Exercise training in children with Tetralogy of Fallot or Fontan circulation, an RCT

Is it effective and safe, and does it improve quality of life?

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Method - RCT

Inclusion 27%
54 children
10 to 15 years
70% male

Fallot n = 24

Fontan n = 30

Baseline assessment

Exercise-group n=14
Control-group n=10

Exercise-group n=18
Control-group n=12

Follow-up

Exercise-group N = 32
Control-group N = 22
Standardized exercise training
- Training with physiotherapists
- Group format
- Nearby their home
- 3 x per week, for 1 hour
- 60%-70% Heart Rate Reserve
Is it effective?
Is it safe?
Does it improve quality of life? - Self

TACQOL – Child Form

- Negative emotional functioning
- Positive emotional functioning
- Social functioning
- Cognitive functioning
- Motor functioning
- Pain and physical symptoms

Change from baseline to follow-up

- Exercise-group
- Control-group
Does it improve quality of life? - *Parent*

### TACQOL - Parent Form

- **Negative emotional functioning**
- **Positive emotional functioning**
- **Social functioning**
- **Cognitive functioning**
- **Motor functioning**
- **Pain and physical symptoms**

![Chart showing changes in emotional and social functioning](chart.png)
Which children benefited the most?

- No significant influence of congenital heart disease and gender
- Children with low QoL at baseline vs. children with high QoL
Associations improvements exercise capacity and QoL

- improvement peak VO2 ≠ improvement physical/psychosocial QoL

- But: change in peak load was associated with change motor functioning ($r=.60$)
Take home message

Exercise training improved: peak load
  cognitive functioning (self)
  motor functioning (parent)

Children with low QoL at baseline benefited the most

- No clear association exercise capacity improvements → QoL improvements
- QoL changes might be the result of psychosocial component of exercise-program.
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