

Overview

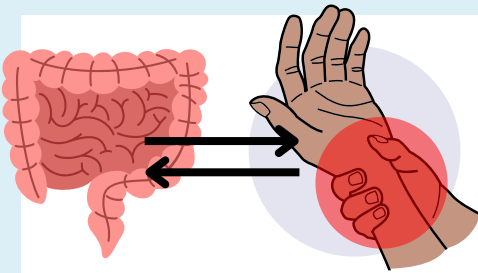
Joint pain can be a common complaint for patients with IBD. Up to 15-20% of Crohn's patients and 10% of UC patients will experience arthritis at some point in their lifetime, while 40-50% of individuals with IBD will experience arthralgia (Orchard). Arthritis and arthralgia are two distinct conditions of the joints worth differentiating:

- **Arthritis:** An inflammatory condition of the joints leading to pain and stiffness with movement.
- **Arthralgia:** A condition in which inflammation of the joints is not present, yet pain and stiffness still preside.

VOCAB CHECK

Arthritis
Joint pain and stiffness associated with inflammation.

Arthralgia
Joint pain and stiffness NOT associated with inflammation.



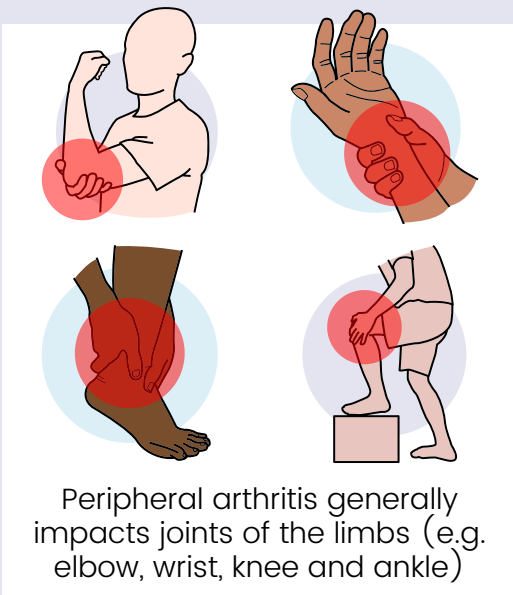
Enteropathic arthritis is associated with different gastrointestinal conditions including IBD.

Arthritis associated with IBD often presents differently from that of osteoarthritis or rheumatoid arthritis. In both **osteoarthritis** and **rheumatoid arthritis**, inflammation can lead to damage of the joint. In osteoarthritis, inflammation leads to degeneration of the cartilage which can lead to decreased joint space and subsequent damage to the bone ends. Rheumatoid arthritis is an autoimmune condition in which the body attacks the lining around the joint, called the synovial membrane, leading to swelling and bone erosion.

Enteropathic arthritis is a form of arthritis associated with gastrointestinal diseases such as IBD, Whipple's disease, Celiac disease and intestinal bypass procedures. Although the exact cause of enteropathic arthritis is still up for debate, it is thought that gastrointestinal disorders can cause dysregulation of the interaction between the mucosal immune system and gut bacteria. Many people do not realize the gastrointestinal tract is a key site for the immune system. When we consume food, our digestive tract interacts with the outside world exposing our body to different foreign particles. Immune cells can be found throughout the digestive tract, particularly the intestine, where they then interact with these different foreign particles aiding in mounting the immune response. Inflammation from gastrointestinal disorders is thought to disrupt this mucosal immune system and hence lead to inflammatory conditions in other parts of the body such as enteropathic arthritis. With this being said, there are flaws in this theory, such as the genetic influence of HLA-B27 (this will be discussed later) as associated with ankylosing spondylitis (Peluso). Clearly, this is an area warranting further research.

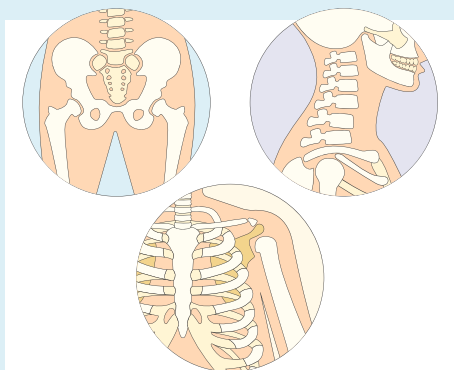
Overview (continued...)

