Marathon finishers and pre-race drop-outs

P.J. Clough, J. Shepherd, R.J. Maughan

Department of Environmental and Occupational Medicine and Department of Psychology, University of Aberdeen, UK

Summary

The purpose of this longitudinal questionnaire study was to investigate the effects of participation or non participation in a marathon race on future running behaviour. The majority (70 per cent) of the participants who intended to run a future marathon actually did so and only 11 per cent stopped running altogether. Fewer of the pre-race drop-outs (31 per cent) who indicated their intention to run a future marathon actually did so ($P < 0.001$) and more of them (24 per cent) stopped running altogether ($P < 0.001$) compared with the runners in the finishers' sample. These results suggest that the experience of running in a marathon does not negatively influence future running habits. However, failure to run in a race for which an entry has been made may lead to a reduced involvement in running. The present study also examined the reasons for pre-race drop-out. Injury (36 per cent), lack of training (31 per cent) and illness (12 per cent) were the most frequently given reasons for drop-out. Few differences were found between the pre-race drop-outs and the finishers, but the drop-outs did feel that running was less important ($P < 0.001$), reported a greater number of longer term injuries ($P < 0.001$) and did significantly less training ($P < 0.001$) than the finishers.

Keywords: Marathon running, longitudinal study, continued participation, pre-race drop-out, injury

Introduction

Exercising on a regular basis has been shown to be an important factor for the maintenance of health and prevention of disease¹⁻³. In addition to its possible effect on physical health, participation in physical activity has also been shown to be associated with improvements in a number of psychological parameters⁴. A number of studies have examined the effects of running in particular and have shown that participation in this form of activity is associated with both physical⁵ and psychological benefits⁶. The benefits that may be acquired from an involvement in physical activity are, however, rapidly lost on the cessation of regular exercise⁷. This highlights the importance of gaining a fuller understanding of the factors that influence a continued participation in exercise.

A number of factors, including individual differences and the properties of the activity itself, have been identified as important to exercise adherence⁸. One activity with very distinctive properties is marathon running. It has been proposed informally, but never tested empirically, that individuals may stop running marathons, or even stop running altogether, after experiencing the physical and mental stresses of a marathon race. The recent decline in the numbers of runners entering marathons may be a reflection of this process⁹.

The present study also investigates the phenomenon of pre-race drop-out from such events. The number of individuals who enter a race but who then fail to run is generally quite high, usually ranging from 30 per cent to 50 per cent of the entrants^{10,11}. Fletcher and Eadie found that the major reported reason for drop-out was injury, and they also suggested that motivational differences may exist in the runners' and drop-outs' reasons for running¹⁰. We have also observed that injury was the most frequently stated reason for non-participation¹¹.

Whilst pre-race drop-outs do cause a number of administrative problems, a potentially far more serious problem is that failure to participate in a race may lead to disillusionment with marathon racing, or running in general, with the implications that this has for physical and mental well being. We have however previously observed that 85 per cent of drop-outs sampled did intend to run a future marathon and only two per cent planned to give up running altogether¹¹. Whether these plans were realized is not known.

The aims of the present study were therefore (i) to examine the running careers of both participants and pre-race drop-outs in the twelve month period following a marathon race (ii) to compare these two samples of runners on a number of other demographic and motivational variables and (iii) to describe the reasons for and the timing of pre-race drop-out.

Materials and methods

Instrument

The Aberdeen Milk Marathon, which was held in September 1986, attracted a total of 1286 entrants but only 586 runners actually finished the race. Identical questionnaires were sent to all entrants (shortly after the day of the race), irrespective of whether or not they

Address for correspondence: Mr Peter Clough, Department of Environmental and Occupational Medicine, University Medical School, Foresterhill, Aberdeen AB9 2ZD

took part. The 12-page questionnaire consisted of five main sections. The first two examined reasons for starting to run and reasons for starting to run marathons in particular.

The relative impact of these reasons was assessed by means of a three point scale consisting of 'no influence', 'some influence' and 'strong influence'. The third section of the questionnaire examined the perceived benefits and costs associated with an involvement in running. The effect of running on 10 areas of the respondents' lives was assessed by the use of a five point scale, consisting of 'great improvement', 'some improvement', 'no change', 'some deterioration' and 'great deterioration'. The final two sections of the questionnaire were concerned with the training regimens of the runners and their demographic details.

The items included in the first three sections of the questionnaire were written to assess the motives or benefits/costs that had been identified as important in the previous research⁶. In addition to rating the various items within the questionnaire, respondents were asked to specify any additional items they felt should be included. Whilst 15 per cent of the subjects took the opportunity to use these open ended questions to propose items they felt had been omitted from the questionnaire, no one additional item was nominated by more than four of the runners. It therefore appears that the items included within the instrument represented adequately the domains they were designed to assess.

