arthritis is actually a large class of disorders that is difficult to pin down in a single definition though it is safe to say that they are all based in pain or discomfort, symptoms vary widely although inflammation is a common thread, in fact arthritis means, joint inflammation. The center for disease control has a solid definition: which I will include here: The term *arthritis* is used to describe more than 100 rheumatic diseases and conditions that affect joints, the tissues which surround the joint and other connective tissue. The pattern, severity and location of symptoms can vary depending on the specific form of the disease. Typically, rheumatic conditions are characterized by pain and stiffness in and around one or more joints. The symptoms can develop gradually or suddenly. Certain rheumatic conditions can also involve the immune system and various internal organs of the body.
- Research
  - Most interesting finding: Many (and the report stresses, the term “many” of the common injuries and ailments that we associate with the bangs and bruises of daily life and even athletic endeavors are actually forms of arthritis “masquerading” simple injury.
  - Why is it interesting? It can potentially change the way that doctors view and treat even the most basic “injuries” or complaints of injury especially, given these findings as they relate to bone or joint pain, prompting possibly, a more thorough diagnostic process.
- Statistics
  - Most interesting finding: The cost of Arthritis to the U.S. is 65 Billion annually/ there are 1.8 million people in America who report trouble grasping small objects.
  - Why is it interesting? I think this is self-explanatory, these facts, I believe should call attention to the fact that arthritis is an incredibly devastating and serious problem that needs more attention from the medical field and the public at large.
- Consumer Information
  - Some forms of arthritis (such as reactive arthritis) can be caused by infection due to tainted food and even unsafe sexual intercourse.
  - Why is it interesting? I think this statement goes a long way in clearing up the misconception that arthritis is simply a mechanical or structural disease predictably resulting from unavoidable wear and tear on joints and ligaments as well as raising awareness about unsafe behaviors.