The study of enteropathic arthritis is a growing field with several proposed systems to classify enteropathic arthritis. As a consensus has not yet been reached, this fact sheet will explain the classifications proposed by the Crohn's and Colitis Foundation (peripheral arthritis, axial arthritis and ankylosing spondylitis), while also briefly mentioning other classifications that could present in conversation (symmetrical polyarthritis, type 1 peripheral arthropathy, type 2 peripheral arthropathy, sacroiliitis with spondylitis, sacroiliitis without spondylitis). Arthritis as a result of IBD can present as:



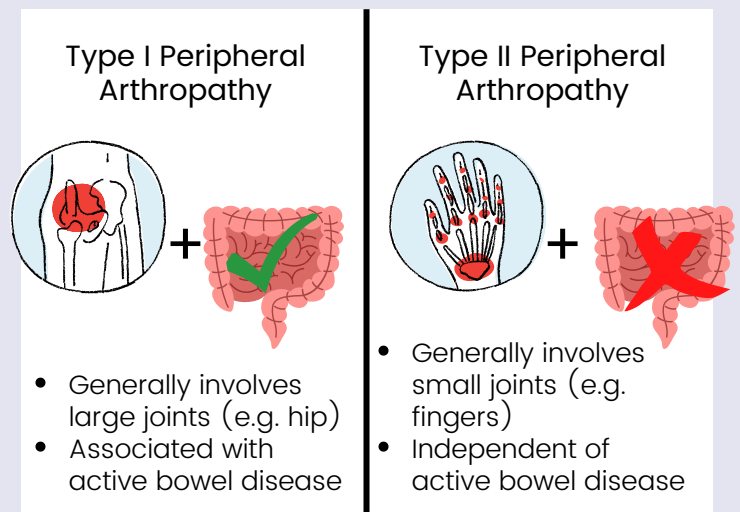
- **Peripheral arthritis:** Approximately 60–70% of the arthritis seen in IBD patients is peripheral arthritis (Orchard). Peripheral arthritis generally impacts joints of the limbs, such as the elbow, wrist, knee and ankle. Pain with peripheral arthritis can arise suddenly and is often described as “sharp” or “hot”. The joints may feel and appear swollen with symptoms migrating to different joints. Peripheral arthritis is most commonly found in individuals with UC or Crohn's of the colon. If left untreated, this pain tends to resolve anywhere from a few days to several weeks. IBD-related peripheral arthritis typically does not cause lasting damage to affected joints (Crohn's and Colitis Foundation).

- **Axial arthritis:** Axial arthritis, which can also be referred to as axial spondyloarthritis or axial spondyloarthropathy, impacts the spine, chest and pelvis. The presentation of axial arthritis can occur months, or even years, prior to a diagnosis of IBD in young individuals. In certain cases, axial arthritis can cause long-lasting damage to impacted joints. If management is not taken early, degeneration of joints can occur causing the joints to fuse together. Fusion of the joint can significantly limit flexibility and decrease motion of that joint (Crohn's and Colitis Foundation).



Axial arthritis impacts the spine, chest and pelvis.

