

## **The CATCH Research Study and What We Learned in 2020**

The Canadian Early Arthritis Cohort (also called CATCH for short) is a research study happening at many places in Canada and that seeks to improve the quality of care for people living with early inflammatory arthritis. People are approached to be part of the CATCH study within their first year of diagnosis of inflammatory arthritis. If they agree to be part of the study, demographic information (for example, their age, sex, if they smoke, etc.) and clinical information (for example, the medications they are on, their RA symptoms, etc.) is collected from them each time they see their rheumatologist. This information is stored in a secure database that is then used to answer research questions by the CATCH team. There are now more than 3,700 participants in CATCH and some have been part of CATCH for over 10 years! CATCH is the only national early arthritis study that is following people over time and watching their arthritis and its response to treatments.

Each year, CATCH's research team presents research results at rheumatology conferences. This document is a summary of their most recent presentations for you in easy to understand language. If you would like to read more about this research, we also provide you with links to the full submissions to these conferences which are called 'abstracts.'

### **Medications**

#### ***Steroids***

Steroids are a type of medication that people with RA often take, especially if their RA is very active. Steroids are recommended for use for only short periods of time and at low doses because of their potential side effects. Steroids can be taken in pill form or by injection. CATCH researchers compared the RA activity in people who took steroids by pill to those who took steroids by both pill and injection. They thought that people taking steroids in a combination of ways would take them for a shorter time assuming they would get their RA activity under control faster. However instead they found that people who took steroids as pills and as injectables didn't take the pill version for any less time than people who took steroids by pill only, their RA activity didn't improve more or faster compared to people who only took steroids as pills, and these patients actually had increased odds of needing to start a biologic sooner than other patients. This study is the first of its kind in Canada and shows that steroids are potentially not being used for the purposes they should be in patients with early and active RA. You can read more about this research by [following this link](#) and scrolling down to "250."

#### ***Characteristics of Patients with RA Taking Advanced Medications to Treat Their RA***

When people are first diagnosed with RA, they are prescribed disease modifying anti-rheumatic drugs (called DMARDs for short) to help their RA symptoms. If these medications do not help their RA symptoms, their rheumatologist may prescribe other "advanced medications." These advanced medications are named for the molecular pathway in the body that they affect, for example, TNF inhibitors affect the TNF pathway and JAK inhibitors affect the JAK pathway. In

this study, the researchers wanted to see what the characteristics of patients were who started these advanced therapies.

The researchers found that between 2014 – 2019, prescriptions for JAK inhibitors increased as advanced therapies and prescriptions for TNF inhibitors decreased. People with RA who used JAK inhibitors had lived with RA longer, had fewer tender joints, and their RA was less active. If patients lived in Ontario, they often went on JAK inhibitors. Patients who used TNF inhibitors tended to have lived with RA for a shorter amount of time, were younger, had fewer other health conditions (also called comorbidities), and often lived outside of Ontario. Patients who were on non-TNF inhibitor medications tended to have very active RA, were older, had a higher education, and had more additional health conditions. The researchers concluded that both patient and doctor related factors (such as location of practice) impacted with advanced therapy was prescribed. You can read more about this research [here](#).

### ***Medication Beliefs***

Medications are needed to help control RA symptoms and to help prevent disability, but taking these medications can be difficult for people. This research aimed to learn about peoples' beliefs and perceptions of RA medications. Beliefs about medications can predict how well a person may or may not take their medication as prescribed, and knowing these beliefs can also be beneficial so doctors can work with patients to alleviate their concerns or find solutions that work for them.

The research found that many new RA patients had low medication necessity beliefs and concerns. Compared to patients who were accepting of the need for RA medications, patients who were indifferent to their medications smoked, had heavier weights, had more tender joints, and had more disease activity, and fewer of these individuals were taking methotrexate. People who were indifferent also had more depression, anxiety, fatigue, and pain. Most patients worried about the long-term effects of these medications. Knowing how people feel about RA medications, especially early in their diagnosis, will help health care providers identify information gaps and provide opportunities to address the concerns of these patients in hopes that they can improve their abilities to take these important medications. You can read more about this research [here](#) and [here](#).

Research was also done to see if these medication beliefs changed over time, from when they were diagnosed to one year later. It is known that in people who have had RA for many years, their beliefs about the necessity of medications and concerns about potential harm influence side effects and their ability to take their medications as prescribed. It was found that while there is agreement that medicines are generally necessary, there are also significant levels of concerns. Patients with more concerns about starting treatments tend to have more education and greater anxiety and depression. Medication perceptions are stable over the first year and

are influenced by individual characteristics (e.g. people of minorities, higher emotional distress, lower participation in social activities) and RA (for example, better function) and medication experiences (e.g. if a person used methotrexate). Findings suggest that specific approaches may be needed to help medication beliefs and ease concerns to improve acceptance, tolerance, and people's ability to take these medications over the long-term. You can read more about this research [here](#).

