# AUTOIMMUNE DISEASE & EXERCISE

## BACKGROUND

An autoimmune disease is when the immune system fails to recognize self from non-self, is chronically overactive, and mistakenly attacks its own healthy cells. Autoimmune rheumatic diseases (ARDs) are a group of systemic autoimmune disorders that mainly affect joints, bones and soft tissues and are associated with substantial morbidity and mortality (1). There are more than 80 types of autoimmune diseases, with over half of them being considered rare. The overall estimated prevalence is 4.5%, with approximately 2.7% for males and 6.4% for females, and often running in families (2). An autoimmune disease can either be organ-specific or systemic (3). There is an autoimmune disease specific for nearly every organ in the body, usually involving response to an antigen expressed only in that organ. In other autoimmune diseases, such as systemic lupus erythematosus (SLE), the response seems to be directed against antigens that are widely expressed throughout the body (3).

SLE, rheumatoid arthritis (RA), idiopathic inflammatory myopathies (IIM), systemic sclerosis (SSc), and ankylosing spondylitis (AS) are autoimmune diseases that have been strongly related to sustained inflammation, and share common clinical features including periodic pain, chronic fatigue, depression, and, consequently, reduced physical activity and poor health-related quality of life (4, 5). People with SLE report symptoms such as debilitating fatigue, mental deterioration, and pervasive pain that restrict their lifestyle (6). Similarly, SSc patients report symptoms such as skin hardening, painful skin ulcerations, and a lack of energy to cause palpable physical limitations (7).

## RATIONALE FOR EXERCISE FOR PEOPLE WITH AN AUTOIMMUNE DISEASE

Regular exercise at a moderate intensity, appears to be safe and beneficial in modulating some of the most concerning symptoms, such as fatigue, in people with SLE (8, 9), SSc (10), RA (11) and MS (12). Regular exercise training may lead to anti-inflammatory benefits in chronic diseases with systemic low-grade inflammation (i.e. type 2 diabetes) by reducing inflammatory markers (4). Given the potential role of inflammation in the etiology and clinical symptoms of autoimmune diseases, including pain, redness and swelling, it is postulated that exercise training, if able to alleviate the inflammatory process, could also be helpful in treating the symptoms related to inflammation in this population (4). Aerobic training combined with strength training is recommended as routine practice in patients with RA (14), with evidence for improvements in aerobic capacity, physical function, and fatigue (11). Physical inactivity and sedentary behaviour are modifiable risk factors that seem to be the best target to reduce morbidity and mortality in ARDs (5) and therefore should be considered as routine therapy for all ARDs.

## BARRIERS TO EXERCISE

Physical inactivity and sedentary behaviour are highly prevalent in patients with ARDs, with current estimates indicating that ~60% of the patients with an ARD do not achieve the recommended amount of weekly PA (i.e., 150 min/week of moderate to-vigorous physical activity (1)). Sedentary time ranges between 8.3–14.0 hours/day, a higher rate than the general population (~7.5 hours/day) (15). Studies have found patients with ARDs participate in physical activity between 50-70% less than their healthy counterparts (16, 17, 18). Physical inactivity in ARDs may be related to generic and disease-related barriers to physical activity, such as lack of time and motivation, high costs and limited access to specialized facilities, pain, fatigue and fear of aggravating the disease (1). Joint stiffness and contractures, shortness of breath, fatigue, and pain have been identified as barriers for people with SSc to engage in exercise (20).

## EXERCISE CONSIDERATIONS FOR PEOPLE WITH AN AUTOIMMUNE DISEASE

It is important that people with an autoimmune disease are supervised with exercise by physiotherapists and accredited exercise physiologists who are able to tailor the exercise program to the persons individual needs (14). Most people with an autoimmune disease have 'good days' and 'bad days', and there will be times when people will feel better and other times when people will have increased symptoms. This is often referred to as remission and/or flare-up. For some people, the illness can be mild, and symptoms appear to go away, whilst for others the symptoms can impact on their life considerably and require specialised treatment. Common treatments include nonsteroidal anti-inflammatory drugs, cortico-steroidal drugs, and immune-suppressing drugs, which can comprise the persons immune system and make people more prone to infection. It is therefore important to ensure proper hygiene practices are in place during exercise, and that adequate rest is provided where needed.

**Every autoimmune disease presents differently, and therefore there is no 'one size fits all' approach to exercise.**



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## EXERCISE SUGGESTIONS

- "Sit less and move more" is a simple and appropriate strategy to elicit long-term adherence (5).
- Home-based physical activity is a sensible approach for people to still maintain levels of physical activity, without the need to commute (1).
- Exercise programs should be long-term and sustainable so that people can create long lasting habits and positive lifestyle changes.
- Exercise should be structured and follow a gradual and graded approach to ensure people are safe when commencing exercise programs.
- Exercise should be supervised and/or monitored by a team of allied health professionals who are versed in autoimmune disease so they can understand the person's needs.
- Exercise should be comfortable and enjoyable, with adequate rest breaks when needed, and paced appropriately to avoid exacerbating disease symptoms.

## RELATED INFORMATION AND REFERENCES

Exercise is Medicine Australia www.exerciseismedicine.org.au

Exercise Right www.exerciseright.com.au

Find a Physiotherapist www.choose.physio

Find an Accredited Exercise Physiologist www.essa.org.au

Endometriosis Australia https://www.endometriosisaustralia.org/

If you have any concerns about the safety of your patient in commencing an exercise program, please consider referral to a Sport and Exercise Physician.

Find a Sport and Exercise Physician www.acsep.org.au/

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