- **Ankylosing spondylitis:** Ankylosing spondylitis is a subset of axial arthritis that is often considered more severe and more specific to the spine. Approximately 1–6% of individuals with IBD will develop ankylosing spondylitis (Orchard). Per the Crohn's and Colitis Foundation, ankylosing spondylitis can also include the sacroiliac (SI) joint; however, other proposed classification systems for enteropathic arthritis make a distinction between ankylosing spondylitis and sacroiliitis with spondylitis (see below). In ankylosing spondylitis, degeneration occurs between the vertebrae of the spine (and/or the SI joint) causing the bones to fuse over time. This fusion of multiple bones into a single structure significantly limits flexibility of the spine and/or pelvis. Ankylosing spondylitis can also present with extra-articular manifestations impacting areas such as the eyes, heart and skin. Ankylosing spondylitis often impacts individuals under the age of 30 and is thought to have a strong genetic predisposition. Presence of the HLA-B27 antigen is found in approximately 90% of individuals with ankylosing spondylitis (Peluso).
- **Symmetrical polyarthritis:** Certain individuals may also classify enteropathic arthritis as symmetrical polyarthritis. Symmetrical polyarthritis is a subset of peripheral arthritis typically affecting joints of the hands in individuals with IBD (Orchard). Symmetrical polyarthritis is differentiated on the basis of at least 50% of joint pain presenting on both sides of the body (e.g. joint pain in both the left and right thumb joint). Symptoms of polyarthritis often present similarly to rheumatoid arthritis with bilateral joint involvement, warmth and redness of the joints, decreased motion and swelling (Alpay-Kanitez).
- **Type I and II peripheral arthropathy:** Certain healthcare providers may classify peripheral arthropathy (arthritis) as either Type I or Type II peripheral arthropathy. Type I peripheral arthropathy generally impacts less than four joints, involves large joints (e.g. hip, shoulder) and is associated with active bowel disease. Type II peripheral arthropathy tends to impact the small joints (e.g. joints of the hand) and is independent of active bowel disease (Voulgari).



- **Sacroiliitis with and without spondylitis:** As described in the Ankylosing Spondylitis section, some individuals may make a specific distinction between ankylosing spondylitis and sacroiliitis with spondylitis. The sacroiliac (SI) joint involves the sacrum (the final part of the spine) and the ilium (part of the pelvis) allowing movement of the lower back. In ankylosing spondylitis involving the SI joint and sacroiliitis with spondylitis, inflammation of this joint causes fusion of the bones leading to impaired mobility. Sacroiliitis with spondylitis involves only the SI joint whereas ankylosing spondylitis can involve the spine and/or the SI joint. In sacroiliitis without spondylitis, the SI joint becomes inflamed, but fusion of the sacrum and ilium does not occur.

Causes and Risk Factors in the General Population

Note that there are numerous types of arthritis beyond solely enteropathic arthritis. This section will provide an overview of risk factors for different arthritic conditions experienced by the general public (e.g. osteoarthritis, rheumatoid arthritis, gout, pseudogout, etc.)

- **Age:** In general, as age increases, risk of most types of arthritic conditions increases. This is particularly true for osteoarthritis in which there is an increased chance for wear-and-tear of the joint overtime. Rheumatoid arthritis can be diagnosed at any age; however, risk increases as one ages. Interestingly, with most forms of enteropathic arthritis, presentation can occur at any age. Certain forms of arthritis impacting the IBD community, such as ankylosing spondylitis, actually tend to occur at a younger age (before the age of 30). In some cases, as in axial arthritis, joint involvement has been found to occur months or years before IBD diagnosis for certain individuals (Crohn's and Colitis Foundation).
- **Gender:** Osteoarthritis and rheumatoid arthritis are more prevalent in women, while gout and pseudogout are more common in men. When it comes to enteropathic arthritis, rates are split evenly between men and women.
- **Joint overuse and injuries:** Joint overuse and injury can damage the cartilage in joints leading to increased risk of osteoarthritis.
- **Certain occupations:** Occupations involving repeated bending and squatting can lead to overuse of the knee joint and subsequent heightened risk of osteoarthritis. Examples of occupations at increased risk for osteoarthritis include agricultural workers, construction workers, carpenters, cleaners, etc.
- **Infection:** Certain bacterial or viral agents can attack the joints leading to symptoms such as joint redness, swelling or warmth. If left untreated, this can damage the joint leading to increased risk of osteoarthritis.



Causes and Risk Factors in the General Population (continued...)

- **Weight:** Being overweight or obese can increase symptoms of osteoarthritis (note: this is just one factor that may contribute to osteoarthritis, and arthritis is a multifactorial condition with numerous causes that need to be addressed by a healthcare provider). Extra weight can put more stress on the joints, particularly weight-bearing joints like the hips, knees and ankles leading to decreased joint space and exacerbation of osteoarthritis symptoms.

