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Evaluation of a 16 week, exercise professional led physical activity and dietary intervention for obese patients with knee osteoarthritis

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Background: Osteoarthritis is the most prevalent joint condition in the world . The knee is the primary large joint affected by the disease. Obesity has been shown to both cause and exacerbate osteoarthritis and is the most notable risk factor which can be modified . There is evidence to endorse weight reduction as a treatment for osteoarthritis .There is also good evidence showing that education and Exercise interventions can reduce pain and increase physical ability.

Aim: To improve patient's knee osteoarthritis symptoms by improving the diet, physical activity level and reducing the weight of obese patients.

Method: 181 Patients were referred to the programme from various clinical settings including primary care, and secondary care orthopaedic and rheumatology services. To qualify for the intervention patients had to show radiological evidence of knee osteoarthritis and have a BMI over 30. 112 Patients completed the programme with an average age of 57.4. The main reasons for program withdrawal were health reasons and inability to attend the session times. The programme was 16 weeks in duration and consisted of 2 exercises and one dietary session per week. Several objective and subjective markers were used at the beginning and end of the intervention to evaluate the effect of the programme on the patient's symptoms. Primary assessments included Oxford knee score (OKS), 30 second sit to stand (30s s-s), 6 minute walk test (6MWT) and the EQ5D quality of life assessment (EQ5D). Weight was measured as a secondary outcome. Using sub analysis of the results it was attempted to identify which patient's benefitted most and least from the programme. Patients were categorized based on age, initial OKS, and initial weight. These categories were then ranked against each other in relation to the patient's assessment results in order to compare categories.

Results: Statistically significant changes were seen in outcome measures: OKS (mean change 5.03) $(p<0.05)$(SD=9.8), 30s s-s(mean change 3.8)(SD 3.7)$(p<0.05)$, 6MWT(mean change 115.4)(SD 126.5)$(p<0.05)$, EQ5D(mean change 10.4) (SD 22.4) $(p<0.05)$, weight (mean change -4.0) (SD 4.4)$(p<0.05)$. Sub analysis identified patient categories of age <40 or 50-60, weight 100-110kg and initial OKS 10-20 as the most successful during the intervention, obtaining the most improvement across the outcome measures.

Conclusion: The 112 patients who completed the programme showed significant improvements in both objective and subjective markers assessed. The results suggest that interventions of this type, delivered by an exercise professional, are effective and could have a useful role in the management of knee osteoarthritis.

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