

Developing mental and physical wellness for looked after young people through a fitness and nutritional guidance programme: A pilot study.

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Abstract

This pilot study aimed to explore the suitability of a fitness and nutritional guidance programme (FNGP) for looked after young people and examine changes in physical fitness and mental wellness levels. Fourteen looked after young people took part in a nine-month long FNGP. Reflective feedback was obtained from the therapists and attendance was monitored to examine suitability. Fitness (i.e. body mass index, resting heart rate, lung capacity, aerobic capacity, lower body strength, flexibility) and wellness (i.e. physical indicators of anger, depression, stress and tension) levels were measured at four time points using Fitech V5 Wellness Software. The key strengths of programme were its accessibility for looked after young people, their positive interaction with the fitness therapists and their activity engagement. Attendance rates were high, with 13 participants attending at least one physical activity session per week for nine months. Repeated measures analysis of covariance revealed significant positive changes in the participants' fitness and wellness levels across the nine month period when controlling for alcohol consumption and smoking status. Results provide tentative support for the application of suitable FNGPs for looked after young people. The value of activity engagement for looked after young people in residential care and its effects on health and wellbeing are discussed.

Keywords

Residential childcare, fitness, therapy, wellbeing

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Introduction

The benefits of physical activity on young people's health and the need to improve their levels of physical activity has been widely cited (Strong et al., 2005); however, little research has explored physical activity programmes for looked after young people in residential care settings. Although the legal basis varies from country to country, the term 'looked after' refers to the status under law of young people under the age of 18 who are under the supervision of the local authority, either under a court order (Emergency

Protection Orders, Interim Care Orders, Full Care Orders) or through an arrangement made voluntarily with parents (Condie, Moscardini, Grieve & Mitchell, 2009).

The health of looked after young people involves a broad definition of physical, emotional, social, and personal health (Broad, 1999) within physical and social environments (Fleming, 1999). The World Health Organisation (2006), claim that physical health problems have the greatest impact on minority groups in society, particularly those in residential care, and have significant long-term health consequences. Meltzer, Corbin, Gatward, Goodman and Ford (2003) note that two-thirds of all looked after children in the UK had at least one physical health complaint. This research suggests that looked after young people are more likely than their peers to experience problems such as co-ordination difficulties (16% in looked after young people compared with 4% in the general population), eye or sight problems (27% in looked after young people compared with 20% in the general population), and stiffness or deformity of limbs (7% in looked after young people compared with 3% in the general population). Looked after young people in residential care in the UK also struggle with poorer mental health, approx. 70% of looked after young people (Golding, 2010) compared with 10% in the general population (Green, McGinnity, Meltzer, Ford & Goodman, 2004) due to their experiences of neglect and/or abuse (Tarren-Sweeney, 2008). In addition to physical needs, social and emotional needs have not always been met in childcare facilities (Steckley, 2011). Many looked after young people do not have access to extra-curricular learning and activity opportunities that could help combat this (Vacca, 2006). As such, the Department of Health (2011) in the UK have recently emphasised the importance of physical activity, healthy eating, emotional health, and wellbeing on the mental health of looked after young people.

Physical fitness has a powerful effect on physical health for all young people as it combats cardiovascular disease, increases skeletal infrastructure (Ortega, Ruiz, Castillo & Sjöström, 2007) and can have a positive effect on body weight, body fat, blood pressure, and aerobic fitness (Donald, 2006). Physical activity can also have a positive effect on self-image, psychological well-being (Kirkcaldy, Shephard & Siefen, 2002), confidence, self-esteem, empowerment (Fleming, Bamford & McCaughley, 2005), stress and anger (Roemmich Lambiase, Salvy & Horvath, 2008). Goodwin (2006) outlined four coping mechanisms: substance use, emotional coping, aggressive behaviour coping, and physical activity. In a study on young people, the former three coping behaviours resulted in a likelihood of increased depression, whereas physical activity was linked with lower levels of depression (Kirkcaldy et al., 2002). Furthermore, high body mass index (BMI) and increased levels of sedentary behaviour correlate with depression (Anton et al., 2006).

Steckley (2011) examined views of care workers and looked after young people on being involved with a football team and found several benefits of physical activity participation including engagement, a sense of belonging, a connection with sport, building relationships with other looked after young people and with staff, and experiencing themselves in a positive light. Another study carried out by the Social Work Inspection Agency (2006) cited a health project which increased levels of physical activity by facilitating access to leisure facilities (e.g. providing leisure passes, sports clothing, one-to-one support etc.) and results showed that those who used the service had improved

social skills, increased confidence, enjoyment of the activities, increased relaxation, and benefits of one-to-one support.

