



Introducing the DIOPTRA App

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INTRODUCTION

The DIOPTRA app helps you learn about your lifestyle and habits by asking simple, easy-to-answer questions you can complete anytime.

Based on your answers, the app gives you personalized recommendations to support healthier choices. It also shares easy-to-understand information about cancer prevention and includes trusted links from your own country if you'd like to learn more. You'll see how things like your diet, exercise, and other habits may affect your behavioral risk for colorectal cancer.

All the information in the app is reviewed by health experts in your study country.

HOW THE APP LOOKS AND WORKS

USER WORKFLOWS

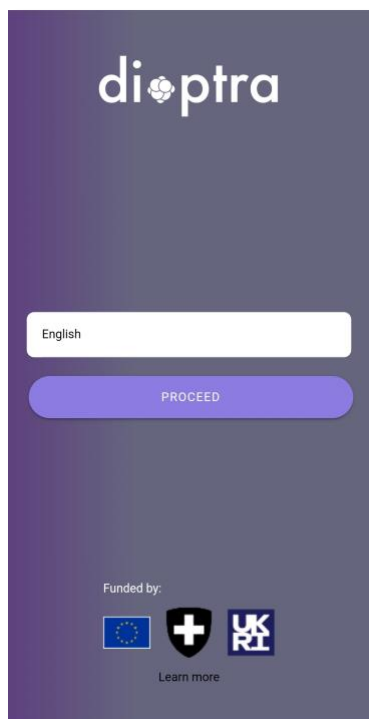
The DIOPTRA app was created with help from doctors and experts to make it simple and easy to use. Anyone who downloads the app from the app store can fill out a questionnaire, receive personalized recommendations, and access useful information about colorectal cancer and general health. All content is developed and approved by health experts in your country, with links to trusted national resources for more details.

Figure 1. User workflow for the mobile app.

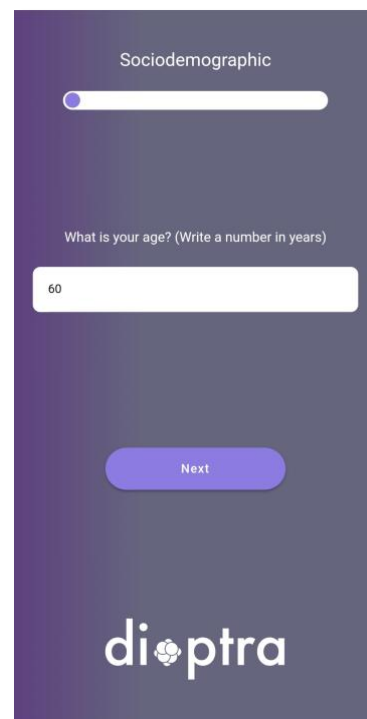


SCREEN LAYOUTS

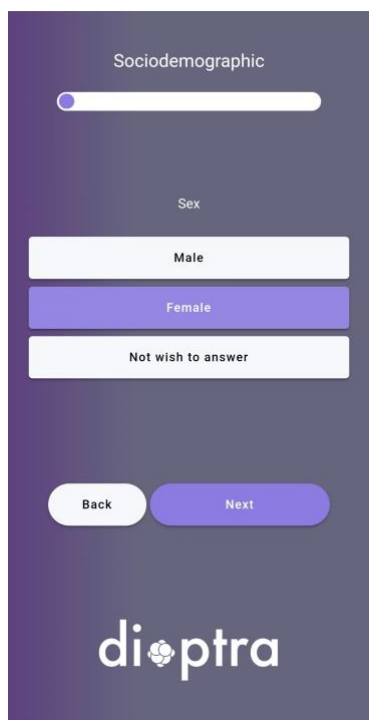
Below are sample screens from the DIOPTRA app, showing how users answer the questionnaires and access the information. If you try the app, you can also see what the personalized recommendations look like.