IMPORTANT NOTE:

There can be a tendency for certain providers to tell individuals with certain forms of arthritis to "just lose weight." This is NOT appropriate care. While being overweight can contribute to pain with arthritis, it is NOT the underlying cause. An individual could lose weight and still have arthritis. All individuals should be treated equally for arthritis taking into consideration ALL the factors that can be used to manage pain and symptoms.

Causes and Risk Factors in IBD/Ostomy Patients

- **Active disease:** Being in a state of active disease is generally correlated with increased risk of enteropathic arthritis (note that certain forms of enteropathic arthritis can be independent from disease activity). It is believed that increased inflammation of the gastrointestinal tract is then associated with increased inflammation and pain of the joints via disruption of the gut mucosa.
- **Appendectomy:** An Increased risk of developing rheumatoid arthritis following an appendectomy has been shown in certain research studies. At this point, data is mixed with some studies showing a correlation and others not displaying this correlation; however, this may be a factor to consider for IBD patients who have their appendix removed (Tzeng).
- **Genetics:** Presence of the HLA-B27 antigen is strongly associated with axial arthritis and ankylosing spondylitis. 90% of individuals with ankylosing spondylitis have the HLA-B27 antigen. There is speculation over whether the HLA-B27 antigen could in some way also be correlated with IBD presentation. At this point, HLA-B27 antigen presence and IBD development is more speculation than research-backed.
- **Presence of other extraintestinal manifestations:** The presence of other extraintestinal manifestations associated with IBD, such as erythema nodosum or uveitis, increases the risk of developing enteropathic arthritis (and other extraintestinal manifestations).



Signs and Symptoms

Presentation of arthritis is typically dependent upon the type of arthritis. While most types of arthritis will present with joint pain denoted by swelling, redness, warmth and decreased range of motion, the location and number of joints impacted can vary. For example, peripheral arthritis will present in joints of the limbs whereas axial arthritis will present in joints of the spine and pelvis. In certain cases, an individual may only experience pain in a single joint (this is more common in types of arthritis like osteoarthritis) or in multiple joints (this is more common in rheumatoid and enteropathic arthritis).



Diagnosis

Diagnosis of arthritis and arthralgia due to IBD can vary depending upon each specific case. In general, a provider will begin by taking a history and performing several physical exams to test the range of motion and strength of impacted joints.

Your provider will likely order a x-ray first as certain signs of joint damage can be seen with a simple radiograph image. In addition, most insurance companies will not cover an MRI (or other forms of advanced joint imaging) without an x-ray first. If imaging on the x-ray returns normal, which can be common in cases of enteropathic arthritis where joint damage does not occur, your provider will then order an MRI to further investigate the cause of joint pain. It is possible that the MRI may return normal as well if you have a form of arthritis that does not cause visible joint damage.

If there is concern for ankylosing spondylitis, you will likely be sent to do lab work – specifically your provider will have a lab drawn to assess for the presence of the HLA-B27 antigen. Because presence of the HLA-B27 antigen is strongly associated with ankylosing spondylitis, a positive test for this antigen along with symptoms such as back pain and stiffness can help narrow down a possible ankylosing spondylitis diagnosis. More advanced stages of ankylosing spondylitis should be visible on x-ray (e.g. degeneration of the vertebral discs and fusion of the spine); however, in early stages of ankylosing spondylitis, imaging may return normal.



Diagnosis (continued...)

