

Posters

10. Physiotherapy

S107

229 Using theory to design a physical activity behaviour change intervention: An evidence synthesis of barriers, enablers and pathways of change in CF

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Background: Behaviour change interventions are complex. To develop a successful evidence based intervention, a systematic approach must be taken in considering evidence within the target population.

Aims: To inform the development of a physical activity behaviour change intervention for children with CF.

Methods: The Behaviour Change Wheel (Michie *et al* 2011) was used as a framework to systematically review existing evidence. Stage 1: identify barriers, enablers and pathways of change from existing evidence. Stage 2: map these to behaviour system components and intervention functions which could be used to overcome barriers and enhance enablers. A literature search (conducted July 2012) of Medline, Embase and AMED retrieved studies with a wide range of methodologies. The search was not limited to randomised controlled trials.

Results: A wide range of barriers and enablers were found which mapped to behaviour system components (physical and psychological capability, reflective and automatic motivation, physical and social opportunity). Intervention functions which could be used to modify each behaviour system component were then identified: training, enablement, education, persuasion, incentivisation, coercion, environmental restructuring, modelling, and restriction. All intervention functions were considered within the scope of practice for clinicians.

Conclusion: There are reported barriers and enablers which map to all behaviour system components affecting physical activity behaviour in CF. This supports the need to develop a multi-component physical activity intervention with a range of intervention functions which can be tailored to individual patient needs.

230 Barriers to exercise participation in adult CF patients

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Objective: Exercise is recognised as an essential part of physiotherapy care for patients with CF. However the uptake of exercise remains disappointingly low, particularly amongst our older patients. We wanted to explore some of the possible barriers to exercise and use this information to try and improve exercise participation.

Method: Exploratory semi-structured interviews were conducted during out-patient clinics. 10 patients took part (5 male and 5 female, average age 34.2 yrs). An interview guide was used to discuss their experiences and share their views.

Findings: There was a variety of factors that act as barriers to exercise participation amongst the patients interviewed. Some common themes were identified that illustrated experiences and perspectives of the patients. One theme was the concern that exercise may be detrimental to health with concerns raised regarding flare ups of joint pain, weight loss, inducing hypoglycaemia and exercising too much and causing an exacerbation of respiratory symptoms. Another concern was based on embarrassment, with excessive sweating, increased coughing and body image being mentioned. There was also lack of understanding by some patients who associated exercise induced breathlessness as a sign of exacerbation. These patients did not feel confident enough to work at a sufficient level to gain much benefit. Lack of time and tiredness after working were also mentioned and there was also the concern that disability benefits could be stopped if the patient was seen exercising.

Conclusions: The barriers to exercise are complex and need to be discussed on an individual basis with patients so that exercise participation can be improved.

231 How active are CF children? Assessing physical activity levels at annual review

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Regular exercise and physical activity in CF patients have positive benefits to health and quality of life. Research also demonstrates a slower decline in pulmonary function, and lower risk of dying in CF patients who have higher levels of exercise tolerance and aerobic fitness. CF children are reported to be as active as their healthy peers, with boys being more active than girls. This study looked at the feasibility of objectively assessing and scoring physical activity levels at annual review. Subjects completed the Physical Activity Questionnaire for Children (PAQ-C), or Adolescents (PAQ-A) at annual review. The PAQ questionnaires are a validated, self reported measure of general physical activity in children and adolescents. Twenty-two subjects (11 male), with a mean age of 11.6 years, and mean FEV₁ 81%, completed the study. No significant differences were found in PAQ scores between males and females, primary or secondary school aged children, those with normal or moderately impaired lung function, or those patients colonised with *Pseudomonas*. The study also described the frequency and type of reported activities, the participants' weekly patterns of activity, and their self-perception of activity levels. The PAQ questionnaires were quick and straightforward to administer, providing an objective measure of physical activity at annual review. Exercise and habitual physical activity should be incorporated as key components of clinical practise in CF. The PAQ provides an objective measure that can be used longitudinally to measure, monitor and motivate physical activity levels in children with CF.

232 Preliminary findings of a study comparing Incremental Step Test (IST) performance and physical activity levels in children with CF

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There are many reported benefits to health and quality of life in CF patients from regular exercise and physical activity. Higher levels of aerobic fitness slow the decline of pulmonary function and reduce the risk of dying. CF children have been shown to be as physically active as their healthy peers, although differences according to age and gender have been reported. Annual exercise tolerance testing is recommended, which can be time consuming and costly to perform. This study investigated the relationship between exercise tolerance and physical activity levels in children with CF. As part of the annual review subjects performed: the Incremental Step Test (IST), a valid functional field test of exercise tolerance in children with CF; and the Physical Activity Questionnaire for Children (PAQ-C), or Adolescents (PAQ-A), a validated measure of general physical activity in children and adolescents. Twenty-two subjects (11 male), with a mean age of 11.6 years, and mean FEV₁ 81%, completed the study. There was a positive but non-significant correlation demonstrated between the IST score and the PAQ score for the whole group, however the males subjects demonstrated a strong and near significant correlation ($r_s = 0.593$, $p = 0.054$). Whilst PAQ is not a substitute for formal exercise testing, it adds valuable clinical information, which can be used to explore, motivate and promote individualised physical activity programmes. Based on the findings in this study, further investigation in a larger sample is warranted.