Considering the benefits cited above, it is surprising that a study on environmental determinants of activity in Texas, reported that only 26% of looked after young people in residential care recalled playing a sport during the previous four weeks (Gay et al., 2011). Another study found that only four percent of looked after young people in the UK are enrolled in schemes for excelling in sport, art, and learning (Browne & Lynch, 1999). These studies indicate the low levels of physical activity for looked after young people and the opportunities for improvements in this area. It is regularly cited, however, that looked after young people have great difficulty maintaining regular attendance at services, in part due to dysregulated lifestyles, stemming from disorganized childhoods (Hughes, 2004; McNicholas, O' Connor, & Bandyopadhyay, 2011). Sport and physical activity may be helpful methods of teaching regularised behaviour and consistent positive support for health (Baruch, Gerber & Fearon, 1998; Armour & Duncombe, 2012). Furthermore, building relationships is an essential component in improving the lifestyles of looked after young people (Egelund & Jakobsen, 2009). The relationships developed between looked after young people and the facilitators of physical activity programmes can help to improve interpersonal skills, and a sense of achievement can be ameliorated by positive adult mentors delivering these activities (Vacca, 2006). This type of intervention may also provide a diversion which can prevent looked after young people from realising active treatment is taking place.

It is important that residential childcare services look to implement physical activity programmes in which accessibility, regulation and enjoyment of the service are central. The current study investigates a prototype fitness programme in a residential setting. The specific aims were to: (a) promote health, fitness, and nutrition education through a fitness and nutritional guidance programme (FNGP); (b) investigate participants' uptake and engagement with the programme; and (c) examine initial trends in physical activity and wellness levels of participants.

Method

Participants and Therapists

Fourteen looked after young people living in a private residential care service in Ireland were recruited for this pilot study (43% male, mean age = 15.71 years; SD = 1.07; age range = 14-18). The study was conducted over two years and the duration of each programme was nine months. Written consent was obtained from all participants and their guardians to participate in this study and they were informed each week that it was their choice whether or not they wished to take part in the sessions. The fitness therapists included one male (age = 31) and one female (age = 34); both had experience of child care work and Masters qualifications in Exercise and Nutrition Science.

Description of the FNGP

All participants were invited to train at least once per week for nine months. Each session lasted one hour and involved a series of cardiovascular, strength, and conditioning exercises such as weight training, running and flexibility work. Activity days were organised every three months for all LAYPs to engage together as a group. These involved

outings in activity centres or fun runs and provided an outlet for shared experiences of fun and peer interaction opportunities. Nutritional guidance for healthy eating and exercise and warnings about unhealthy eating, substance abuse, and addiction were delivered once for each looked after young person.

Data Collection

Engagement was gauged by monitoring attendance levels each week and reflective feedback on the programme was provided by both therapists. Physical fitness and mental wellness data were gathered for all participants at four time points (baseline, three months, six months, and nine months). This data was gathered using Fitech V5, which is wellness software developed for health professionals. The Physical Fitness Report and Quick Stress Survey are the two components of this software that were utilised in this study. The former is an objective measure based on the participant's performance in a number of physical fitness tests (see Table 1). The latter is a digital survey, which measures whether certain signs of stress, i.e. tension, anxiety, anger and depression are present in participants, based on physical demeanour. It is measured by a Likert Scale with 20 questions.

Measure	Description
Body Mass Index (BMI)	An indicator of total body composition.
Resting Heart Rate (RHR)	Measured using a Polar TM heart rate monitor before a fitness session.
Lung Capacity	Peak Flow (PEF) gives an indication of the size and power of lung.
Aerobic Capacity	Aerobic capacity is the highest amount of oxygen consumed during maximal exercise. Aerobic capacity was tested using the one mile walk (MW) test.
Flexibility	Flexibility is the range of movement available to a joint or group of joints, measured using the Sit and Reach (SnR) test.
Lower Body Strength	The Squat Test (SqT) is a measure of lower body strength endurance.

Table 1 Physical Fitness Measures.

Results

Attendance and Uptake

With the exception of one participant who did not attend their final session, each participant completed at least one fitness session every week for nine months.

