

BMJ Case Reports

Submission template

TITLE OF CASE <i>Do not include "a case report"</i>
Hip Osteoarthritis: Patients with complex comorbidities can make exceptional improvements following intensive exercise and education
SUMMARY <i>Up to 150 words summarising the case presentation and outcome (this will be freely available online)</i>
<p>A 71 years old man presenting with hip osteoarthritis, with a complex range of comorbidities was referred by his GP to CHAIN (Cycling against Hip PAIN), a six week programme developed to aid self-management of hip osteoarthritis through exercise, education and advice, as defined by NICE guidelines.</p> <p>Significant improvements were seen in Oxford Hip Score, The Hip Disability and Osteoarthritis Outcome Score (HOOS) – Function Score, Sit to stand test, Timed up and go test, pain scores and hip flexion. There was also a weight loss of 2.1kg. The man reported "an amazing difference" in his affected hip and leg, and improved fitness.</p> <p>Many clinicians would have questioned the man's suitability for the programme due to his co-existing medical conditions. This case study shows that patients may be much more able than we think to achieve significant improvement with exercise.</p>
BACKGROUND <i>Why you think this case is important – why did you write it up?</i>
<p>Osteoarthritis affects a third of people in the UK aged 45 years and over,[1] and 8% will be affected by hip arthritis, the most common reason for a total hip replacement. These figures are forecast to nearly double by 2035 owing to an ageing population and a rise in obesity levels.</p> <p>NICE guidelines for osteoarthritis recommend three core treatments for patients presenting with osteoarthritis in primary care: education and advice, aerobic and muscle strengthening exercises, and weight loss if appropriate.[2] However, there is no specific guidance on what form the exercise should take, or how it should be delivered. The Cochrane Collaboration's Review of Exercise for Osteoarthritis of the Hip concludes that there is a high level of evidence that land-based exercise does reduce pain and improve physical function for patients, but calls for further research on optimal exercise content and dosage.[3]</p>
CASE PRESENTATION <i>Presenting features, medical/social/family history</i>
<p>A 71 years old man diagnosed with hip osteoarthritis was referred by his GP to CHAIN, a hip osteoarthritis self-management programme. He had suffered from ankylosing spondylitis affecting his neck and lower spine for 50 years, and had also had a subtotal colectomy as a result of Crohns disease. He had had hypertension for over ten years and type 2 diabetes. In addition he had frequent gallstones; mild asthma and bronchitis. He had also damaged the cartilage in his right knee in his twenties, and subsequent surgery had damaged his knee ligament.</p> <p>Prior to starting the CHAIN programme, measurements were taken of the man's Oxford Hip Score, The Hip Disability and Osteoarthritis Outcome Score (HOOS) – Function Score, weight, pain at rest and weight bearing (using a 0-10 visual analogue scale), sit-to-stand test (time taken to sit-to-stand five times), timed up and go test (time taken to rise from chair, walk 3m, turn, return to sitting on chair), peak expiratory flow, and degree of flexion in the hip. The man defined that his personal goals for the programme were to strengthen his right leg, and be able to use it more; improve his physiological welfare and fitness; and use his walking stick less.</p>

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INVESTIGATIONS <i>If relevant</i>			
Osteoarthritis was confirmed by x-ray in February 2014.			
DIFFERENTIAL DIAGNOSIS <i>If relevant</i>			
n/a			
TREATMENT <i>If relevant</i>			
<p>The man took part in CHAIN (Cycling against Hip PAIN), a programme conceived by a consultant orthopaedic surgeon and a physiotherapist as a way of implementing NICE recommendations within a community setting. It is a six weeks programme consisting of a weekly one hour group session at a local leisure centre comprising 30 minutes education and advice and 30 minutes static cycling, along with a home based cycling and exercise programme.</p> <p>The education sessions include information on cycling technique, the benefits of exercise for osteoarthritis, diet and pain relief (see Figure 1). The difficulty of the static cycling sessions is graduated with the final week being equivalent to a public static cycling session. There were ten people in the group undertaking the programme.</p> <p>The man was enthusiastic in the education component of the programme, regularly voicing his experiences, opinions and contributing to group discussions. Owing to his ankylosing spondylitis, he required initial additional input during the exercise class on adaptive postures and optimal positioning on the bike. Additionally, his respiratory history required time to be dedicated to developing breathing control techniques and strategies to enable self-management of his exertion induced shortness of breath. Both of these concepts fitted seamlessly into the educational and exercise ethos of pacing.</p>			
OUTCOME AND FOLLOW-UP			
<p>The patient, although presenting with complex comorbidities, benefitted greatly from taking part in the CHAIN programme, and his significant progress made throughout the programme had a positive impact on the rest of the group.</p> <p>Improvements were seen in the Oxford Hip Score, HOOS Function Score, Sit to stand test, Timed up and go test, pain scores and hip flexion. There was also a weight loss (see Table 1).</p>			
Table 1: Changes in outcome scores following the CHAIN programme			
	Before	After	Change
Oxford Hip Score	16.0	21.0	5.0
EQ5D VAS	80.0	65.0	-15.0
HOOS Function Score	13.2	44.1	30.9
Sit to stand (s)	18.1	16.6	1.5

