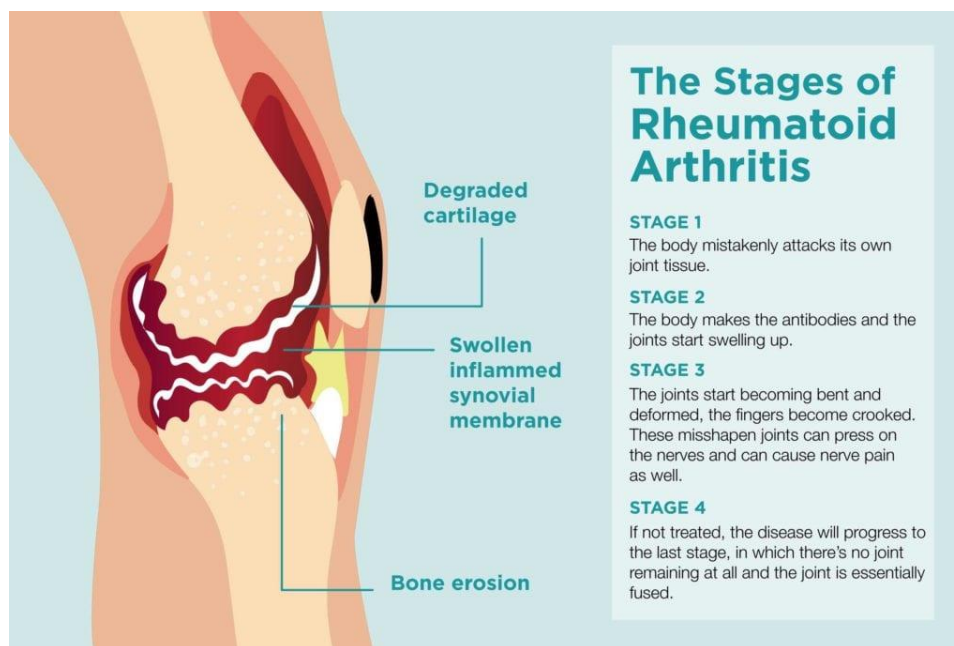


Environmental Factors That Affect Rheumatoid Arthritis

The purpose of this report is to identify whether certain environmental factors affect the disease rheumatoid arthritis. During this report the reader will discover what rheumatoid arthritis is, what causes the disease to develop and what factors worsen, better and affect the disease. As the writer my hope is that by the end of this report the reader will have a clear understanding of rheumatoid arthritis and what environmental factors affect it.

What is Rheumatoid Arthritis?

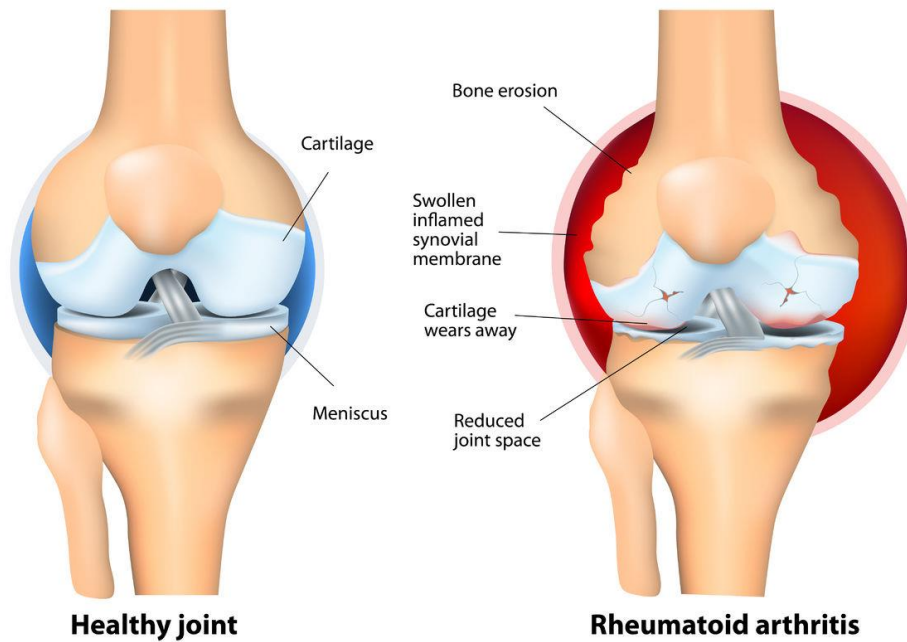
Rheumatoid Arthritis is an autoimmune disease that affects the body's joints, such as wrists, hips and hands (Centers for Disease Control and Prevention, 2020). It affects approximately 1% of the population (National Library of Medicine, 2017). As rheumatoid arthritis is an autoimmune disease this means that the body's immune system which usually fights infection, attacks the cells that line your joints by accident, this causes the joints to become very painful, stiff and swollen (NHS, 2019).