The drop-out sample also received a second, one sheet, questionnaire at this time which was designed to assess their reasons either for dropping out during the race or for not starting. Follow-up questionnaires, which examined the running behaviours of both finishers and drop-outs were sent out 12 months after the initial survey.

Statistical analysis

Statistical analysis of the data was carried out using the SPSSX package run on a Honeywell 60/80 system. Student t-tests for independent groups and chi-squared tests were used where appropriate.

The sample

In the initial survey 521 completed questionnaires were received from the 586 runners who finished the race. Of these, 489 were from males and 32 from females. This gave an overall response rate of 89 per cent for this group of runners. A total of 510 replies were received from those 696 runners who did not record a finishing time, 459 from males and 51 from females. This gave an overall response rate of 73 per cent for the drop-out sample. The female runners were not included in any of the subsequent analysis because of the possible confounding effects of sex differences. The numbers of females in each group were considered too small to permit independent analysis of the data. In addition, 25 of the sample who did not record a finishing time actually started the race and these runners were excluded from subsequent analysis.

The age of the males in the sample of runners who completed the race was 33 ± 9 years (mean SD), with ages ranging from 17 to 65 years. The drop-out sample were significantly, but only slightly, younger than the finishers, having a mean age of 31 ± 9 years

($P < 0.001$), with ages again ranging from 17 to 65 years. A greater proportion of the finishers than drop-outs were married (70 per cent vs 61 per cent, $P < 0.05$). No differences were discovered in the employment patterns of the two groups, with the majority being employed full-time (89 per cent vs 86 per cent). In both samples the majority of those who were employed held white collar or professional jobs (79 per cent vs 84 per cent).

The male finishers and drop-outs who responded to the initial questionnaire were followed up 12 months after the first survey. A total of 344 returns were received from the finishers, giving a response rate of 70 per cent and 308 returns were received from the drop-out sample, giving a response rate of 67 per cent (59 per cent and 45 per cent respectively of the original samples).

Results

Training and experience

The mean distances run in training during the year preceding the race for the finishers was 1950 ± 814 km (1212 ± 506 miles), with yearly distances ranging from 80 km (50 miles) to 7466 km (4640 miles). The group of drop-outs did significantly less training than the finishers in the twelve month period before the race, running a mean distance of 1586 ± 782 km (986 ± 486 miles, $P < 0.001$). Again, great variability was observed with training distances varying from 88 km (55 miles) to 7723 km (4800 miles). For 33 per cent of the drop-outs the Aberdeen marathon would have been their first attempt at this distance. A similar proportion of the finishers, 29 per cent, were first time marathoners.

The future plans of the runners and their actual behaviour

The finishers were more likely than the drop-outs to indicate that they intended to run a marathon and/or shorter races in the twelve month period after the 1985 race. Measures of their actual running behaviours revealed that, in addition, the drop-outs were less likely to carry out their plans than the finishers. These results are presented in Table 1 and Table 2. Two sub-groups from all the entrants to the race were also examined with regard to their future running plans and their actual behaviours. These consisted of first time or potential first time runners and those runners who felt that the idea of running a marathon had a 'great influence' on their initial decision to start to run. No significant differences were found between these two sub-groups and the findings reported for the full sample.

Table 1. Future intentions of runners

	Finishers (n = 489)		Drop-outs (n = 440)
I will run a marathon in the next 12 months	426 (90%)	***	325 (74%)
I will run a half marathon in the next 12 months	381 (78%)	**	305 (69%)
I will run a shorter race e.g. 10 k in the next 12 months	289 (59%)	**	208 (47%)
I will stop running altogether	5 (1%)		16 (4%)

**Significant difference between finishers and drop-outs ($P < 0.01$)

***Significant difference between finishers and drop-outs ($P < 0.001$)

Table 2. Actual running behaviour of the male runners contacted in the follow-up questionnaire*

	Finishers (n = 330)		Drop-outs (n = 296)
Number of runners who indicated they would run a marathon and who did so	231 (70%)	***	92 (31%)
Number of runners who indicated they would run a half marathon and who did so	219 (66%)	***	119 (40%)
Number of runners who indicated they would run shorter races and who did so	171 (51%)	***	69 (23%)
Number of runners who had stopped running completely	36 (11%)	***	71 (24%)

*All the runners who stated that they would not run in a particular type of race or who indicated they would stop running altogether kept faith with their plans

***Significant difference between finishers and drop-outs ($P < 0.001$)

Comparison of responders and non-responders

The runners who returned the follow-up questionnaires were compared with the non-responders on the basis of their responses to the original questionnaire completed soon after the marathon. This comparison, for the sample of finishers, revealed no significant differences. However, a similar comparison within the drop-out sample showed that those who failed to respond to the follow-up questionnaire were significantly younger, ran shorter distances in training during the twelve month period before the 1985 Aberdeen Marathon and had slower best marathon times. The two groups did not differ on any of the other parameters measured in this study.