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Timed up and go (s)	36.5	10.9	25.6
Pain at rest	3.3	2.3	-1.0
Pain weight bearing	3.8	2.0	-1.8
Flexion (degrees)	80.0	95.0	15.0
Weight (kg)	87.8	85.7	-2.1

The man reported an "amazing difference" in the improvement in the strength and use of his right leg. He also reported an improvement in his physiological welfare and fitness as he was able to cope better in the heat, and needed to rest less. However, he wasn't able to use his walking stick less owing to existing numbness in his feet and lower limbs.

Six weeks after the programme the man was cycling around town for at least 15 minutes a day, and he continues to cycle and walk his dogs as he finds this helps with the hip pain.

DISCUSSION *Include a very brief review of similar published cases*

It is estimated that osteoarthritis has between 68% to 85% comorbidity rates.[4] At present there are no protocols or guidelines on how the NICE recommendations can be adapted for comorbidity, although studies have found that coexisting disorders such as cardiac disease, hypertension, type 2 diabetes, COPD, chronic back pain, chronic rheumatic diseases may restrict the ability to exercise.[4,5] Conversely, however, exercise is accepted as a beneficial intervention for these disorders and others when evaluated independently.

The outcomes of this case study suggest that patients with hip osteoarthritis and complex morbidity are able to exercise at higher levels than many health professionals would think, as long as they are assessed and supervised appropriately. However, more research is needed to aid decision making on the most appropriate types and intensity of exercise for these patients.

LEARNING POINTS/TAKE HOME MESSAGES *3 to 5 bullet points – this is a required field*

- 8% of the UK population are affected by osteoarthritis of the hip, and this is set to increase in the future
- NICE guidelines for osteoarthritis recommend three core treatments for patients presenting with osteoarthritis in primary care: education and advice, aerobic and muscle strengthening exercises, and weight loss if appropriate. However, there is no specific guidance on what types of exercise should be used, their intensity, or how they should be delivered
- Standard practice for patients reporting hip stiffness to their GP can be varied and inconsistent as there is no uniform pathway of treatment.
- Exercise benefits patients with osteoarthritis and complex comorbidities. Importantly, the exercise will likely benefit both the primary complaint (osteoarthritis) and the co-existing morbidities
- Health professionals should not restrict exercise therapy to young and active patients

REFERENCES *Vancouver style (Was the patient involved in a clinical trial? Please reference related articles)*

1. Arthritis Research UK. *Osteoarthritis in General Practice. Data and perspectives*. Chesterfield: Arthritis Research UK; 2013
2. National Institute for Health and Care Excellence (NICE). *Osteoarthritis. Care and management in adults. NICE Clinical Guideline 177*: <http://www.nice.org.uk/guidance/CG177> (accessed 26 June 2014).
3. Fransen M, McConnell S, Hernandez-Molina G, Reichenbach S. Exercise for osteoarthritis of the hip. *Cochrane Database of Systematic Reviews* 2014, Issue 4. Art. No.: CD007912. DOI: 10.1002/14651858.CD007912.pub2.
4. De Rooij P, Steultjens M, Avezaat E, Hakkinen A, Klaver R, van der Leeden M, Maas T, Roorda LD, van der Velde H, Lems W, Dekker J. Restrictions and contraindications for exercise therapy in patients with hip and knee osteoarthritis and comorbidity. *Physical Therapy Reviews* 2013; 18(2); 101-111
5. Reeuwijk K, de Rooij M, van Dijk GM, Veenhof C, Steultjens MP, Dekker J. Osteoarthritis of the hip or knee: which co-existing disorders are disabling? *Clin Rheumatol* 2010; 29; 739-747

FIGURE/VIDEO CAPTIONS *figures should NOT be embedded in this document*

Figure 1: CHAIN Programme Overview

PATIENT'S PERSPECTIVE *Optional but encouraged*

The programme made me realise that exercise was the best way to improve my pain and the use of my leg. It has made such a difference to me. I can now turn over in bed at night without having pain. I am determined to keep up with the exercise. Sometimes I don't want to go out and walk the dogs, but once I am halfway through my walk I realise that I am walking more easily.

I think it is important that you stick with the programme and the exercise. It is tough the first couple of sessions, but you need to see it through to get the benefits, and to acquire the knowledge and advice that will help. It is also really positive that it is done in a local leisure centre. I never realised how much support was on offer at these places, and the enthusiasm for exercise at the centre was really infectious.

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