### **RA and Stress**

Many people feel their RA is linked to a stressful time or stressful events in their life but research is not clear on this. The CATCH researchers wanted to see if they could learn more about stress and onset of RA. In the CATCH study, more than half of the participants reported at least one stressful event in the year before their diagnosis. The most commonly reported stresses were related to family, money, death, surgery, and major illness. The people who reported stresses were more likely to be younger women with more active RA who also live with other conditions (called comorbidities). These patients also had much higher pain, fatigue, depression, issues with sleep, and measures of their RA. After one year, swollen joint counts and remission rates were similar between those who reported stressors in the year before getting an RA diagnosis compared to those who did not feel they experienced stressors. One year after diagnosis those who had stressful life events before their diagnosis still reported that depression, fatigue, sleep issues, pain, etc. were a problem. Emotional support along with their usual treatments will probably help these people feel and function better. You can read more about this research [here](#) and [here](#) (by going to "113").

### **Pain**

Persisting pain and other pain decreases the quality of life for people with RA. Pain other than that felt in the joints of people who live with RA (called 'non-articular pain') is often due to fibromyalgia. Patients with RA within their first year of diagnosis often have localized and widespread muscle pain. The CATCH researchers wanted to describe patterns of non-articular pain, predictors of persistent non-articular pain, and how this impacted people in their first year of being diagnosed with RA.

At the time of their diagnosis with RA, 55% of participants in CATCH had pain in their soft tissues (called non-articular pain) and 62% had regional pain. One year after diagnosis, 33% of participants still had non-articular pain. If patients were female and had depressive symptoms, they would also have widespread non-articular pain one year after diagnosis, while patients with poor function and who were not treated with methotrexate early had regional non-articular pain at one year. Importantly, people who had regional or widespread non-articular pain had a lower likelihood of their RA going in to remission, so these types of pain need to be recognized and treated to help these people do better with their RA. You can read more about this research [here](#) and [here](#).

### ***RA and Mortality***

People who have RA have a greater risk of mortality (another word for mortality is death) than the general population. The CATCH researchers wanted to see if there is any relationship between issues with daily functions in RA and mortality. It is known that this is the case for people with established RA since issues with daily functions are also associated with hospitalizations.

By looking at health records from people living with RA and from people who were deceased and had RA, it was found that those who were deceased had more issues with their daily functions because of their RA and more active RA one year after their RA diagnosis compared to those who were still alive. While there was not a relationship between activity of a person's RA at diagnosis and mortality, there is a significant relationship between active RA and functional abilities at one year after diagnosis and mortality. It is thought that when a person's RA is not well-controlled within their first year after diagnosis, it leads to more issues with functional abilities that contributed to higher mortality. You can read more about this research [here](#) (by scrolling down to "116"), [here](#) and [here](#).

### ***RA Activity***

#### ***Helping Patients Get in to Remission in the First Year of RA Diagnosis***

The concept of remission in RA (a time when a person's RA is not active) can be measured in different ways. Depending on the definition of remission that is used, different numbers of patients are considered to be in remission. CATCH researchers were interested in comparing these different measures of remission to see what they have in common. People who had RA that was active for a long period of time was most strongly associated with being a man who had positive serostatus and who smoked, or being a woman who was obese and had more tender joints. Men and women who had pain and lower education usually had more active RA. Without using one common definition of remission, it is safe to say that about one third of patients within the first year of their diagnosis does not experience remission. You can read more about this research [here](#) and [here](#) (by scrolling down to "249").

#### ***Long-term Patterns of Remission***

Early diagnosis and starting disease-modifying anti-rheumatic drugs (called DMARDs) have made remission something that is realistic for many people living with RA. Remission is a period when a person's RA is not very active. Despite improvements in early RA remission outcomes, less is known about how often, and how long remission is sustained for, and what factors may contribute to changes in RA control over time, which is what the CATCH researchers wanted to learn more about.

Over a 2-year period, 47% of patients were experiencing remission by 12-months and 40% by 24 months. More patients experienced their RA going from remission in to low disease activity than going from remission to medium disease activity. A person's sex, whether or not they smoked and if they had other conditions and positive serology were significantly associated with short remission times. There may also be a relationship between short remission times and people being older, having a longer time to experience their first period of remission, not starting methotrexate soon after diagnosis and reducing treatment after remission. Overall less than 50% of people with RA experienced remission or sustained remission for 1 to 2 years. In the absence of a cure for RA, learning more about remission and how patients can be in remission for longer periods of time is important to help patients with RA live well. You can read more about this research [here](#).

