

# Time to bust common osteoarthritis myths

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## ABSTRACT

Several common beliefs about osteoarthritis held by people living with the condition and some clinicians are discordant with current evidence and can hinder effective management. Therefore, providing information about the disease and its mechanisms could lead to better management of people with osteoarthritis. This paper addresses the seven most common myths surrounding osteoarthritis relating to its causative factors, pathology, assessment and management. We present the evidence to refute these misconceptions and argue that physiotherapists are in an ideal position to provide education to people with osteoarthritis. Ultimately, physiotherapists can play a central role in the provision of care for people with osteoarthritis.

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## INTRODUCTION

Osteoarthritis is the most common form of arthritis and, typically, affects the joints of the knees, hips, spine and hands (Hochberg, Silman, Smolen, Weinblatt, & Weisman, 2015; Palazzo, Nguyen, Lefevre-Colau, Rannou, & Poiraudou, 2016). People with osteoarthritis often experience pain, joint stiffness and weakness; this can affect their mobility, function, ability to work, mental well-being and independence (Hall et al., 2008; Hawker et al., 2010, 2011). Approximately 670,000 New Zealanders live with some form of arthritis, of which 56% of these people have osteoarthritis. Furthermore, prevalence is expected to reach 1 million by 2040 due to projected increases in the age of the population and the growing obesity rate, factors known to affect the development of osteoarthritis (Access Economics, 2018; Cross et al., 2014; Palazzo et al., 2016). The total estimated cost of arthritis in New Zealand is \$12.2 billion per year, including \$993 million in health sector costs, \$1.2 billion in lost productivity and \$1.6 billion in formal and informal care (Access Economics, 2018).

There is currently no cure for osteoarthritis, and unlike other forms of arthritis, there are no disease-modifying drugs with proven efficacy available for the condition. The focus of recent research has been on the maintenance of physical function, symptom reduction and limiting disease progression (Hochberg et al., 2015). Exhausting all conservative treatment options is encouraged before more invasive interventions are employed (Hunter, 2017; Van Manen, Nace, & Mont, 2012; Zhang et al., 2008). Current clinical guidelines recommend the use of non-pharmacological treatments, such as lifestyle change, weight loss, exercise and manual therapy (non-pharmacological), before

considering medication or surgery (Bennell, 2013; Bennell & Hinman, 2011; Dean & Gormsen Hansen, 2012; Fransen et al., 2015; Merashly & Uthman, 2012; Van Manen et al., 2012; Zhang et al., 2008). The National Institute for Health and Care Excellence (NICE) Osteoarthritis Guidelines (2014) advocate for a staged progressive model of clinical management, which shows a progression from non-pharmacological to pharmacological to surgical management of osteoarthritis. However, non-pharmacological treatments are underutilised, and while failed conservative management is a prerequisite for surgery, some people are offered joint replacement surgery without having completed appropriate conservative management (Brand et al., 2014; Hunter, 2011; Hunter & Lo, 2009). The continued focus by some clinicians on the provision of pharmaceutical and surgical treatment options has prompted some researchers to publish editorials arguing that most people with hip and knee osteoarthritis in high-income countries receive substandard care (Hunter, 2011, 2017; Hunter & Lo, 2009; Hunter, Neogi, & Hochberg, 2011). Additionally, it has been suggested that some clinicians are guilty of benign neglect because they take a fatalistic view of osteoarthritis or see conservative treatment as ineffective or too complicated for their patients (Brand et al., 2014; Poitras et al., 2010).

Despite the considerable amount of research detailing best practice management for osteoarthritis, many high-income countries, including New Zealand, have been slow to adopt these recommendations (Baldwin, Briggs, Bagg, & Larmer, 2017; Bennell, Dobson, & Hinman, 2014; Hunter, 2017). This delay has been attributed, in part, to some of the common myths about the disease (Hunter, 2017). In particular, myths about causative factors, the pathology, assessment and management

of osteoarthritis abound. This paper aims to challenge the myths commonly attributed to osteoarthritis that limit effective treatment; outline best clinical practice; and encourage physiotherapists to engage with people with osteoarthritis.