BMI

Participants were categorised according to the BMI cut-off points proposed by the WHO (2006). At baseline, two participants were in the 'obese' range and after nine months, one had moved into the 'normal' range. The other had moved into the 'overweight' range after three months and continued to improve thereafter. A further five participants were 'overweight' at baseline and each of their BMIs decreased throughout the programme with three of them having moved into the 'normal' range by the end of nine months. One participant was 'underweight' at baseline and their BMI shifted to the 'normal' range by three months and remained there at six months (there was no nine month measure for this participant). Finally, there were six participants in the 'normal' range at baseline; five of these remained in this range, although one participant shifted into the 'overweight' range. Apart from one, all participants' BMI scores either converged in a healthy direction towards the 'normal' range or remained in that range.

Data Analyses

Data analyses were conducted using SPSS 21. A series of repeated measures analyses of covariance (ANCOVAs) were conducted to examine the differences in physical fitness and mental wellness scores of participants across the time points, factoring out the covariate influence of smoking and alcohol consumption status (these were dichotomous variables i.e. do/ do not smoke/ drink). This is consistent with other studies that used smoking and alcohol consumption as covariates to avoid confounding effects on health (e.g. Gordon-Larsen, Boone-Heinonen & Sidney, 2009).

Missing data were treated using wise list deletion. Mauchly's test indicated that the assumption of sphericity had been violated for the variables RHR, flexibility and tension, therefore the degrees of freedom were corrected using the Greenhouse-Geisser estimates of sphericity for these variables. Post-hoc analysis, pairwise comparisons were performed and the Bonferonni correction was applied to the confidence interval, which revealed the exact time periods that resulted in significant changes.

Variable	Significant change found at
RHR	0-3 months (Mean change: 79.67 - 74) 0-6 months (Mean change: 79.67 - 73.21) 0-9 months (Mean change: 79.67 - 70.69)
Lung Capacity (PEF)	0-3 months (Mean change: 376 - 458.46) 0-6 months (Mean change: 376 - 495.08) 0-9 months (Mean change: 376 - 515.77)
Aerobic Capacity (MW)	0-3 months (Mean change: 38.79 - 46.66) 0-6 months (Mean change: 38.79 - 48.79) 0-9 months (Mean change: 38.79 - 52.16) 3-9 months (Mean change: 46.66 - 52.16)
Flexibility (SnR)	0-9 months (Mean change: 36.69 - 49.77) 3-9 months (Mean change: 41.46 - 49.77)
Lower Body Strength (SqT)	0-3 months (Mean change: 39.31 - 56.08) 0-6 months (Mean change: 39.31 - 61.53) 0-9 months (Mean change: 39.31 - 70.54) 3-9 months (Mean change: 56.08 - 70.54) 6-9 months (Mean change: 61.53 - 70.54)
Tension	0-6 months (Mean change: 4.15 - 2.38) 0-9 months (Mean change: 4.15 - 2.05)
Anxiety	0-6 months (Mean change: 3.93 - 2.51) 0-9 months (Mean change: 3.93 - 2.12) 3-9 months (Mean change: 3.04 - 2.12)
Anger	0-6 months (Mean change: 3.97 - 2.65) 0-9 months (Mean change: 3.97 - 2.59) 3-6 months (Mean change: 3.65 - 2.65) 3-9 months (Mean change: 3.65 - 2.59)
Depression	0-6 months (Mean change: 3.19 - 2.2) 0-9 months (Mean change: 3.19 - 1.92) 3-9 months (Mean change: 2.96 - 1.92)

Table 2 Time periods that revealed significant changes in physical and wellness variables.

Reflective Feedback from Fitness Therapists

According to the fitness therapists, strengths of the programme lie in its accessibility, the sustainment of positive relationships between therapists and participants, and gentle integration of participants into the programme. The therapists' experience in the field gave them insight, which enabled them to adapt programmes to engage looked after young people. It is notoriously difficult to engage looked after young people in regular activities (Harris, Kuramoto, Schulzer, & Retallack, 2009) and the fact that the therapists travelled to the participants' respective houses for each session almost certainly helped the high attendance rate. The therapists' previous experience working in residential care also enabled them to build strong relationships with participants, which were described as fundamental to the positive experiences of physical activity for the participants. At the beginning of the two-year study, four participants were recruited and this increased over

time to fourteen. The fitness therapists believed this was due to encouraging feedback from their peers and their witnessing the positive aspects of the programme. It was also noted by the therapists that more peer interaction would have been preferable, therefore a peer leisure activity group has since been set up in the host organisation. Furthermore, communication proved to be one of the main difficulties in organising the programme as there is high staff turnover in residential care. To combat this, the fitness programme had been noted in each house's weekly schedule.

