Gardening and food growing for healthy weight

Evidence shows that gardening and food growing help to achieve and maintain healthy weights by influencing:

- **Fruit and vegetable consumption in children and adults;** Nelson *et al.*, 2007; Alaimo *et al.* 2008; Nelson *et al.*, 2011
- **Levels of physical activity** Hawking *et al.,* 2013; Park *et al.* 2008
- **Body mass index** Zick *et al.* 2013

Background

The Government's obesity strategy 'Healthy Lives, Healthy People; a call to action on obesity in England' has identified that "overweight and obesity represent probably the most widespread threat to health and wellbeing" (Department of Health, 2011). 61% of adults are overweight or obese, and 23% of 4-5 year olds and 33% of 10-11 year old. The level of obesity in England, along with the rest of the UK, ranks as one of the most obese nations in Europe. It is the consequence of excess weight that makes these statistics so serious, as it is a major risk factor for diseases including type 2 diabetes, cancer and heart disease. Alongside the serious ill-health it provokes, being overweight can reduce peoples' prospects in life, affecting self-esteem and mental health (Department of Health, 2011).

Excess weight gain is the result of eating more calories than needed and/or undertaking insufficient levels of physical activity to match the calorie intake. Although this energy imbalance is driven by complex environmental, physiological and behavioural factors, changes in diet to reduce energy intake along with increasing physical activity, are key to achieving and maintaining a healthy body weight. The National Institute for Health and Clinical Excellence (NICE) clinical guideline on obesity includes advice for people to eat at least five portions of fruit and vegetables each day, in place of foods higher in fat and calories, and to make enjoyable physical activities part of everyday life. Gardening and food growing can address both of these recommendations and gardening is recognised as moderate-intensity physical activity, which adults are advised to undertake for 30 minutes or more on five or more days of the week (NICE, 2006).

Case study: Warwickshire Master Gardeners

Growing for better health.

Evaluation of the Master Gardener Programme show that a common theme from interviews with new growers participating in the programme is '*growing more vegetables means more exercise and time being active and the opportunity to get fresh air*'. Results show that 48% of the new growers spend 1-2 hour/week growing food and 50% spend more than 2 hours/week, including 7% that spend 8 or more hours/week. In addition, the new food growers ate and average of 4.5 portions of fruit and vegetables per days after being part of the programme for 12 month and 4.9 portions per day after being part of the

Evidence of impact of gardening and food growing on :

I) Fruit and vegetable consumption

Reviews of academic studies from the UK and abroad, concluded that food growing programmes in schools can have positive impacts on pupil nutrition and attitudes towards healthy eating, specifically related to willingness to try new foods and taste preferences (Nelson *et al*., 2011; Draper and Freedman, 2010). Examples include the following

- a study carried out in the USA 11-12 year old students involved in food growing over a four month period comncluded that students were more willing to taste, and ate, a greater variety of vegetables than those in the control group (Ratcliffe *et al.,* 2011).
- Lineberger and Zajicek (2000), USA, reported more positive attitudes towards vegetables and increased snack preference for fruit and vegetables amongst 8-11 year old students involved in hands-on school gardening programmes.
- Evaluation of Food for Life Partnership (FFLP) in the UK found significant associations between healthy eating and FFLP related behaviours (e.g. cooking and growing); following participation in FFLP the proportion of primary school-age children eating five or more portions of fruit and vegetables increased by 28% (Orme *et al*., 2011).
- Nelson *et al*. (2011) reported details of a number of studies demonstrating that pupils engagement in food growing activities resulted in increased consumption of vegetables, but also noted that most of the studies only considered whether pupils consumption habits had changed as an immediate effect of their involvement in growing and highlighted the lack of longitudinal evidence research confirming whether such programmes can change eating habits longer term.

For adults, Alaimo *et al*. (2008), reported that household members who participated in community gardening consumed fruits and vegetables 1.4 more times per day than those that did not and that they were 3.5 times more likely to consume the recommended 5 portions a day of fruits and vegetables. In the UK, the low-income diet and nutrition survey (Nelson *et al*., 2007) showed that men and women living in households that grew food consumed more fruit and vegetables that other men and women.

II) Physical activity

Gardening is a physical activity and the range of garden tasks that use the upper and lower body such as digging, turning compost, raking offer moderate intensity physical activity whilst other tasks that use primarily the upper body in standing or squatting postures such as hand weeding, mixing soil sowing and transplanting seedlings offering low intensity physical activity (Park *et al.,* 2008). Calorie calculators from various sources provide estimates of calorie expenditure for different gardening activities, indicating that garden work burns around 250 – 500 calories per hour, depending on the level intensity of the activity (Boots diet, 2013; Calories per hour, 2013).

The Growing a Healthier Older Population in Wales (GHOP) project (Hawking *et al.,* 2013) measured the impact of being a gardener on aspects of physical and psychological health and wellbeing, comparing gardeners on an allotment plot or at a community garden with people same age group who were on an allotment waiting list. In this study, 68% of gardener participants reported exercise frequencies that met physical activity recommendations, compared to only 25 % of adults in the same age group in the Welsh population in general. Similarly, Park *et al.* (2008) concluded that older gardeners in their study met their physical activity recommendation through gardening.

In the review of studies relating to the impact of food growing programmes in schools, Nelson *et al.* (2011) noted that numerous studies mentioned that the perceptions of those involved was that the food growing contributed to making young people more physically active, but only a few studies reported actual results of physical activity levels. In one study Herman *et al*. (2006) showed that children involved in afterschool gardening programmes self-reported a significant increase in physical activity levels. Harris *et al.* (2009) report on a meta-analysis showing that encouraging physical activity in schools was only partially successful in improving children's health and unlikely to reduce obesity in itself and concluded that gardening needs to be part of a more concerted programme of physical activity to encourage children to be more active. The physical tasks of food growing, such as digging and weeding, contributed to a broader understanding of the range of way of staying active and

teachers report that children and young people take greater responsibility for their own health (RHS, 2010).

III) Body mass index

A recently published study (Zick *et al*. 2013) published results from their study evaluating the potential weight control benefits of community gardening. Using unique administrative data from Salt Lake City Utah, they examined body mass index (BMI) data from community gardening participants in relationship to BMI data for three comparison groups (neighbours, siblings, and spouses). In the comparisons, the data was adjusted for gender, age, and the year of the BMI measurement. Results showed that both women and men community gardeners had significantly lower BMIs than their neighbours who were not in the community gardening programme. Similarly significantly lower BMIs were observed for women and men community gardeners compared with their sisters or brothers. The third comparison with their spouses showed no statistically significant differences and the authors hypothesise that spouses would likely enjoy the dietary advantages of the community garden and might also help with the physical demands of gardening. In summary, Zick *et al*. (2013) concluded that *"health benefits of community gardening may go beyond enhancing the gardeners' intake of fruit and veg. Community gardens may be a valuable element of land use diversity that merits consideration by public health officials who want to identify neighbourhood features that promote health"*.

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Further information

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