## MYTHS COMMONLY ATTRIBUTED TO OSTEOARTHRITIS

### Myth 1: Osteoarthritis is just an old person's disease

It is true that the likelihood of having osteoarthritis increases with age, but it is incorrect to claim that it is an "old person's disease" as hip and knee osteoarthritis can also affect younger people (Ackerman, Kemp, Crossley, Culvenor, & Hinman, 2017). Ackerman et al. (2015) demonstrated the considerable personal burden experienced by younger people (20 to 55 years) with lower limb osteoarthritis, and recommended the provision of targeted services for people in this age group. Furthermore, younger aged people warrant additional attention to reduce the development of comorbidities which may further compromise their well-being (Skou, Pedersen, Abbott, Patterson, & Barton, 2018). Hence, it is false to solely attribute the development of the disease to increasing age as its aetiology is multi-factorial (Hochberg et al., 2015). The exact association between osteoarthritis and increasing age is complex and not currently fully comprehended (Hochberg et al., 2015). Increasing age can lead to thinning and fracture of the cartilage covering the articular surfaces of the joints. These changes can result in joint laxity, predisposing the joint to increased shear stresses and injury, promoting progression of the disease (Cross et al., 2014; Hochberg et al., 2015).

However, many factors other than age are associated with an increased chance of developing osteoarthritis. These include gender, obesity, genetics, joint structure, a history of injury and occupation (Palazzo et al., 2016). Osteoarthritis is characteristically more prevalent in women than men, with an odds ratio of 1.6 (95% confidence interval [CI] 1.4-2.1) (Silverwood et al., 2015). The reason for this is linked to differences in hormones, joint alignment, cartilage volume and muscle strength (Cross et al., 2014). People who are obese are 2.7 times more likely (95% CI 2.2-3.3) to have knee osteoarthritis than people who are not obese (Silverwood et al., 2015). Increased body weight is believed to cause additional joint loading and damage (Bliddal, Leeds, & Christensen, 2014) as well as to contribute to systemic inflammation (Piva et al., 2015). Previous hip or knee joint injury is strongly associated with the development of osteoarthritis (Hochberg et al., 2015). Rupture of the anterior cruciate ligament predictably leads to the development of knee osteoarthritis in 13% of people within 10 to 15 years of the injury, and this rate increases to between 20 and 40% if the injury also includes damage to other ligaments, bone or cartilage (Palazzo et al., 2016). Poor joint alignment is associated with the development of osteoarthritis and more strongly associated with progression of the disease (Cerejo et al., 2002; Sharma et al., 2010). In the hip, joint dysplasia can commonly lead to the early development of osteoarthritic changes (Jacobsen & Sonne-Holm, 2005). Additionally, excessive occupational loads have been linked to increased risk of disease development, especially if the job or occupation requires a lot of kneeling, squatting, lifting or climbing (Palmer, 2012).

*Practice point myth 1:* Osteoarthritis can affect younger people and should be considered as a provisional diagnosis where there are appropriate signs and symptoms.

### Myth 2: Osteoarthritis is just joint wear and tear

Osteoarthritis is commonly typified by structural cartilage changes. However, there are also changes in the muscles, bone and synovial tissue at the joint. Hence, it may be best to conceptualise osteoarthritis as a syndrome or a collection of signs and symptoms. The pathology of osteoarthritis is multifaceted, and many different factors contribute to the joint degeneration that occurs (Dell'Isola, Allan, Smith, Marreiros, & Steultjens, 2016). These include biomechanical overload, structural changes of the cartilage, metabolic mechanisms, inflammatory processes and genetic traits. While mechanical factors are known to be necessary for the development of osteoarthritis, it is still unclear what role the other factors play (Hochberg et al., 2015). Osteoarthritis is known to be a metabolically active disease, and changes can also occur within the peripheral and central nervous systems, which may explain non-mechanical pain symptoms described by some people with osteoarthritis (Cruz-Almeida et al., 2013; Mease, Hanna, Frakes, & Altman, 2011; Mills, Hübscher, O'Leary, & Moloney, 2019; Skou et al., 2018).