### ***Remission and Decreasing Medications in People in Remission***

When people are diagnosed with RA, the usual approach to treatment is to 'hit their RA hard' with many types of medications called disease modifying anti-rheumatic drugs (also known as DMARDs). The goal is to get RA to really low activity which is called remission, and another goal is to help keep people's RA in remission for as long as possible (when someone experiences remission for more than 6 months, it's called sustained remission). There are different effects of DMARDs on different people, and there are also effects on the healthcare system (for example, the cost of these drugs, multiple doctor appointments and tests, etc.). The researchers wanted to see what things people with RA had in common whose RA went in to remission, along with how their treatments may be reduced.

Of the people in the study, 60% experienced sustained remission in the first 1.5 years after their diagnosis and 92% of them experienced sustained remission in the first 4 years after their diagnosis. Of the people who experienced remission, 80% of them were taking a DMARD called methotrexate, 71% of them were on a combination of drugs, and 13% of them were taking a drug called a biologic. In the year after experiencing sustained remission, 40% of people decreased their medications with their healthcare providers: 30% of them reduced or stopped taking methotrexate (some because of side effects), 23% reduced or stopped taking DMARDs other than methotrexate, and 4% reduced or stopped their biologic drug (one of these people stopped because of side effects). Overall, of people who were within one year of their RA diagnosis, 40% of them experienced remission, and about 30% of them experienced reducing medications as well. You can read more about this research [here](#) (and by scrolling to "242").

### ***Fatigue***

Fatigue is very common at the start of a person's RA, and some people continue to have debilitating fatigue that results in a poor quality of life, and affects their mood, work and home life, and social life. Fatigue is poorly understood though and learning more about it can help people who live with RA.

In this study, the researchers looked at people with high fatigue when they were diagnosed with RA to identify predictors associated with improved fatigue after one year. Debilitating fatigue at RA diagnosis is seen in people with more active RA, worse pain and disability, and osteoarthritis/back pain, obesity, depression, poor sleep, and major stressors in the year before their diagnosis. In people with high fatigue, 70% improved by the end of the first year after diagnosis. Among patients with high fatigue, 70% improved by 12 months. Using more than 20 mg of methotrexate reduced fatigue, while being obese was not helpful for fatigue, and having high initial pain may also be a marker for improved fatigue. Using methotrexate early, and optimizing weight, sleep, and mood may help persistent fatigue when RA inflammation is well controlled. These results help show the benefits of multidisciplinary approaches in early RA.

In this study, the researchers wanted to look at risk factors for persistent, high fatigue 1 year after RA diagnosis. During the first year of RA diagnosis, 21% of women and 19% of men reported persistent high levels of fatigue, and for women, fatigue was worse throughout the study. Women with high levels of fatigue are usually obese, use steroids early in their diagnosis, are seronegative (a blood marker), and have poor sleep. Men with high levels of fatigue are obese and have 2.4 times higher odds of still having fatigue one year after diagnosis. Helping these individuals lose weight is important. Using a medication like methotrexate, and optimizing weight, sleep, and mood may help persistent fatigue when RA is well controlled. It is important to use many ways to treat early RA.

In this study, researchers wanted to see if there was a relationship between disease activity and fatigue. People with early RA who experienced remission or low disease activity within 3 months of starting the CATCH study had much lower fatigue than those with active RA throughout 5-years. Those individuals who experience sustained remission (that means a period of 6 months of more or little or no signs of RA), saw their fatigue decrease at the time of their first remission. People who responded well to RA treatments within their first 3- and 6-months of diagnosis had the biggest improvements in fatigue over time.

You can read more about research in RA and fatigue [here](#) (scroll to “237,” “247,” and “248”).

### **Delivery of Rheumatology Care**

Rheumatology clinics that are part of the CATCH study approach treatment of people with RA in similar way. There have been efforts to try to create a standard model of care for these clinics and to seek government support for this. This study was done to understand how more support could be sought to fund a standard model of care through learning more about these clinics and their characteristics. Because these clinics are in different parts of the country, they have different: amounts of funding, clinic space, and human resources. Some clinics also have long waiting lists and diagnose people with RA at different times after their RA symptoms begin

because of delays in referral from family doctors. Even with these differences, all of the clinics are committed to high quality patient care and are working to overcome their own challenges. You can read more about this research [here](#) (and scrolling down to “196”).

Because of COVID-19, many rheumatologists have switched to seeing their patients by telemedicine appointments. This has limited their ability to carry out complete joint exams needed to determine RA disease activity and provide personalized care. The study was done to see how much rheumatologist-done disease activity scores agreed with patient-based scores if these were done virtually. On average, patients and doctors usually agreed more on what was considered a swollen joint than what was a tender joint. They also usually agreed more about what they considered to be controlled RA than active RA. Understanding what contributes to the differences in what patients and physicians see might help identify patient subsets that could benefit the most from more help from their doctor at joint self-assessments and/or more questioning during a telehealth visit to confirm RA activity. You can read more about this research [here](#).