

## Does the use of mobile applications or mobile health (mHealth) technology improve diet quality in adults: a systematic review?

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Mobile technology is developing at an exceptional rate and is now part of daily living. This use of mobile technology has opened up new possibilities in health, with almost half of current applications linked to the mHealth sector. In particular, dietary assessment applications have become more accessible and popular with the ability to provide or dietary monitoring and modifications. This systematic review investigates whether diet-related mobile applications or mHealth technology improves diet quality in adults<sup>(1)</sup>. Randomised controlled trials (RCTs) and non-randomised controlled trials (NRCTs) were included by searching key scientific databases: The Cumulative Index to Nursing and Allied Health Literature (Cinahl), The American Psychological Association's (APA Psycinfo), and PubMed were searched from January 2010 to November 2021. Primary outcomes included improved diet quality following the use of mobile applications and health technology. Studies were included if they assessed a change in diet quality following the use of mobile applications and health technology in adults. The Preferred Reporting Items for Systematic Reviews and MetaAnalyses (PRISMA) guidelines were followed throughout the review process<sup>(2)</sup>. Methodological appraisal of included studies was assessed using the Cochrane Risk-of-Bias Tool for RCTs and the Risk-of Bias in Non-Randomised Studies Tool for NRCTs<sup>(3)</sup>. Five thousand three hundred forty-two studies were retrieved from the database searches, with ten articles eligible for final inclusion in the review. The sample sizes ranged from 27 to 732 participants across the included studies, with 1638 total participants. The ratio of female to male participants in the studies was 4:1. The majority of the mobile applications or mHealth interventions were used to highlight dietary health changes (6studies), with the remainder used to reduce weight or blood sugar levels (4studies). Each study used a different measure to quantify diet quality, and studies were either assessed by diet quality scoring or individual dietary assessment. Of the ten studies, six reported an improvement in diet quality following diet-related mobile application use. To our knowledge, this study is the first systematic review to assess diet and nutrition-related apps and their impact on diet quality. The findings of this study have highlighted that the use of mobile applications can improve the diet quality of users as overall diet quality scores, or diet quality assessments improved in participants. Our findings may facilitate health professionals in selecting appropriate apps for improving dietary behaviours and assist app developers in creating and modifying diet- and nutrition-related apps toward better diet quality scores or changes for individual users.

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### References

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