Reasons for running

The stated reasons for starting to run for the finishers and drop-outs were remarkably similar. The main reasons for starting to run for both groups were 'to maintain or improve fitness' (96 per cent of the finishers and 96 per cent of the drop-outs reported this as having either some or a strong influence on their decision to start to run), 'to improve health' (89 per cent/88 per cent), and 'in order to take part in a marathon' (72 per cent/74 per cent).

The finishers' and drop-outs' reasons for starting to run in marathon races, rather than their reasons for starting to run in general, were also very similar. The main reasons for attempting a marathon were 'for personal satisfaction' (99 per cent/99 per cent), 'in order to set yourself a challenge' (95 per cent/ 96 per cent) and 'for the experience' (88 per cent/84 per cent).

Benefits and costs associated with running

Again great similarities were found between the finishers' and drop-outs' perceptions of the effects of running on their lives. The main benefits were perceived as being improvements in 'physical health' (92 per cent of the finishers and 89 per cent of the drop-outs reported some or a great improvement in this aspect of their lives), 'overall well being' (85 per cent/ 85 per cent) and 'personal insight into their own capabilities' (76 per cent/ 79 per cent).

For some individuals their involvement in running did produce negative as well as positive effects in addition to the previously mentioned problems of injury. Both family life (12 per cent and 13 per cent respectively of finishers and drop-outs reported some level

Table 3. Number of runners reporting injuries in the twelve month period prior to the race

	Finishers	Drop-outs
(1) Number of runners reporting running injuries	198 (41%)	214 (49%)
(2) Number of weeks the most serious injury prevented training	***	
Didn't prevent training	69 (35%)	24 (11%)
1-3 weeks	59 (30%)	51 (24%)
4-7 weeks	42 (21%)	58 (27%)
8+ weeks	28 (14%)	81 (38%)

***Significant difference between finishers and pre-race drop-outs ($P < 0.001$)

of deterioration) and the runners' social lives (18 per cent of the finishers and 15 per cent of the drop-outs reported deterioration) were problem areas for a significant number of the runners samples.

The importance of running within the runners' leisure pursuits

Both samples of runners were asked to rate the importance of running compared with their other leisure interests. Twenty per cent of the sample of finishers and 16 per cent of the drop-outs felt that running was more important than all their other leisure activities. Fourteen per cent of the finishers felt that running was less important than their three main leisure interests whereas 28 per cent of the drop-out sample felt this way ($P < 0.001$).

Reasons for and timing of withdrawal

The main reasons for non-participation in the race were injury (36 per cent), lack of training (31 per cent) and illness (12 per cent). Only two per cent of the sample reported that lack of interest was one of their reasons for withdrawal. The number of runners reporting an injury, and the length of time the most serious injury prevented injury are presented in Table 3. About half of the drop-outs (42 per cent) decided, in the two week period before the race, not to take part. The great majority of the runners who gave illness as a reason for non participation (73 per cent) made the decision not to run less than a week before the race. Only a relatively small number of the runners who gave injury (16 per cent) or lack of training (7 per cent) as a reason for pre-race drop-out decided to withdraw at this late stage.

Discussion

The small number of runners in the finishing group who stopped running altogether and the finding that 70 per cent of those who had indicated that they would run a future marathon did so, offer no support for the hypothesis that participating in this type of race has an adverse effect on future involvement in running. The analysis of the running patterns of two 'high-risk' sub-groups of runners considerably strengthens this conclusion.

The first of these consisted of individuals who began running in order to take part in a marathon. This group were seen as especially vulnerable to a loss of interest in running, as they had achieved one of their primary initial goals when they completed a marathon

and may therefore have lost any incentive for a continued involvement in this type of activity. This process did not seem to occur.

The second sub-group was made up of first time marathon runners. One might speculate that these runners would be less keen to run a second marathon after experiencing the physical and mental stresses that are associated with this event. Alternatively, those individuals who did decide to run another marathon may, because of their relative inexperience, have over-estimated the likelihood of their taking part in a further marathon. Again the results of the present study suggest that this did not happen.

