

# RHEUMATOID ARTHRITIS & EXERCISE

## PROFESSIONAL

### WHAT IS RHEUMATOID ARTHRITIS?

Rheumatoid arthritis (RA) is an autoimmune disorder that can impact a variety of different body systems and structures including the skin, eyes, lungs, heart and blood vessels. Unlike, osteoarthritis, RA is usually symmetrical in clinical presentation affecting joints on both sides of the body at the same time. Familial rheumatoid history is attributable to a two to fourfold increased risk in first-degree relatives and is one of the strongest known risk factors (3). The following table lists additional risk factors, their relationship to the development of RA and whether they are modifiable through lifestyle changes.

RISK FACTOR	ACTION ON RISK OF RA DEVELOPMENT	MODIFIABLE THROUGH LIFESTYLE
Female sex	▲	NO
Exposure to tobacco Smoke	▲	YES
Occupational dust (Silica)	▲	NO
Air pollution	▲	NO
High sodium, red meat, and iron consumption	▲	YES
Obesity	▲	YES
Low vitamin D intake and levels	▲	YES
Fish and omega-3- fatty acid consumption	▼	YES
Moderate alcohol intake	▼	YES
Healthy diet	▼	YES
Statin use	▼	N/A*
Oral contraceptive use/Hormone replacement	▼	N/A

▲ increase risk; ▼ decrease risk; N/A not applicable. \*Lifestyle can assist but should be discussed with treating physician.

One of the most common comorbidities of RA is cardiometabolic disease with approximately 40 – 50% of people with RA having some form of cardiovascular and/or metabolic disease (4-7). Given the chronic systemic inflammation, the overall mortality rate is 1.6 compared to the general population (7). This is in conjunction with a shorter life expectancy due to cardiovascular disease related deaths occurring at a younger age in comparison to the general population (4, 8).

### ASSESSING AND SCREENING COMORBIDITIES

People with RA have a substantially reduced quality of life owing to debilitating reductions in functional capacity. The reductions in functional capacity are largely driven by chronic systemic inflammation but also coexisting declines in cardiorespiratory fitness, skeletal muscle mass and an increase in adipose tissue. This leads to further reductions in physical activity which compounds RA related symptomatology with further deconditioning placing patients at a higher risk of additional comorbidities (9). Inflammatory mediators including cytokines, immune complexes and altered lipid metabolism promote multiple coexisting comorbidities (2). These effect organs such as the liver (insulin resistance and anaemia), brain (fatigue and reduced cognitive function), lungs (inflammatory and fibrotic diseases), muscles (sarcopenia) and bones (osteoporosis) (2).

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Common Comorbidities and lifestyle factors to assess and screen for in RA patients.

- Type I and Type II diabetes
- Hypertension
- Smoking history
- Hypercholesterolemia
- Obstructive and restrictive pulmonary disorders e.g. chronic obstructive pulmonary disease, pleuritis and asthma
- Inflammatory bowel disease
- Mental health disorders e.g. depression and anxiety
- Diet - red meat, alcohol intake and omega-3-fatty acid consumption

### HOW CAN EXERCISE HELP?

One of the most effective and potent treatments for addressing these issues is with prescriptions of exercise, as recommended by the American College of Sports Medicine guidelines (10). Physical activity provides numerous benefits for joint health, mobility, psychological well-being and fatigue through improvements in muscle strength and oxygen capacity leading to reductions in inflammatory mediators. Physical activity is not an aggravator of inflammation rather physical activity is a frontline treatment as an adjunctive anti-inflammatory therapy. When prescribing physical activity, it is important to recognise that people with RA often have difficulties with physical activity adherence (4-7, 9) which necessitates time-efficient, goal-orientated, self-efficacious and individualised exercise prescription. Patients with rheumatoid arthritis often present with a number of comorbidities including cardiovascular and metabolic disease, where exercise has the potential to become another form of medicine to improve quality of life. The current Australian physical activity recommendations suggest accumulation of 150 min/week of moderate intensity exercise or 75 min of vigorous exercise, and two days of resistance-based activities per week. Physiotherapists and accredited exercise physiologists have an integral role in the management of a rheumatoid arthritis patient's quality of life, activities of daily living, physical function and lifestyle management.

