

Supported Exercise programme for Adults with Congenital Heart disease (SEACHange)

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Introduction

Congenital heart disease is a lifelong condition, with many patients requiring repeated open heart surgeries and/or may develop heart failure, arrhythmia or problems associated with acquired heart disease.

The benefits of regular exercise are well-known but are often not promoted in this patient population.

Aim

The aim of this pilot study was to determine the feasibility of introducing a supported exercise programme into clinical practice to promote physical and psychological well-being in adults with congenital heart disease living in Scotland.

Method

Patients attending the Scottish Adult Congenital Cardiac Service review clinic were given a patient information leaflet explaining the purpose of the study with contact details if they wished to participate.

Those who volunteered were assessed using a 6 minute walk test to stratify according to their baseline level of fitness.

- Group 1 participants walked less than 450m
- Group 2 participants walked more than 450m.

Both groups contained a range of moderate to severe congenital anatomies from Tetralogy of Fallot to Fontan physiology.

Baseline measurements of grip strength, biceps and quads strength, PHQ-9, GAD-7 and BMI were completed for both groups with additional SNIP testing on Group 1.

Group 1 participants were supplied with a Powerbreathe inspiratory muscle trainer and a Salaso exercise programme.

Group 2 participants were given a daily step goal and a Salaso exercise programme.

Baseline measurements were repeated at week 12



Results

Group 1 – Ten patients were recruited and eight completed the programme (80%)

Group 2 – Eighteen patients were recruited and fifteen completed the programme (83%)

Improvements were found across the baseline measurements in both groups with the greatest gains in the Group 1 participants.

Group 1	WK 1	WK 12	Difference	% Change
6 min	374.5m	409.3m	+33.9m	9%
R Quad	264.9N	323.3N	+58.4N	22%
L Quad	267.0N	350.5N	+83.5N	31%
R Bicep	82.6N	109.6N	+27N	33%
L Bicep	70.3N	91.9N	+21.6N	31%
R Grip	48.0lbs	51.8lbs	+3.8lbs	8%
L Grip	44.8lbs	52.5lbs	+7.7lbs	17%

Group 2	WK 1	WK 12	Difference	% Change
6 min	497.4m	526.5m	+29.1m	6%
R Quad	303.2m	348.9N	+45.7N	15%
L Quad	312.9N	363.9N	+51N	16%
R Bicep	105.2N	141.5N	+36.3N	35%
L Bicep	96.7N	115.5N	+18.8N	19%
R Grip	68.9lbs	71.4lbs	+2.5lbs	4%
L Grip	65.7lbs	67.7lbs	+2.0lbs	3%

Conclusion

Exercise in the adult cardiac congenital population is safe and effective, and feasible to deliver, when patients are given guidance and structure.

We demonstrate physical benefits which may have an economical benefit to the health service, for example as prehabilitation. This is an area which warrants further exploration in a larger congenital population.

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