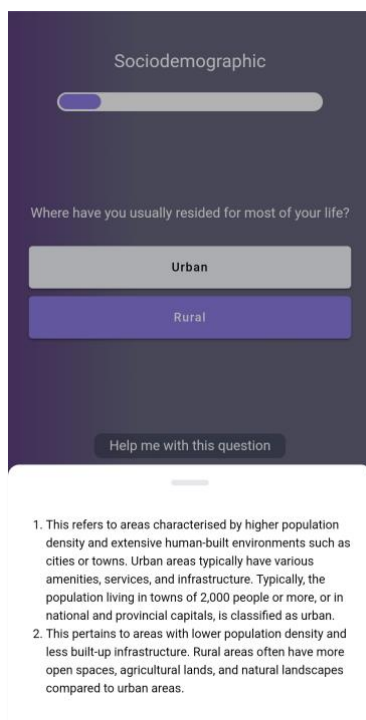
Language selection



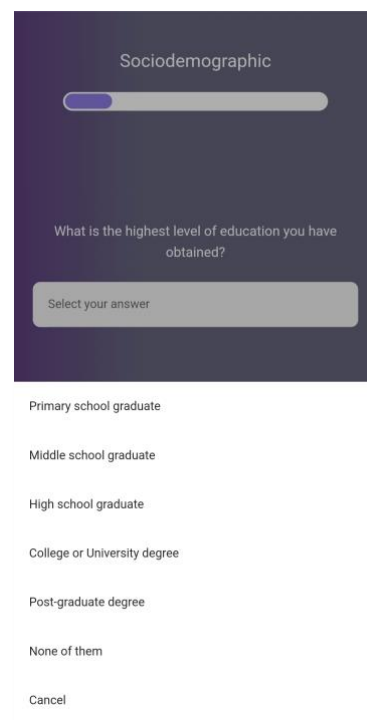
Sociodemographic question



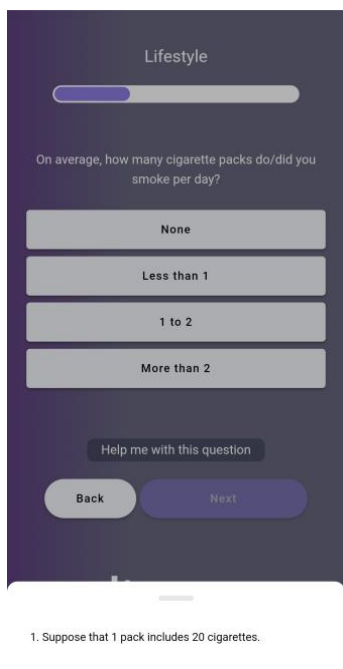
Sociodemographic question



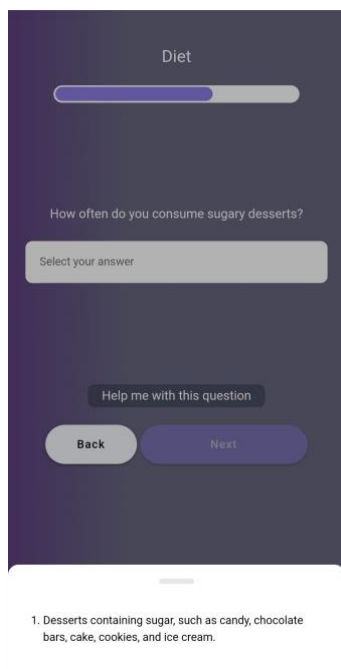
Sociodemographic question



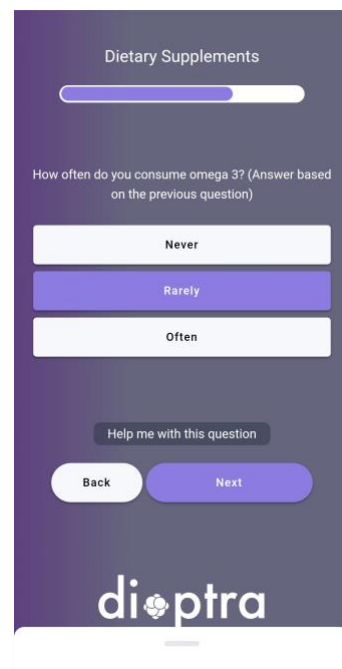
Sociodemographic question



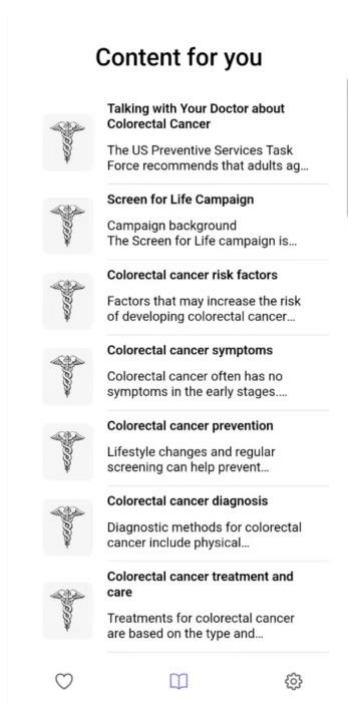
Lifestyle question



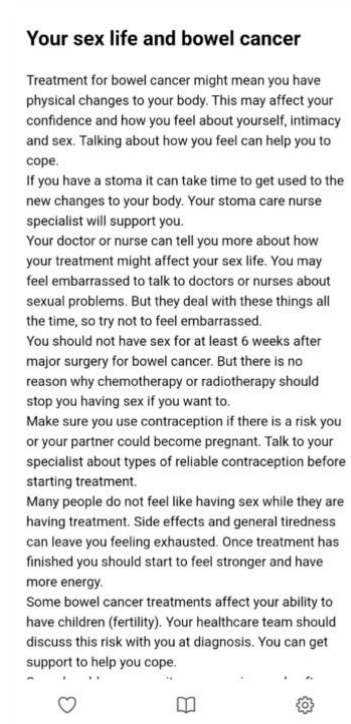
Diet question



Dietary question



Other health information



Article details

TRANSLATION

Working with healthcare teams, the app has been translated into several local languages. Users can choose from:

- English
- Greek
- French
- Spanish
- Croatian
- Danish

The entire app — including menus, questions, health tips, and articles — will appear in the selected language.

NOTIFICATIONS

The app will use notifications to remind you to answer lifestyle questions from time to time. This helps track any changes in your habits and what those changes might mean for your health.

QUESTIONS

The DIOPTRA app collects information about users' habits and lifestyle to help with research on behavioural risk and colorectal cancer. Examples on the app's questions are listed in Tables 1-5.

Table 1. Sociodemographic questions of the mobile app behavioural questionnaire.

Sociodemographic (mark with an x)	
What is your age?	
Sex	<input type="checkbox"/> Male <input type="checkbox"/> Female <input type="checkbox"/> Not wish to answer
What is your country of birth?	
Weight (in kg) / Height (in cm)	
Which type of work you do/did?	<input type="checkbox"/> Manual work <input type="checkbox"/> Office work <input type="checkbox"/> Both <input type="checkbox"/> None
Where have you usually resided for most of your life?	<input type="checkbox"/> Urban ¹ <input type="checkbox"/> Rural ²
What is the highest level of education you have obtained?	<input type="checkbox"/> Primary school graduate <input type="checkbox"/> Middle school graduate <input type="checkbox"/> High school graduate <input type="checkbox"/> College or University degree <input type="checkbox"/> Post-graduate degree <input type="checkbox"/> None of them