Discussion

Approximately 57% of adolescents in Ireland do not meet the recommendations for physical activity (Roberts et al., 2004). The current pilot study was an initial insight into the appropriateness, benefits and engagement of physical activity programmes for looked after young people.

Most participants completed at least one fitness session each week that they were involved in the programme (except for one participant who missed their final training session). This is an encouraging finding as looked after young people are much less motivated to avail themselves of the services provided to them in care settings (McNicholas et al., 2010). Session accessibility, good relationships between the therapists and the looked after young people, and gentle integration of participants into the fitness programme were major strengths of this study and allowed for greater participation levels. Comments from the therapists indicate that these were perceived causal factors in the positive changes observed in fitness and wellbeing.

The use of weekly fitness sessions coincided with the enhancement of several areas of physical health for the looked after young people including BMI, RHR, lung capacity, aerobic capacity, flexibility, and lower body strength. Improvements were significant after three months for all indicators of fitness except for flexibility and continued to improve over the nine-month period. These findings are supported by many studies, such as those reported by the U.S. Department of Health and Human Services (USDHHS, 2008), documenting that regular physical activity in adolescence improves strength and endurance, helps build healthy bones and muscles, helps control weight, and may improve blood pressure.

In addition, the looked after young people in this study reported positive changes in their wellness including levels of tension, anxiety, anger, and depression with significant improvements seen after six months and continued improvement over time. This is somewhat in line with a meta-analysis exploring the benefits of exercise on cognition, which indicated that shorter programmes may offer significant psychological benefits but programme of six months or longer are more beneficial (Walsh, 2011). These findings are of particular importance to looked after young people due to the high risk of mental health difficulties (Zetlin, Weinberg & Shea, 2006) and they are also supported by previous research which reported that increased self-esteem and decreased feelings of depression, stress, and anxiety are related to physical activity (USDHHS, 2008).

Opportunities for physical activity and healthy eating habits are largely determined by physical environments and social, economic and cultural factors that influence access, availability and uptake (Scottish Executive, 2007). Few studies focus on determinants,

benefits, or engagement of physical activity for looked after young people in residential care. This study is, therefore, unique in its formation, and the results suggest that by delivering accessible, regular fitness programmes with weekly sessions as well as nutritional guidance, looked after young people can develop physically and psychologically.

The findings of this study must be taken within the context of some limitations. The analysis does not take psychological, occupational therapy, educational, or other social care interventions into consideration. Similarly, this study did not have scope for using a control group, neither of which factors allows for direct causal interpretations. Furthermore, the variables were operationalized in a unique way that may not be generalisable to other settings e.g. the specific intensity of fitness sessions was not accounted for. The sample size in this study was also small with missing data in some cases, which means data should also be interpreted cautiously. Future studies involving a larger number of homes (and thereby participants) and the evaluation of social, emotional, and behavioural outcomes would contribute to further knowledge of this area.

It is important to note that physical, mental and emotional wellbeing of looked after young people are essential preconditions for successful learning (HM Inspectorate of Education, 2006). In addition, research implies that physical activity may help improve academic behaviour and achievement in areas such as time taken to complete academic tasks, and concentration and attentiveness in the classroom (Centers for Disease Control and Prevention, 2010). This area was beyond the scope of the current study; however, it is suggested that future research could examine differences in learning capacity related to physical activity programmes. Future research could also use qualitative analyses to gain insights from looked after young people about their experiences of the programmes and the specific areas of fitness programmes that they enjoyed.

Fitness programmes should not be seen as replacements for professional mental health interventions; however, such interventions must look beyond looked after young people's engagement in mental health services exclusively, and must include a focus on more physically active and healthier environments that looked after young people enjoy and of which they are happy to make use. The current study offers early reinforcement for fitness programmes within care services, and for designated staff members for physical fitness to be part of the structural environment within residential care homes, their role is actively to encourage looked after young people. This has been shown to be a significant predictor of physical activity engagement for looked after young people (Gay et al., 2011; The Scottish Government, 2002).

The current study was a pilot, with a larger follow-up study proposed in the next few years. This pilot study emphasises the positive contribution of physical activity interventions for looked after young people who can be vulnerable to health deficiencies. The results are tentative, however, and must be considered with caution as this work was completed with a small number of looked after young people in a specifically Irish context. Nonetheless, there is a dearth of research involving looked after young people and pilot studies are necessary to begin informing professionals about interventions that may work in this context. The next stage must progress this under-researched area,

particularly exploring and validating factors that can improve fitness programmes for looked after young people.

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