Attrition can occur even amongst long term exercisers. It is therefore possible that participation in a marathon, or perhaps even an intention to take part in one, may act to reduce the attrition rate from running to a lower level than that which would be typical of a group of runners who do not have such a long-term goal. Unfortunately, obtaining a representative sample of the runners who do not take part in any type of races presents a host of practical problems.

A comparison of the responders and non-responders to the second questionnaire, on the basis of their replies to the initial survey, revealed no significant differences for the sample of finishers. This result, when considered in conjunction with the high overall response rates obtained, strongly suggests that the findings reported here concerning the effects of running a marathon on future running habits are representative of all the runners who took part on the day of the race.

The longitudinal findings of the present study therefore provide an insight into the current trend of reduced entries to marathon races. Seventy per cent of the finishers ran at least one further marathon. If this finding is taken in conjunction with the number of first time runners within the present sample, around one-third, it appears that the number of runners who are running marathons would not be expected to decline, as those who do stop will probably be replaced by newcomers to the sport. The decline in entries may therefore be attributable to runners taking part in fewer marathons rather than to fewer runners participating in this type of race.

A comparison of the responders and non-responders to the follow-up questionnaire was also carried out for the drop-out sample. The non-responders in this instance were found to undertake less training and feel that running was less important to them. It appears therefore that some of the findings relating to the drop-outs in the present study may be slightly less general in nature than those relating to the runners who completed the race.

Although very few differences existed between the finishers and the pre-race drop-outs a small number of important differences were observed. The drop-outs did significantly less training than the finishers in the twelve month period prior to the race. As lack of training was one of the main reasons given for not running in the race, this difference appears crucial. The genesis of this training difference is however difficult to determine. The drop-outs had a greater number of longer term injuries than did the finishers. This therefore means that they had less training time available to them.

However, an alternative hypothesis is that the lower mileages completed by the drop-outs were to a large extent a reflection of the differences in the importance of running for the two samples. The drop-outs generally felt that running was less important in relation to their other leisure pursuits than did the finishers. This observed difference in the importance of running did not appear to be a result of differences in the benefits obtained from participation.

Whilst differences were found between the finishers and the drop-outs with respect to their running plans, with the latter less likely to indicate that they would run a future marathon or future shorter races, the greatest differences between the two samples were revealed in their actual running behaviours. The majority of the sample of finishers who indicated they would run future full and half marathons did actually run them, whilst the majority of the drop-outs, despite their intentions, did not.

In addition, and perhaps most importantly, the drop-outs were very much more likely to stop running altogether than the finishers. The causes of these observed differences, are however, unclear. It could be that the drop-outs did suffer some level of disillusionment from their failure to participate in a race for which they had entered for, which then acted to reduce their running involvement. Alternatively, it may be that these findings were simply a reflection of initially lower commitment levels to running.

The comparison between runners and pre-race drop-outs showed there to be no differences in their reasons for starting to run or in their reasons for running marathons. The present study therefore provides no evidence for the motivational differences proposed by Fletcher and Eadie¹⁰.

The reasons for withdrawal for the drop-out group are reasonably consistent with the previous findings, again showing injury to be the most important factor in the non-runners' failure to attend on the day of the race^{10,11}. It should however, be noted that the pre-race drop-out runners did feel that running was less important to them. This strongly suggests that whilst the specific reasons reported here for non-participation are important, they may be underlain by a more pervasive but less socially acceptable reason, namely a relative lack of commitment to running.

Acknowledgement

This study was supported by a grant from the Health Promotion Research Trust.

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Physiological and Clinical Problems Following Cold Water Immersion BASM Symposium: Saturday 16 September 1989 The London Hospital, Whitechapel

Programme

9.00-9.45 a.m.

Early Physiological Responses to Immersion
Dr Michael Tipton, PhD.
Institute of Naval Medicine

10.00-10.45 a.m.

Late Effects of Cold Water Immersion

Surg. Capt. Frank Golden OBE
Royal Naval Hospital, Hazlet

11.00-11.30 a.m.

Coffee

11.30-12.15 p.m.

Diving Accidents
Dr. Peter Wilmhurst
Chairman, Medical Committee

12.30-1.00 p.m.

British Sub-Aqua Club
Clinical Management of Near Drowning

Dr. Mark Harries
British Olympic Medical Centre and Northwick Park Hospital

1.00-1.30 p.m.

Open Forum

All queries concerning the symposium should be addressed to: Ms. Nancy Laurenson, Education Officer, BASM, C/O London Sports Medicine Institute, St. Bartholomews Medical College, Charterhouse Square, London, EC1M 6BQ, UK. Tel: 01-253-3244