The diagram above by CreakyJoints (2018) shows the 4 stages of rheumatoid arthritis and what happens to the joints as a result of the disease. It demonstrates how the joints become swollen and deformed. The website CreakyJoints, where this diagram is found, is a community where patients with rheumatoid arthritis and

their caregivers can go to find support, information and research about rheumatoid arthritis.

RHEUMATOID ARTHRITIS

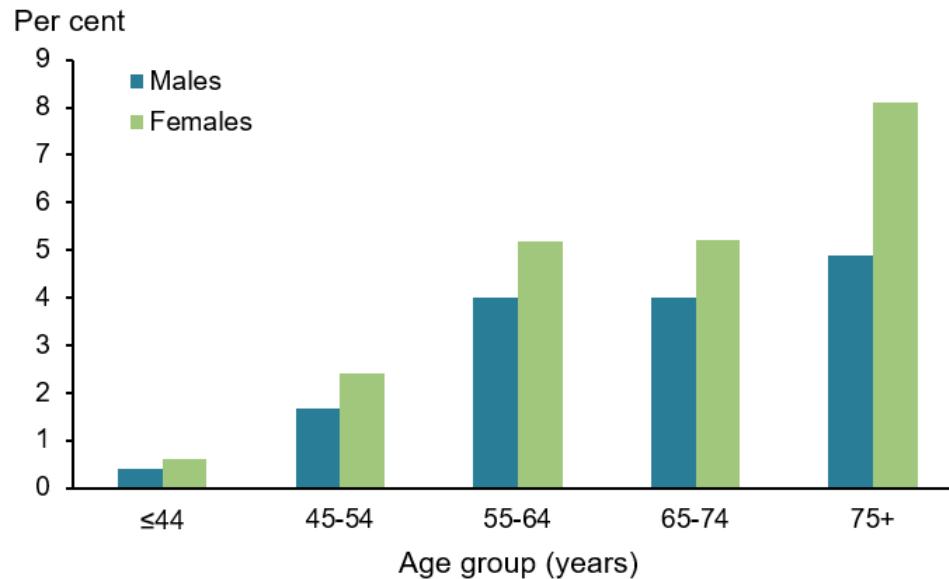


This diagram by Practical Pain Management (2018) is very similar to the one by CreakyJoints (2018) and it shows the difference between a healthy joint and a joint which has been affected by rheumatoid arthritis.

Factors that create Rheumatoid Arthritis

The main factor of what creates rheumatoid arthritis is if the person has a family history of the condition. Medline Plus (2020) tells us that although it is unclear whether genetics or environmental factors increase the risk of developing rheumatoid arthritis, it does tell us that if you have a close relative with the condition the chance of developing the disease is increased. A study by Pfizer (2022) informs us that if someone has a relative with rheumatoid arthritis, they have a 0.8% chance of developing the disease, whereas someone with no family history of the disease has a 0.5% chance of developing the disease. The study concluded that like many other autoimmune diseases, rheumatoid arthritis is very heritable. A factor relating to family history is that statistics show that 12-15% of identical twins will both develop rheumatoid arthritis compared to only 4% of non-identical twins (American College of Rheumatology, 2018).

In an article written by Intermountain Healthcare (2016) it states that females have a higher chance of developing rheumatoid arthritis than males, they tell us that females have a one in four chance of developing the disease whereas males have a one in five chance of developing it.



Australian Institute of Health and Welfare (2020) agrees with Intermountain Healthcare (2016) and demonstrates in the graph above how females have a higher percentage of developing rheumatoid arthritis than males. The reasons for why females have a higher chance of developing the disease this will be explored in detail further on in this report.

The next part of this report will delve into the environmental factors that worsen the risk of developing rheumatoid arthritis and also what worsens and betters the symptoms.

To begin, The National Rheumatoid Arthritis Society (2019) informs us that although we are aware of all the health complications that can arise from smoking, many of us do not realise the effect it has on rheumatoid arthritis. Smoking can cause people to become more likely to develop rheumatoid arthritis, make the symptoms worse and make the medication they take less effective (National Rheumatoid Arthritis Society, 2019). An article by the Medical News Today (2021)

states and agrees with the National Rheumatoid Arthritis Society (2019) and commends that smoking is likely to increase the risk of developing rheumatoid arthritis but they concede that the link between the two remains very complex and there need to be further studies into this. Smoking for more than 20 years can in fact double the risk of developing rheumatoid arthritis in both men and women, it also causes a reaction in the immuno-tolerance which can promote the onset of rheumatoid arthritis (Ash Scotland, 2012). Whilst researching into the question of does smoking cause an effect on rheumatoid arthritis, it is clear that there is a need for more studies and research into this topic, most of the studies seen tend to use numerical research techniques, perhaps if these studies also used qualitative research techniques, then maybe the outcome of the studies would give a more clear and defined answer.

