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# Cancer Rehabilitation and Physical Activity: the “Oncology in Motion” Project

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The American Society of Sports Physicians states that 150 min a week of moderate aerobic activity improves the quality of life, even in patients treated for cancer [1]. Physical activity before, during, and after cancer treatment increases survival rates, the disease-free interval, and the cancer-related fatigue and decreases the side effects of the cure. Furthermore, the physical rehabilitation of users after cancer treatment represents an essential tool for early social and work reintegration [2] as well as reconditioning the state of the body [2, 3]. In oncology, there is a growing interest in employing physical exercise as a supplementary individualized approach. However, the need for a tailored course and the absence of recommendations valid for everyone represent an issue to its successful implementation. Systematic reviews, meta-analyses, and clinical trials showed that physical exercises are effective in the improvement of cancer-related fatigue, patient-reported quality of life, and physical functioning. Physical activities proved to be effective in decreasing the state of

systemic inflammation and, consequently, in reducing fatigue and improving current quality of life [4–11].

Following these pieces of evidence, the National Cancer Institute of Aviano (Italy) has recently launched the “Oncology in Motion,” an innovative program devoted to cancer rehabilitation and education. Breast cancer patients, once recovered from surgery, can enjoy a personalized physical path, thanks to the use of a mobile application (named “Oncology in Motion,” available free of charge for Android and iOS) (<https://play.google.com/store/APPs/details?id=tbg.cro.oim>). Patients are granted a constant connection with a specialized staff, who monitor, educate, and stimulate the correct execution of physical exercises.

The “Oncology in Motion” project was uniquely conceived, engaging several stakeholders (including professionals with different expertise, patients, patients’ associations, and citizens) during all its phases (idea generation, fine-tuning, communication) [12, 13]. The “Oncology in Motion” program was thus entirely co-produced on a learning-by-doing approach, as a collective effort of multiple parties.

The project was awarded the European grant DigitalHealthEurope - Support to a Digital Health and Care Innovation initiative in the context of Digital Single Market strategy, to support the technological development of its innovative telemedicine path. The grant supported the development of the needed software to follow the physical activity performed remotely by the patients, combined with an APP to be installed on the patient’s smartphone (Fig. 1). The “Oncology in Motion,” APP collects data from Google Fit free APP (developed with the WHO) and communicates them to the platform. The project staff can access data and set the personalized goals of steps and cardio activity, continually monitor the progress, sending customized notifications to users whenever necessary.

“Oncology in Motion” aims to be a prevention, education, and rehabilitation method, first of all, in oncology (mostly in cases of breast and prostate neoplasia, which are often hormone dependent). Considering that ESMO suggests moderate intensity and home-based aerobic/functional resistance

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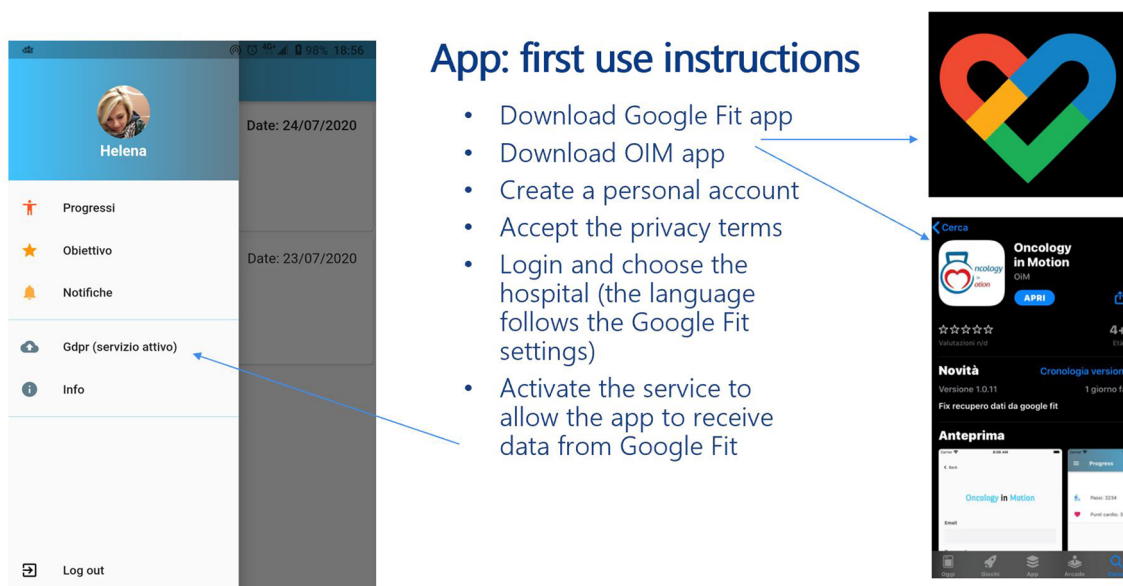


Fig. 1 APP “Oncology in Motion” overview and first use instructions

exercises in non-cachectic patients, one of the desired aims is to extend the project to other tumors (firstly in gynecologic and head and neck cancers after active treatments). Moreover, another goal is to later expand the methodology and tools to geriatrics, diabetology, chronic hypertension, and in the context of osteoarticular chronic pain [14].

In an educational perspective, the project aims to keep regular contacts with patients, who can thus feel assisted, even long after discharge, when the healthcare treatment is over. It also allows patients to learn the relevance of physical activity, and to maintain specific periodic standards, under the supervision of health and extra-health personnel, like professionals with specific fitness skills. The fact that the whole program and the mobile APP were entirely co-produced with the engagement of a multidisciplinary research team, the patients, and the patient’s associations confirms the great potential and expectations [12].

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