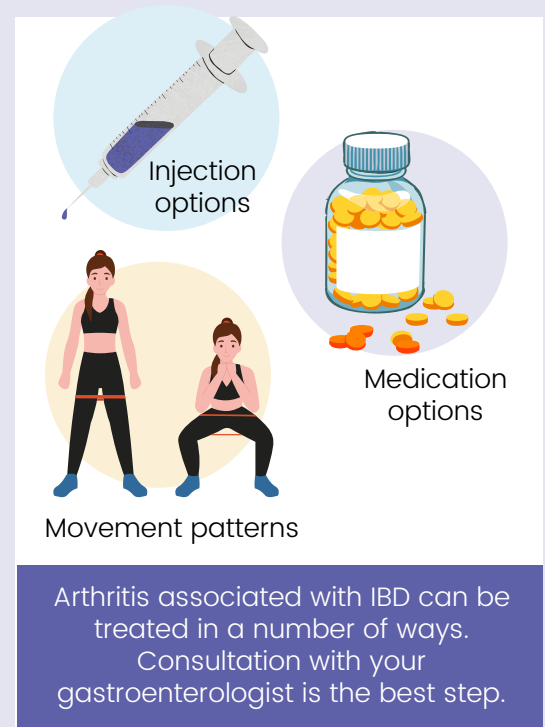
In certain cases, your provider may also have you provide a stool sample or may take a sample of synovial fluid (the fluid that surrounds and lubricates the joints). Certain types of infections can cause joint pain – this is known as reactive arthritis. By taking a stool and/or synovial fluid sample, your provider can assess for certain viruses or bacteria that could be contributing to reactive arthritis.

It is important to note that in early stages of arthritis, in cases of arthritis/arthritis in which joint damage does not occur or types of arthritis without biological markers (e.g. the HLA-B27 antigen) testing may return as normal. In this case, your provider will need to assess your personal medical history and physical assessments in order to make a diagnosis.

Treatment

Treatment of enteropathic arthritis can take numerous directions based on the type of arthritis present. As always, control of IBD disease activity is one of the first steps. While not all types of joint pain associated with IBD are directly correlated with disease activity, many types are and managing IBD symptoms can help limit extraintestinal joint manifestations.

Many of the medication options used in treatment of IBD are also found to be helpful in treatment of arthritis. For example, anti-TNF α therapies (e.g. Remicade and Humira) are frequently used for treatment of both IBD and ankylosing spondylitis. For those with more persistent cases of arthritis, immunosuppressants such as methotrexate, azathioprine, cyclosporine and leflunomide can be helpful. Many individuals with arthritis are recommended to take non-steroidal anti-inflammatory drugs (NSAIDs); however, this is not advised for individuals with IBD due to a correlation between NSAIDs use and exacerbation of IBD symptoms. Collaboration between one's gastroenterologist and rheumatologist is key in finding a treatment that can help to manage both IBD and arthritis appropriately.



Prevention

Because arthritis and arthralgia associated with IBD are largely correlated to disease activity, management of IBD disease activity is key to prevention.

With this being said, arthritis and arthralgia in general can be exacerbated by muscle weakness and unhealthy movement patterns. For example, those with knee arthritis are advised to strengthen muscles surrounding the knee such as the quadriceps, hamstrings and calf muscles. By strengthening the muscles surrounding the joint, pressure can be taken off of the joint itself to alleviate pain severity. A physical therapist can be helpful in guiding appropriate exercises and stretching for those with arthritis and/or arthralgia.

Getting protective pads for occupations or activities that require frequent bending on the floor (e.g. landscaping, gardening, plumbing, etc.) can protect the joints from damage as well. When bending over to pick up objects, it is important to bend at the knees rather than the back to avoid straining the back muscles. For those who lift weights or heavy objects, maintaining appropriate form when lifting can help to protect the joints and prevent damage.



Further Resources

- Arthritis Foundation: Inflammatory Bowel Disease (<https://www.arthritis.org/diseases/inflammatory-bowel-disease>)
- Crohn's and Colitis Foundation: Arthritis and Joint Pain Fact Sheet (<https://www.crohnscolitisfoundation.org/sites/default/files/legacy/assets/pdfs/arthritiscomplications.pdf>)
- Rheumatology Network: Here's What You May Not Know About IBD and Arthritis (<https://www.rheumatologynetwork.com/view/heres-what-you-may-not-know-about-ibd-and-arthritis>)

Citations

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Written by Catherine Liggett
Medically reviewed by Kathryn Vidlock M.D.

