“HPE app”: Creating a High Protein and Calorie diet app to promote interactive learning for rehabilitation patients.

Government of South Australia
SA Health

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Background

Malnutrition is a significant problem in the Australian Hospital setting and the effect of malnutrition on patient and health service outcomes is well recognised. [1] Additionally the early identification and management of Frailty and Sarcopenia is of increasing concern in our hospitalised and rehabilitation populations [2,3] .
Dietitian-led, practical recommendations for caloric and protein supplementation is the standard intervention in malnourished, frail and sarcopenic patients [2] .

Although dietitians provide patients with individualised diet strategies, based on usual meal patterns and food preferences, it is important that patients also understand the broad underlying principals of macronutrients, their role in the body and the food sources. A paper based pamphlet is the traditional means of delivering generic nutritional information to patients. However in an increasingly technology driven health environment, and a setting where Telehealth is growing, it made sense to pilot a digital application (app) to deliver nutrition information to patients in an interactive way.

Aims of the Project

To develop and pilot a computer and tablet app, to allow patients to undertake self-directed or clinician-supported learning on the general principals of a high protein and calorie diet.

Method

Content

The app’s content was written by dietitians who are experts in delivering nutrition information to patients, based on evidence and current food and food product knowledge. Online readability calculators and consumer feedback was used to ensure the app’s content was easy to understand.

Format and design

The app was designed and created by the SALHN Telerehab IT specialist. It was piloted with consumers and clinicians. The app was continually modified based on feedback regarding readability, ease of use and visual appeal, until it was well accepted by consumers.

Results

The app provides basic nutrition information with pictures. Patients have the opportunity to review content multiple times, at their own pace. The app allows patients to complete a pre-learning quiz, in order to understand baseline knowledge on the topic. An identical, post-learning quiz is also imbedded in the app so that the patient can consolidate and confirm their learning. The app also includes a survey to gather patient feedback after each use.

Knowledge survey result summary (n=10):

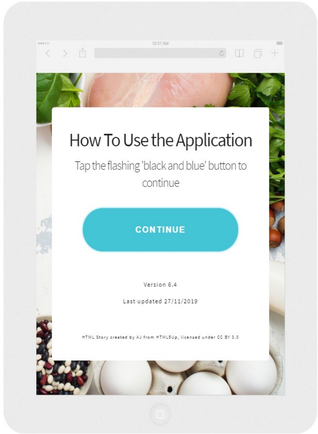
- 10% had an improvement in knowledge score and 50% had a 100% pre and 100% post knowledge score

Survey result summary (n=10):

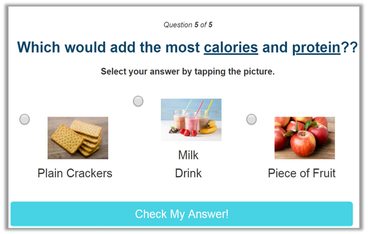
- 100% of patients agreed or strongly agreed that they understood the information.
- 90% of patients agreed or strongly agreed that they found the information helpful and the application was easy to use.
- 50% of patients agreed or strongly agreed that this application increased their confidence in choosing high calorie high protein foods.
- 70% of patients agreed or strongly agreed that they would like to receive education through an application again.

Conclusions

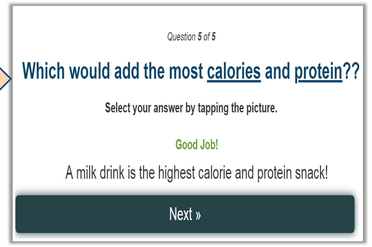
An app is an interactive and enjoyable way to deliver nutrition information to patients as it allows self-directed learning and revision to occur in the patient’s own time. It has been used successfully in a home rehabilitation setting, where patients have access to Telerehab. Survey results indicate that the pre and post knowledge survey is too easy and therefore the app’s content is currently being updated so it can continue to assist with patient’s learning.

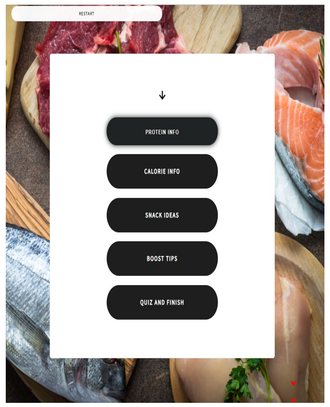


The app starts with instructions for use and can be used on tablet or PC.



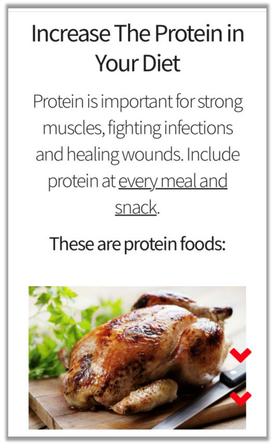
Followed by an optional, 5 question interactive quiz

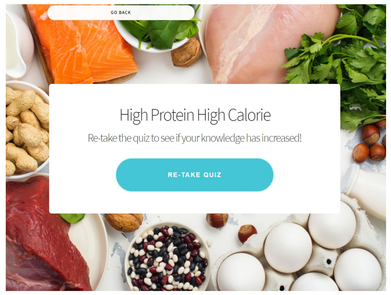




It displays pages of basic nutrition information with a scroll bar to move through the content

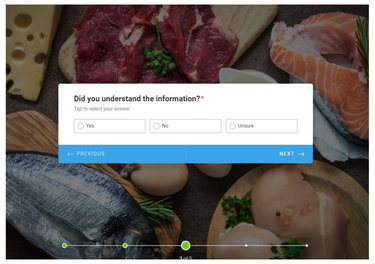
The app gives the user an option to re-take the quiz at completion of their learning





There are 3 evaluation questions posed at the end of the app

Results of quiz and evaluation can be emailed to the treating dietitian



References

1. Barker LA, Gout BS, Crowe TC. Hospital malnutrition: prevalence, identification and impact on patients and the healthcare system. *Int J Environ Res Public Health* 2011; 8:514-27
2. Dent E, et.al. The Asia- Pacific Clinical Practice Guidelines for the Management of Frailty. *JAMDA* 2017; 18:564-75
3. Cruz-Jentoft, et.al. Sarcopenia: Revised European Consensus on definition and diagnosis. *Age and Ageing* 2019; 48:16-31

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