In contrast to the notion that the joint is wearing out, moderate levels of physical activity and exercise are believed to be protective against the development of hip and knee osteoarthritis (Bennell & Hinman, 2011; Fransen et al., 2015; Skou et al., 2018). Normally functioning muscles have a protective effect on joints as they distribute load across the joint and help to maintain postural alignment (Bennell, Wrigley, Hunt, Lim, & Hinman, 2013). Furthermore, there is a plethora of studies demonstrating that improving muscle function with exercise can reduce pain and improve function for people with hip and knee osteoarthritis (Fransen et al., 2015; Hochberg et al., 2012; Hunter & Lo, 2009; Loew et al., 2012; Skou et al., 2018). Conversely, weak muscles at or around joints can lead to the development of osteoarthritis due to a higher chance of injury and altered load management (Hochberg et al., 2015).

*Practice point myth 2:* Osteoarthritis is not "just" joint wear and tear. The disease is better conceptualised as a syndrome that includes joint wear and failed repair. Hence, it is essential to avoid describing or referring to osteoarthritis as "wear and tear" when speaking with patients.

### Myth 3: The worse the imaging looks, the worse the joint is

Imaging, such as radiographs and magnetic resonance imaging (MRI), is a standard tool used to diagnose osteoarthritis. However, only half of the people with radiographic osteoarthritis (visible x-ray changes) have clinical symptoms (Jordan et al., 2007; Phan et al., 2005). As such, the assessment of a person's signs and symptoms may be more clinically relevant than the imaging findings. Furthermore, clinical guidelines suggest that requesting an x-ray is not required to make the diagnosis of osteoarthritis and is potentially problematic as it reinforces a mechanical view of the disease (Bennell, 2013; Hunter, 2017; McAlindon et al., 2014; National Institute for Health and Care Excellence, 2015). In most cases, the diagnosis of hip or knee

joint osteoarthritis can be made by considering the signs and symptoms that a person presents with (Hochberg et al., 2015). Imaging should only be considered when appraising a person's appropriateness for surgery or when ruling out other potential pathologies.

*Practice point myth 3:* Consider the additional merit of imaging carefully. Radiographic changes can correlate poorly with symptoms and lead to unnecessary interventions. Take care when describing imaging findings to people with osteoarthritis. For example, avoid using terminology such as “degeneration” or “bone on bone” that may incite fear-avoidance behaviours or the belief that nothing can be done to manage the symptoms of osteoarthritis.

#### **Myth 4: Osteoarthritis is the non-inflammatory arthritis**

Osteoarthritis was traditionally considered to be non-inflammatory arthritis, but the presence of inflammatory processes are now acknowledged (Berenbaum, 2013). Synovial tissue inflammation is believed to be one of the key intraarticular processes that contributes to nociception and the subsequent pain experience, with the inflammatory changes leading to intraarticular swelling (Felson et al., 2016). Moreover, extra-articular structures can also become inflamed and contribute to the generation of nociceptive input (Hochberg et al., 2015). Low-grade chronic inflammation may be a consequence of knee injury, or induced by metabolic syndrome or *inflammaging* (age-associated inflammation), all of which are known risk factors for the development of knee osteoarthritis (Berenbaum, 2013). Recent research has suggested a relationship between osteoarthritis and metabolic disorders (Da Costa et al., 2012; Mills et al., 2019). While the exact link is not yet fully understood, a high body mass index and cardiometabolic disease are associated with systemic inflammation, and it is this systemic inflammation which is thought to influence osteoarthritis (Mills et al., 2019). Some researchers have argued that metabolic-osteoarthritis should be described as a distinct category or phenotype of osteoarthritis (Dell'Isola et al., 2016; Deveza et al., 2017). Of note is that exercise is known to reduce systemic inflammation, which may explain why physical activity positively affects pain and function for people with osteoarthritis (Skou et al., 2018).

*Practice point myth 4:* Exercise can be beneficial in reducing inflammation for people with osteoarthritis, and physiotherapists can play a key role in prescribing exercise programmes. Additionally, physiotherapists should consider engaging the patient's general practitioner for an analgesic review when medication is considered appropriate.