The next environmental factor this report will discuss is the weather and the cold. The National Library of Medicine (2020) has conducted a research experiment on whether the weather and the cold affect rheumatoid arthritis. The study lasted over a period of a year in order to determine the difference in the patient's rheumatoid arthritis through the different seasons. This is shown to work well because if the study did not continue for a length of time, then the results could be inaccurate. The study collected data from the patient's medical records, their swollen joint count, their pain and also different weather conditions for example did it rain and what percentage of rain there was. The data concluded that in the summer months and when the temperature was warmer with less rain and humidity, the patient's rheumatoid arthritis was significantly better and less painful. Whereas in the winter months, the patient's disease showed to be worse with more pain and swollen joints. The report of this study is written as a qualitative

research study, but it also was a numerical research study, the report included both these techniques which proved to work well as a reader is able to understand the numbers and percentages used but also able to understand the outcome of the trial and study written down in words, this also was an effective way for the researchers to collect data as they were listening to the patients in the trial and also looking at the mathematical data. Overall, this report showed good research techniques and has given a clear understanding of the question asked above, which is, does the weather and the cold affect rheumatoid arthritis? Despite this study being conducted by the National Library of Medicine (2020), Andrew Ruthberg (2022), a rheumatologist at Rush University Medical Centre argues that although there are many studies which examine the impact on weather and the cold on rheumatoid arthritis, he states that results remain inconclusive across the board.



The Chester County Hospital (2019) agrees the National Library of Medicine (2020) by using this poster to show how rheumatoid arthritis can be worse in winter. The poster tells us with every drop of 10° the pain that comes with rheumatoid arthritis worsens.

Whilst researching into this topic of whether the weather and the cold have an impact on rheumatoid arthritis, it has to be noted that many studies conclude different things and it is hard to see a straightforward answer, but it is clear that most studies give the answer that the weather and the cold do in fact cause an affect on rheumatoid arthritis.

Another environmental factor that causes an effect on rheumatoid arthritis is being a female. About 75% of patients with rheumatoid arthritis are female and this is down to hormonal reasons (Brigham and Women's Hospital, 2022). Many hormonal and reproductive factors cause an effect on rheumatoid arthritis, some of these affects being good and some being bad. The British Society for Rheumatology (2016) gives us an insight into this, the article states that many clinical researches have been done to look into the effect of hormones on rheumatoid arthritis. They tell us that many female hormonal factors are risk factors for the development of rheumatoid arthritis. The article states the figures of how more than one pregnancy can cause a higher risk of developing rheumatoid arthritis and how a long duration of breastfeeding can also leave women with a higher risk of developing rheumatoid arthritis. Despite this, the article tells us that although more than one pregnancy and breastfeeding for a long time can higher your risk of developing the disease, the symptoms of rheumatoid arthritis become better whilst you are pregnant and are breastfeeding. By looking into this article and study by the British Society for Rheumatology (2016) it is clear that their report and study is based mostly on qualitative research techniques, this works well as it is clear to the reader the results of the study. The article and study also uses some numerical research techniques but for the most part it does use qualitative research techniques.

For the purpose of this report, and as the writer and researcher of this piece, I have undergone some research myself and spoken to two members of the public that suffer from rheumatoid arthritis and have discovered their take on which environmental factors affect their version of this disease. I have asked them questions relating to the environmental factors that have been discussed in this report.

The two members of the public who were spoken to were Terry Thomas, a 72 year old male who has been suffering from rheumatoid arthritis for 22 years and his daughter Karen Simonov, a 45 year old female who was diagnosed at the age of 37. Thomas (2022) and Simonov (2022) both stated that they believe that rheumatoid arthritis is a hereditary disease and is very much genetic. Thomas (2022) feels strongly that rheumatoid arthritis is hereditary as his mother, his sister and his daughter all have suffered or do suffer from this disease. Although as stated earlier in this report, there are many conflicting studies which report if rheumatoid arthritis is a hereditary disease or not, but it is clear from what Thomas (2022) has said that it could in fact be genetic and hereditary.

Earlier this report discussed smoking and the effect it has on rheumatoid arthritis, it was concluded that there is not enough research out there to say whether smoking does or does not influence on the disease. Thomas (2022) states that although he did smoke in the past, he feels that this has not caused an effect on his disease in any way.

Something that has been spoken about earlier in this report was how does the weather and the cold affect rheumatoid arthritis. There were many studies and

articles to be found on this topic and Simonov (2022) had a lot to say about it. Simonov (2022) shared that she often struggles in cold weather and in the winter with her rheumatoid arthritis, she informed us that her joints tend to be more swollen, stiffer and more painful. Thomas (2022) agreed with Simonov (2022) on the fact that his joints are also worse when it comes to the cold weather, but he added that when he goes on holidays to warmer countries his joints become a whole lot better. These statements alone prove what the studies and trials are telling and showing us, that in fact the weather does have a massive impact on rheumatoid arthritis.

This interview with Terry Thomas and Karen Simonov proved valuable in the research into environmental factors that affect rheumatoid arthritis. It has given this report a real insight into how real people with this disease feel and how different environmental factors do in fact affect rheumatoid arthritis.

To conclude this report, it has been shown that many environmental factors do affect rheumatoid arthritis, but it has also been shown that there is a need for more studies, trials and research into these factors to determine if they do in fact have an effect on the disease as some of the research on the rheumatoid arthritis do not show a clear and defined answer.

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