SUPPLEMENTARY MATERIAL

programming centred on achieving a guidelinebased (1,2) protein intake of 1.2–1.5 g/kg/day. At the baseline nutrition virtual visit, the dietitian: (1) reviewed the 3-day food record, (2) conducted a nutritional assessment, (3) provided a protein intake target and general nutrition counselling, and (4) set up the calendar of videoconference sessions. During the three 1-to-1 sessions (approximately 30 minutes each through the program), with the patient, the dietitian reviewed and revised the nutritional goals visible in the app, and discussed possible barriers and solutions to dietary change. During group sessions, the dietitian delivered education concerning cirrhosis nutrition including topics about protein, meal planning, and food preparation. For the Exercise programming, patients were encouraged to take part in 3 full-body resistance/aerobic exercise sessions (1 virtual group class + 2 follow along home exercise videos) (3). At the baseline exercise virtual visit, the exercise specialist: (1) reviewed the baseline physical function testing, (2) walked through the exercise features in the app, and (3) reviewed the goal of carrying out 3 sessions per week as well as possible barriers and solutions to carrying out this goal. During the ten 1-to-1 sessions (approximately 10 minutes per week through the program), with the patient, the exercise specialist reviewed any challenges with the prescribed exercises and tailored them as required. Behaviour change theoretical frameworks to guide interventions have been associated with greater adherence and sustained changes to health-related behaviours (4-6). Heal-Me cirrhosis is guided by the capability, opportunity, motivation, behaviour (COM-B) model (7).

The 12 specific behaviour change "ingredients"

have been described using the behaviour change

technique taxonomy version 1 (BCTv1) (8). These

include goal setting, problem solving, review of

behaviour goals, behaviour demonstration, be-

haviour feedback, discrepancy between behaviour

and the goal, social support, social reward, focus

on past success, graded tasks, comparative im-

agining of future outcomes and information about

health consequences (8). These were practically

implemented in the program during trainer inter-

actions, live group sessions, videos, and program

elements. Gamification features included points

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earned for protein entry and participation in follow-along videos which progressed to badges at notable milestones.

REFERENCES

- 1. Tandon P, Raman M, Mourtzakis M, et al. A practical approach to nutritional screening and assessment in cirrhosis. Hepatology. 2017;65(3):1044–57. https://doi.org/10.1002/hep.29003. PMID: 28027577
- 2. EASL clinical practice guidelines on nutrition in chronic liver disease. J Hepatol. 2019;70(1):172–93. https://doi.org/10.1016/j.jhep.2018.06.024. PMID: 30144956
- 3. Tandon P, Ismond KP, Riess K, et al. Exercise in cirrhosis: translating evidence and experience to practice. J Hepatol. 2018;69(5):1164–77. https://doi.org/10.1016/j.jhep.2018.06.017. PMID: 29964066
- 4. Jennings HM, Morrison J, Akter K, et al. Developing a theory-driven contextually relevant mHealth intervention. Glob Health Action. 2019;12(1):1550736. https://doi.org/10.1080/16549716.2018.1550736. PMID: 31154988
- 5. Hagger MS, Weed M. DEBATE: Do interventions based on behavioral theory work in the real world? The international journal of behavioral nutrition and physical activity. 2019;16(1):36. https://doi.org/10.1186/s12966-019-0795-4. PMID: 31023328
- 6. Cotter AP, Durant N, Agne AA, et al. Internet interventions to support lifestyle modification for diabetes management: a systematic review of the evidence. J Diabetes Complications. 2014;28(2):243-51. https://doi.org/10.1016/j.jdiacomp.2013.07.003. PMID: 24332469
- 7. Keyworth C, Epton T, Goldthorpe J, et al. Acceptability, reliability, and validity of a brief measure of capabilities, opportunities, and motivations ("COM-B"). Br J Health Psychol. 2020;25(3):474–501 https://doi.org/10.1111/bjhp.12417. PMID: 32314500
- 8. Michie S, Richardson M, Johnston M, et al. The behavior change technique taxonomy (v1) of 93 hierarchically clustered techniques: building an international consensus for the reporting of behavior change interventions. Ann Behav Med. 2013;46(1):81–95. https://doi.org/10.1007/s12160-013-9486-6. PMID: 23512568