#### **Myth 5: Conservative treatments are ineffectual and only designed to delay joint replacement surgery**

Education, lifestyle and dietary changes, and exercise are the cornerstone of management for people with osteoarthritis (Bennell, 2013; Fransen et al., 2015; Hochberg et al., 2015; Hunter & Lo, 2009). The focus of treatment for a person with osteoarthritis should be on the maintenance of physical function, modification of symptoms and limiting disease progression (Fransen et al., 2015; Hochberg et al., 2015). Treatment options should be employed progressively, starting with more conservative treatments (exercise, weight loss,

education), and then progressing to pharmacological and more invasive interventions (medication, surgery) as needed, while incorporating patient preferences (Fransen et al., 2015; Larmer, Reay, Aubert, & Kersten, 2014; National Institute for Health and Care Excellence, 2015). In particular, there is abundant high-quality evidence supporting exercise-based treatments for people with hip and knee osteoarthritis (Bennell & Hinman, 2011; Fransen et al., 2015). Research shows that exercise can positively influence pain, muscle function, body weight, cardiovascular fitness, mood and disease progression (Bartholdy et al., 2017; Bennell et al., 2014; Fransen et al., 2015; Kujala, 2009; Zhang et al., 2008), regardless of the structural changes and symptom severity. The addition of joint mobilisation and manipulation to exercise programmes may also be beneficial (Fitzgerald et al., 2016; Pinto et al., 2013).

Two of the biggest limitations to the efficacy of exercise-based treatment are prescription and patient adherence. Poor exercise prescription for people with knee osteoarthritis can result in either overloading the affected joint, leading to increases in pain and swelling; or more commonly, prescribed exercises that are not challenging enough to facilitate a training effect (Brosseau et al., 2016; Fransen et al., 2015; Hunter, 2017). The inclusion of strategies to improve the adherence to the prescribed exercises could boost treatment effectiveness (Bennell et al., 2014; O'Brien, Bassett, & McNair, 2013). Physiotherapists should consider employing strategies that assist people to begin and sustain new behaviours that improve their osteoarthritis (Bassett, 2015). Furthermore, as osteoarthritis is a chronic disease, treatment should be viewed as a continuum of care; hence, booster sessions should be considered to assist in the maintenance of regular exercise (Brand, Ackerman, Bohensky, & Bennell, 2013; Rosemann, Laux, Szecsenyi, & Grol, 2008).

*Practice points myth 5:* Exercise, education and weight loss (where appropriate) are essential interventions for all people with osteoarthritis, regardless of disease progression or symptom severity. Prescribed exercises or physical activity programmes should be collaboratively designed, should challenge the patient and promote a training response, and should incorporate strategies to enhance adherence. Joint mobilisation may also be beneficial if clinically indicated.

#### **Myth 6: Discussing weight loss with people with osteoarthritis is outside my scope of practice**

Increased body weight is a known risk factor for the development of lower limb osteoarthritis, and obesity is commonly associated with progression of the condition (Chapple, Nicholson, Baxter, & Abbott, 2011; Jacobs, Vranceanu, Thompson, & Lattermann, 2018; Palazzo et al., 2016; Silverwood et al., 2015). Furthermore, obesity is associated with more negative treatment outcomes (Bliddal et al., 2014). Weight loss is strongly recommended for people with obesity and osteoarthritis, not only to decrease joint loading, but also to counteract the inflammatory effects of metabolically active tissue (Chapple et al., 2011; Cicuttini & Wluka, 2016; Jacobs et al., 2018; Palazzo et al., 2016; Silverwood et al., 2015). Reducing body weight can significantly lessen a person's likelihood of developing osteoarthritis. Critically, a reduction of ≥10% of body weight can lead to considerable reductions in

pain for people who already have the disease (Atukorala et al., 2016). While some physiotherapists may believe that discussing weight loss with a patient is outside their scope of practice, physiotherapists are well placed to assist people with making lifestyle changes that will contribute to weight loss.

*Practice point myth 6:* Obesity is a known modifiable risk factor for osteoarthritis, and physiotherapists should provide support to people embarking on a weight loss programme or refer them on to the appropriate health professional, e.g. dietician or exercise physiologist.