### WHAT EXERCISE IS APPROPRIATE?

#### Resistance Exercise

Resistance based exercise is a safe and effective way to improve muscle strength and physical function in RA(11). Resistance training has been shown to reduce disability, inflammation and cardiovascular risk factors(12). Exercises should target large muscle groups to improve overall body function and can be undertaken using bands, body weight or weights/machines. Starting at a light intensity is important for the body to become accustomed to exercise and will assist in technique proficiency.

#### Aerobic Exercise

Aerobic exercise when undertaken at a sufficient dosage to achieve health-enhancing effects may elicit beneficial adaptations in cardiac function. Aerobic exercise may also offer protection against common comorbidities such as hypertension and obesity (13). Aerobic exercise in the forms of cycling, walking, cross-trainer, and rowing are excellent ways to reduce cardiovascular risk factors. Aerobic exercise is safe and can improve measures of disability when undertaken on a frequent and consistent basis, e.g. 30 minutes on most days of the week (14).

### OTHER TYPES OF EXERCISE

#### Hydrotherapy

Hydrotherapy when undertaken as adjunctive therapy to medication, has been shown to reduce inflammatory markers compared to medication alone(15). Hydrotherapy at a moderate intensity can provide cardiovascular improvements by minimising load on the joints. Hydrotherapy should be undertaken in conjunction with a resistance training program to improve muscle and bone health.

#### Tai Chi

Tai Chi is commonly discussed within the arthritis community for balance, strength, and relaxation benefits. For RA there is very low-quality evidence that can neither exclude or confirm positive changes in clinical outcomes, pain or disability(16). Tai Chi should therefore be used with caution until higher quality evidence is published.



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### WHAT IF YOUR PATIENT HAS A 'FLARE-UP'?

During a 'flare-up' it is typically recommended to rest or alter/modify physical activity in the affected area(s). During the period of a 'flare-up' take things a little easier and be mindful of activities that may aggravate the affected area(s). For example, if the wrist or fingers affected then it may be recommended to either rest completely or alter the exercise program, e.g., reduced intensity, weight or changing from dumbbells to bands. In this example, if the wrist or fingers are affected it does not mean a consumer can't exercise lower extremity joints by completing walking, cycling or lower limb weights. An accredited exercise physiologist or physiotherapists will be able to guide the consumer through a 'flare-up' to ensure they stay mobile and active. Still completing some modified physical activity will assist in lowering inflammation and assist with the decreasing the risk of complex comorbidity development.

### EXERCISE AND MEDICATION

Physiotherapists and accredited exercise physiologists have scope in modifying and transitioning a patient's health behaviours. Starting the conversation around safe movement and motion can also assist patients in adopting healthier lifestyle choices. Depending on the patient's medication and RA history there may be times that are more suitable to undertake physical activity compared to others. For example, if they are taking a disease modifying antirheumatic drug, such as methotrexate, or a monoclonal antibody, such as Simponi, there may be optimum times to exercise. If they are on these medications, you may find by the end of their treatment cycle that movement is more challenging. Exercise will not increase the patient's inflammation or cause damage to their joints when prescribed appropriately.

### RELATED INFORMATION AND REFERENCES

Exercise is Medicine Australia [www.exerciseismedicine.org.au](http://www.exerciseismedicine.org.au)

Exercise Right [www.exerciseright.com.au](http://www.exerciseright.com.au)

Find a Physiotherapist [www.choose.physio](http://www.choose.physio)

Find an Accredited Exercise Physiologist [www.essa.org.au](http://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/](http://www.acsep.org.au/)

*Prepared by Justin Holland*

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