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# Quality of Life and Functional Capacity following Peripheral Arterial Disease Exercise Programme

Marie Guidon

*Royal College of Surgeons in Ireland*

Hannah McGee

*Royal College of Surgeons in Ireland*

Cathal Kelly

*Beaumont Hospital, Dublin*

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# Quality of Life and Functional Capacity following Peripheral Arterial Disease Exercise Programme



Guidon M<sup>1</sup>, McGee H<sup>2</sup> and Kelly C<sup>3</sup>



<sup>1</sup> School of Physiotherapy, Royal College of Surgeons in Ireland; <sup>2</sup> Division of Population Health Sciences (Psychology), Royal College of Surgeons in Ireland, <sup>3</sup> Vascular Surgery Department, Beaumont Hospital

## INTRODUCTION

Peripheral arterial disease (PAD) is a manifestation of generalised atherosclerotic disease in which the arterial lumen becomes progressively narrowed by atherosclerotic plaques. This results in reduced blood flow to the tissues causing pain on exercise, relieved by rest (Intermittent Claudication [IC]). As PAD is a chronic, progressive disease with a significant cardiovascular and cerebrovascular risk burden it has a considerable impact on functional capacity and quality of life (QOL). Current evidence suggests that 27 million people in Europe and North America have PAD<sup>1</sup>. The main aim of treatment is maintenance or improvement in quality of life by eliminating ischaemic symptoms and preventing progression to vascular occlusion. The use of patient-based measures of treatment effect including functional capacity and disease-specific quality of life questionnaires has been recommended<sup>2</sup>.

## AIM

The purpose of this study was to determine the effects of participation in a supervised exercise programme on functional capacity and quality of life in patients with intermittent claudication (IC).

## METHODOLOGY

Patients with intermittent claudication (ankle/brachial index <0.9) were randomly allocated to a control or an exercise group.

The control group received usual care. The exercise group participated in a twice-weekly supervised exercise programme for 12 weeks. Subjects completed functional capacity (Walking Impairment Questionnaire (WIQ)) and disease-specific quality of life (Intermittent Claudication Questionnaire (ICQ)) questionnaires at baseline and 12 weeks.

The WIQ has been specifically developed and validated for participants with IC to measure community-based walking ability and to monitor the effectiveness of therapeutic interventions<sup>3</sup>. It measures participant-reported walking speed, distance and stair-climbing ability. The ICQ has been validated for use in an IC population to identify small but important changes in quality of life<sup>4</sup>. A lower score indicates a better quality of life.

## RESULTS

Data was analysed using the Statistical Package for the Social Sciences (SPSS Version 17). Variables were examined for normality and paired t-tests and Wilcoxon Rank tests were used to compare differences over time. All comparisons were made at the 95% confidence level.

Forty-four patients with IC were randomly allocated to a control (n=16) or exercise group (n=28). Thirteen participants (control n= 2; exercise n= 11) withdrew prior to 12-week data collection and one participant was unavailable due to stent insertion. The final numbers available for analysis were 30 (control n = 13; exercise n=17).

The mean age of participants was 67 (+/- 8.12) years and 70.5% were male.

### Disease-specific QOL (ICQ)

There was a statistically significant decrease (p= .003) in ICQ scores from baseline to 12 week follow-up (mean difference = -9.74; 95% CI: -3.76 to -15.71) in the exercise group indicating an improved quality of life. No significant difference was demonstrated in the control group (Figure 1).

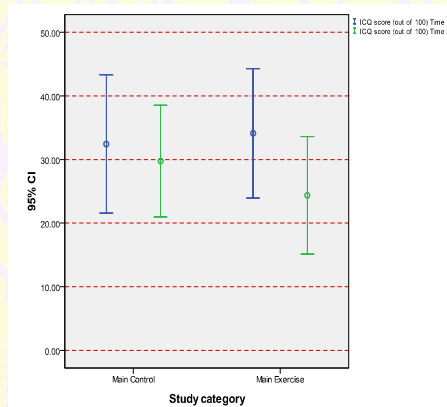


Figure 1. ICQ Scores

### Functional Capacity (WIQ)

In the exercise group increases were observed in all WIQ scores with a statistically significant increase (p=.015) in the WIQ Distance score (mean difference = 14.28; 95% CI: 2.96 to 25.61) (Figure 2). In the control group scores for the WIQ Stair-Climbing and Distance categories decreased with a marginal increase in the WIQ Speed score. None of these changes were significant.

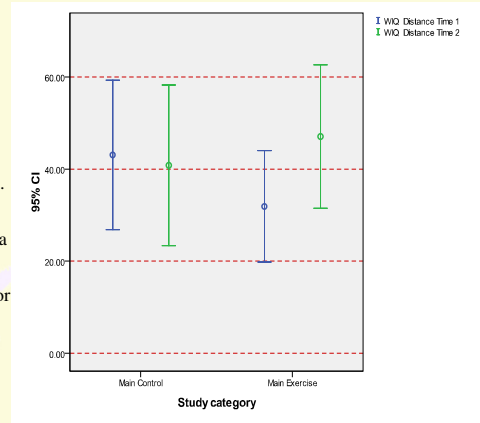


Figure 2: WIQ Distance Scores

## DISCUSSION

Health-related QOL scores provide a useful and valid outcome measure in the evaluation of therapeutic effectiveness and factors that affect patients directly e.g. social and physical functioning. Disease-specific measures are more responsive to QOL improvements. In this study a significant improvement in disease-related quality of life was demonstrated following participation in a supervised exercise programme. Improvements were also noted in all functional capacity categories of the WIQ (Walking Speed, Distance and Stair-Climbing ability) reaching significance for walking distance. These findings support the results of previous studies where gains in exercise performance were associated with QOL improvements<sup>5</sup>. There were no significant changes in the control group.

## CONCLUSION

Supervised exercise intervention has a beneficial effect on quality of life and functional capacity. Assessment is ongoing to determine if these improvements will be maintained at one year post exercise intervention.

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