### **Myth 7: Joint replacement surgery is inevitable**

Total joint replacement (TJR) continues to be a valid treatment option for people with advanced hip and knee osteoarthritis, but TJR surgery is not appropriate for everyone with osteoarthritis (Gustafsson, Ekman, Ponzer, & Heikkilä, 2010; Gwynne-Jones, Gray, Hutton, Stout, & Abbott, 2018; Parsons, Godfrey, & Jester, 2009). Disease progression differs from person to person, and many people may never reach the point where TJR surgery is appropriate or necessary. Chapple et al. (2011) identified that disease progression is multifactorial, with predictive factors including increasing age, varus knee alignment, radiographic changes, high body mass index and the presence of the disease at multiple joints. Additionally, not everyone benefits from joint replacement surgery, with a substantial portion of people continuing to report long-term joint pain after surgery (Beswick, Wylde, Gooberman-Hill, Blom, & Dieppe, 2012; Lingard, Katz, Wright, & Sledge, 2004). Further research is needed to identify people most likely to benefit from surgical intervention (Rice et al., 2018).

*Practice point myth 7:* Physiotherapists should only consider referring a person for orthopaedic review (TJR) after the patient has failed an appropriate exercise programme that meets best practice clinical guidelines (Brosseau et al., 2016; Fransen et al., 2015).

## **WHAT DOES THE FUTURE HOLD FOR OSTEOARTHRITIS MANAGEMENT?**

Exercise, education and weight loss are recommended in several clinical guidelines (Larmer et al., 2014); however these treatment options are not consistently or routinely offered to people with osteoarthritis in primary care (Haskins, Henderson, & Bogduk, 2014; Hunter, 2017; Runciman et al., 2012). Within New Zealand, the general practitioner is often the first, and most commonly consulted health professional for osteoarthritis (Jolly, Bassett, O'Brien, Parkinson, & Larmer, 2017). However, a multi-faceted approach of exercise, education and lifestyle advice is needed to provide effective, evidence-informed care for people with osteoarthritis. There is clearly a need for a multi-disciplinary approach.

Primary care management of osteoarthritis in New Zealand, at present, is fragmented and episodic, and considerable evidence-to-practice gaps exist. Calls have been made for an osteoarthritis model of care in New Zealand, which would provide a framework for implementing evidence-informed care within the New Zealand primary care system (Baldwin et al., 2017). The term "model of care" refers to an evidence-informed framework or policy that outlines the ideal development and delivery of principles of care within a health system. A model of

care goes one step further than clinical guidelines by not only outlining *what* the care components should be, but also *how* to deliver them within a particular health system (Briggs, Towler, Speerin, & March, 2014). An osteoarthritis model of care would incorporate chronic care principles such as multi-disciplinary management, collaborative care planning and self-management strategies.

In Australia, experienced physiotherapists are employed as musculoskeletal coordinators within the New South Wales Osteoarthritis Chronic Care Program Model of Care (Briggs et al., 2014). These musculoskeletal coordinators perform initial assessments of people with osteoarthritis and link these patients to relevant health professionals within the multi-disciplinary team as well as provide overall leadership of the programme at each site. With expertise in exercise prescription and chronic pain management, physiotherapists are ideally positioned to coordinate and lead person-centred care within a New Zealand osteoarthritis model of care (Baldwin et al., 2017); upskilling and/or extended scope of practice roles could be required. As an example, the New Zealand government's Mobility Action Programme (MAP) is supporting multi-disciplinary, community-based teams to provide early management for people with osteoarthritis (Ministry of Health, 2018). While the MAP represents a positive step towards optimising osteoarthritis management in primary care, formal policy support is needed to upscale this programme and develop an osteoarthritis model of care that would facilitate provision of equitable care to all New Zealanders.

## **CONCLUSION**

Many myths exist about osteoarthritis, and some will limit the potential benefits that people may gain from conservative treatment. Busting these myths will lead to a better understanding of osteoarthritis and could contribute to better outcomes for people living with the disease. Physiotherapists are well placed to do this through effective education of patients and other healthcare professionals, and by leading the implementation of best-practice care.

## **KEY POINTS**

1. Many myths and misconceptions exist about osteoarthritis that can have a negative impact on how it is managed and thus outcomes.
2. As physiotherapists, we should explore osteoarthritis beliefs of our patients to identify and clarify potential misconceptions about the disease.

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