

BENECA PROJECT: ENERGY BALANCE ON CANCER

Feasibility of a e-health system in patients diagnosed with cancer

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BACKGROUND

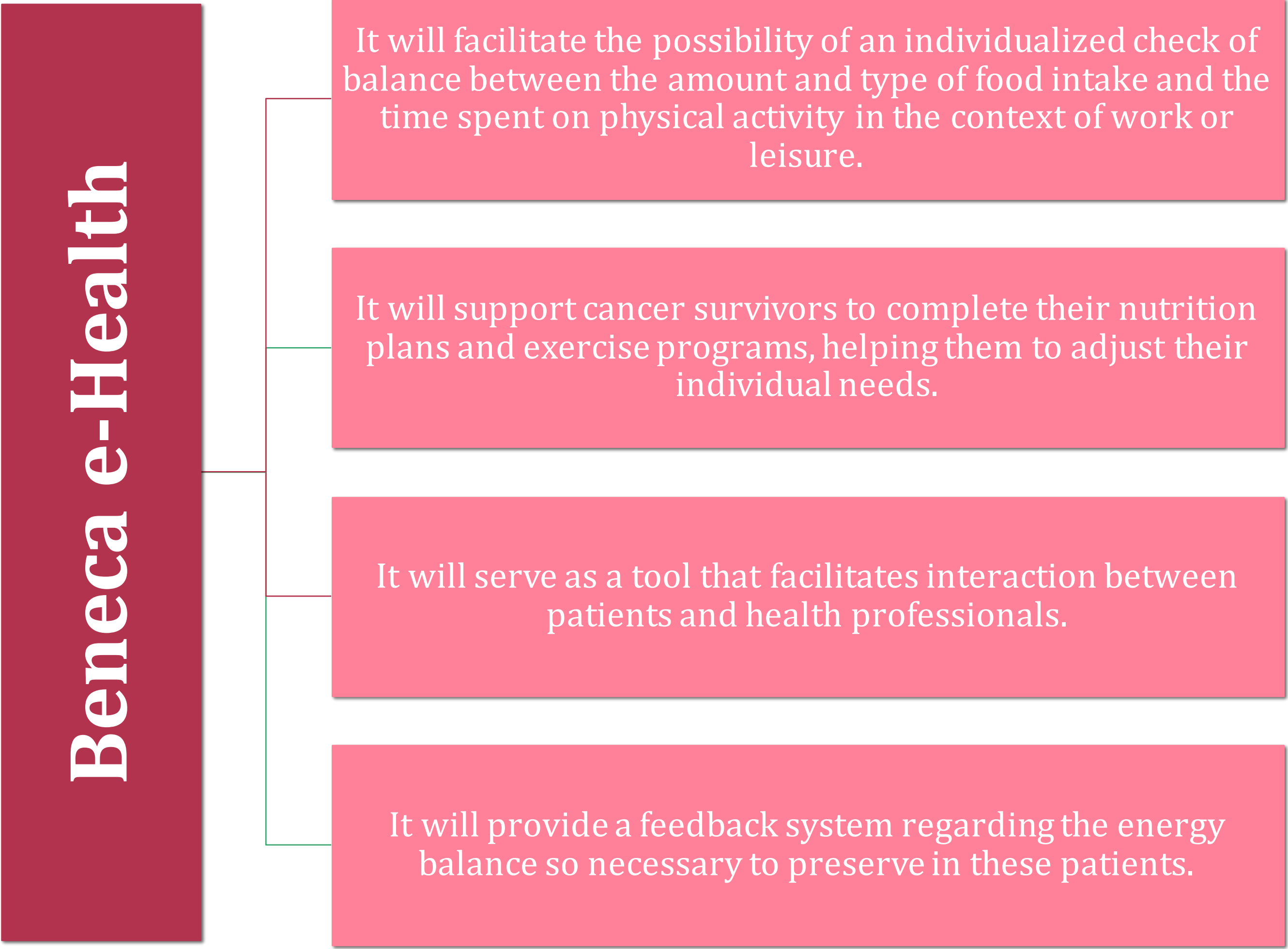
The **energy imbalance**, as a result of an excess in energy intake (diet) or low physical activity, is a key to the increased risk of some of the most prevalent cancer processes currently: colon cancer, prostate, breast cancer and lymphomas¹, being determinants of the risk of recurrence, second cancers and cancer mortality². Clinical experience suggests a high demand and interest among, for example, survivors of breast cancer, based on a healthy lifestyle (increased physical activity, weight loss and healthy diet). Knowledge seems available but there is a clear weakness in getting a social significance for this solution that appears to be simple:

“EAT LESS AND MOVE MORE”

Despite this apparent ease message, recent research³ points out that even knowing the benefits of interventions aimed at promoting energy balance among survivors of cancer, it is unrealistic to expect that most of them, with a strong sedentary habit, comply with the current guidelines of good practice.

AIM AND OBJECTIVES

The main objective of this project is to design, implement and validate in a real clinical setting an on-line monitoring system energy balance on cancer survivors (BENECA system)". This system's main objective is to facilitate adherence of the people who have had cancer to the recommendations on energy balance derived from the American Cancer Society (American Cancer Society, ACS) and the Global Fund for Research on Cancer (World Cancer Research Fund , WCRF). Moreover, to assess the feasibility and acceptance of e-Health system BENECA in patients diagnosed with cancer survival phase and to evaluate the effect of intervention in clinical status of patients and their behavioural changes to the lifestyle.



STUDY DESIGN

A descriptive crossover design and a prospective design with one arm (pre and post-intervention) will be used to meet the first objective (design and feasibility study of the application) and to evaluate the effect of the intervention, respectively . The goal is to keep recruiting study for 12 months. It is anticipated that approximately 96 cancer patients will be sent to the program during this time, relying on a recruitment target of 80% of the 230 women who are estimated to end the year cure. The number of patients who join and adhere to program will be then evaluated. The Joint Sports Health Research Institute can accommodate around 100 women a year.

Description of Beneca System

BENECA asks users to register food and drinks, and the different activities carried out during the previous day. With an open structure and four time periods, the application will take the form of a questionnaire on diet (remember 24 hours) and a record of daily activities in terms of duration and intensity. Users also record your weight (kg) and height (cm). After entering the information, the system will provide to patient the level of energy balance presented and general recommendations on physical activity according to their individual profile as a reference guide exercise in cancer patients American College of Sports Medicine⁴, and substituting foods considered potentially carcinogenic by others with protective capacity against cancer, following guidelines of the American Cancer Society^{5,6} and the recommendations of the WCRF about food consumption plant and animal origin, food of low energy density, etc. Furthermore, the program also detects if there is an energy imbalance.

Table 1: Measurements

Reliability and validity	Factibility of a clinical real situation
Accelerometry. Diet Interview (24 hours remember). Weight and Height. Test-retest reliability of the study protocol. Concurrent validity of the study protocol.	Feasibility: ratio of recruitment Aceptability: number of patients who participate and assist to the basal evaluation. Adherence: number of exercise and nutrition sessions / total prescript sessions and number of participant that are able to keep at least 80% of the prescribed recommendations. Secondary variables: bioimpedance, Minnesota modified questionnaire, three days daily dietary questionnaire barriers and self-efficacy against the exercise, biomarkers of recurrence / survival.

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CONCLUSIONS

The aim of this paper is to present the project BENECA to the scientific community. In this study we hope to overcome the specific barriers identified to facilitate the inclusion of exercise and healthy diet programs within supportive care for cancer survivors.

