Public health outcomes of parkrun: a prospective 12-month study

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**BACKGROUND**

Mass participation sports events are recognised as a way of engaging low active individuals in health-enhancing physical activity. One example of a mass participation event that takes place on a frequent basis is parkrun: a global network of free weekly 5km run/walks in outdoor public spaces. Cross-sectional studies have identified perceived health and wellbeing benefits of parkrun participation⁴, but there is a need to assess sustained behaviour and health outcomes.

**AIM**

To examine changes in self-reported physical activity, body mass index, and psychological wellbeing over 12 months among participants of parkrun.

**METHODS**

**DESIGN:** Prospective cohort study with a 12 month follow up.

**SAMPLE:** 354 new adult registrants of a UK parkrun.

**MEASURES:** Self-reported measures of physical activity (International Physical Activity Questionnaire short form⁵), weight and height, happiness (Short Depression and Happiness Scale⁶), and stress (Perceived Stress Scale⁷), were completed at registration, 6 months and 12 months. Objective data on attendance and fitness (i.e. run dates and finishing times) for the 12-month study period were obtained from the parkrun database.

**RESULTS**

**CHANGES IN SELF-REPORTED OUTCOMES**

<table>
<thead>
<tr>
<th>Physical activity (min/w)</th>
<th>Body mass index</th>
<th>Happiness</th>
<th>Perceived stress</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>25</td>
<td>14.0</td>
<td>12.0</td>
</tr>
<tr>
<td>10</td>
<td>20</td>
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<tr>
<td>50</td>
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<td>2.0</td>
</tr>
<tr>
<td>60</td>
<td>-</td>
<td>2.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

*significantly different from baseline

Physical activity increased by 76.9 min/w at 6 months and 39.4 min/w at 12 months. For the low active sub-group (n = 31) the increase at 12 months was 194.2 min/w.

Body mass index decreased with a relative weight loss of 1.1% at 12 months. For the overweight/obese sub-group (n = 138) relative weight loss was 2.4%.

Happiness increases and stress reductions at 6 months were maintained at 12 months.

**CONCLUSIONS**

Small significant positive changes were recorded in physical activity, body mass index, fitness, and wellbeing outcomes for the overall sample, with greater gains for those who were inactive, overweight, or depressed at baseline. Based on the principle that significant public health benefit can be achieved through small changes for many people, or large improvements for fewer individuals, parkrun appears to have considerable potential impact on population health.

**REFERENCES**


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DATA ANALYSIS: Analysis of variance (ANOVA) was used to assess changes in self-reported outcomes between baseline, 6-months and 12 months. Linear regression was used to identify predictors of fitness change over 12 months.

ETHICAL APPROVAL: Approval was granted by the Loughborough University Ethics Approvals (Human Participants) sub-committee.

RESULTS

**Age:** 41.4 ± 10.9 years

**Sex:** 55.9% female; 44.1% male

**Runner status:** 44.1 regular runners; 24.3% occasional runners; 31.6% non-runners

**Weight status:** 41.4% normal overweight; 30.5% overweight; 8.5% obese

**Happiness**

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>6 months</th>
<th>12 months</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>10.00</td>
<td>12.00</td>
<td>14.00</td>
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</table>

**Body mass index**

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>6 months</th>
<th>12 months</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7.00</td>
<td>5.00</td>
<td>3.00</td>
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CHANGES IN SELF-REPORTED OUTCOMES

Physical activity increased by 76.9 min/w at 6 months and 39.4 min/w at 12 months. For the low active sub-group (n = 31) the increase at 12 months was 154.2 min/w. Body mass index decreased with a relative weight loss of 1.1% at 12 months. For the overweight/obese sub-group (n = 138) relative weight loss was 2.4%. Happiness increases and stress reductions at 6 months were maintained at 12 months. The sub-group with scores indicating possible depression reduced from 11.0% to 7.9%.

**FITNESS CHANGE**

Run times over 12 months was improved by 12.0% in the overall sample, and by 15.8% among initial non-runners (n = 110).

Linear regression identified three significant predictors of fitness change:

- total runs (B = -5.132, β = -0.299)
- first run time (B = -0.294, β = -0.528)
- weight change (B = 11.500, β = 0.299)

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Small significant positive changes were recorded in physical activity, body mass index, fitness, and wellbeing outcomes for the overall sample, with greater gains for those who were inactive, overweight, or depressed at baseline.

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