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a cross-sectional study

Dallinga, Joan M.; Mennes, Matthijs; Alpay, Laurence; Bijwaard, Harmen; Baart de la Faille-Deutekom, Marije

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App use, physical activity and healthy lifestyle: a cross sectional study

Joan M. Dallinga[1,2], Matthijs Mennes[1], Laurence Alpay[2], Harmen Bijwaard[2] and Marije Baart de la Faille-Deutekom[1,2]

[1] School of Sports and Nutrition, Amsterdam University of Applied Sciences, Dr. Meurerlaan 8, 1067 SM Amsterdam, The Netherlands
[2] Faculty of Health, Sports and Social Work, Inholland University of Applied Sciences, Bijdorplaan 15, 2015 CE Haarlem, The Netherlands

Purpose: Physical inactivity is a growing public health concern. There is need for innovative ways to promote physical activity and a healthy lifestyle. Use of mobile applications (apps) may be a powerful tool to encourage physical activity and a healthy lifestyle. For instance, apps may be used in the preparation of a running event. However, there is little evidence for the relationship between app use and change in physical activity and health in recreational runners. The aim of this study was to determine the relationship between the use of apps and changes in physical activity, health and lifestyle behavior, and self-image of short and long distance runners.

Methods: A cross sectional study was designed. A random selection of 15,000 runners (of 54,000 participants) of a 16 and 6.4km recreational run (Dam tot Damloop) in the Netherlands was invited to participate in an online survey two days after the run. Anthropometrics, app use, activity level, preparation for running event, running physical activity (RPA), health and lifestyle, and self-image were addressed. A chi-squared test was conducted to analyze differences between app users and non-app users in baseline characteristics as well as in RPA, healthy lifestyle and perceived health. In addition, a multivariate logistic regression analysis was performed to determine if app use could predict RPA, perceived health and lifestyle, and self-image. We controlled for age, gender, BMI, kilometers per week before preparation and exercise frequency in last year.

Results: Of the 15,000 invited runners, 28% responded. More app users were female (16km: $p=0.027$; 6.4km: $p=0.002$), app users were significantly younger compared to non-app users (16km: $p<0.001$; 6.4km: $p<0.001$) and trained less often (16km: $p<0.001$; 6.4km: $p=0.015$). In the 6.4km runners, app users were more often overweight ($p=0.024$). It seemed that app users trained fewer kilometers before they had started the preparation for the running event, compared to non-app users (16km: $p<0.001$; 6.4km: $p=0.003$). For the 16km, there were more app users who trained 12 weeks or more and who did not schedule a specific training period for this event compared to non-app users ($p<0.001$). For the 6.4km, app users trained more often 6-11 weeks and 12 weeks or more compared to non-app users, whereas non-app users more often did not train or trained barely compared to app users ($p<0.001$).
For both distances, app use was positively related to RPA and feeling healthier ($p<0.05$). Also, app use was positively related to feeling better about themselves, feeling like an athlete, motivating others to participate in running, and losing weight ($p<0.01$). Furthermore, for 16km runners app use was positively related to eating healthier, feeling more energetic and reporting a higher chance to maintain sport behavior ($p<0.05$).

Conclusions: These results suggest that use of mobile apps has a beneficial role in the preparation of a running event, as it promotes a healthy lifestyle and physical activity. Further research is now needed to determine a causal relationship between app use and physical and health related behavior. Long-term effects need to be taken into account as well.