Which of the following best describes how you feel about your household income today?	<input type="checkbox"/> Living comfortably on current income. <input type="checkbox"/> Current income is something to live with. <input type="checkbox"/> It is difficult to live on the current income.
What is your work situation?	<input type="checkbox"/> Employed <input type="checkbox"/> Unemployed <input type="checkbox"/> Student/not currently employed <input type="checkbox"/> Retired
Which sector your main work ³ belongs/belonged to?	<input type="checkbox"/> Healthcare/Medical <input type="checkbox"/> Education <input type="checkbox"/> Science and Research <input type="checkbox"/> Public Services/Government <input type="checkbox"/> Arts/Creative <input type="checkbox"/> Finance <input type="checkbox"/> Industries and manufacturing <input type="checkbox"/> Technology <input type="checkbox"/> Marketing and Advertising <input type="checkbox"/> Communication, Entertainment and Media <input type="checkbox"/> Retails, Services and E-commerce <input type="checkbox"/> Other <input type="checkbox"/> None
<p>¹This refers to areas characterised by higher population density and extensive human-built environments such as cities or towns. Urban areas typically have various amenities, services, and infrastructure. Typically, the population living in towns of 2,000 people or more, or in national and provincial capitals, is classified as urban.</p> <p>²This pertains to areas with lower population density and less built-up infrastructure. Rural areas often have more open spaces, agricultural lands, and natural landscapes compared to urban areas.</p> <p>³Main work is considered as the work that takes most of your time in general.</p>	

Table 2. Lifestyle questions of the mobile app behavioural questionnaire.

Lifestyle (mark with an x)	
Are you smoking cigarettes?	<input type="checkbox"/> Yes (currently) <input type="checkbox"/> Yes (previously) <input type="checkbox"/> No
On average, how many cigarette packs ¹ do/did you smoke per day?	<input type="checkbox"/> None <input type="checkbox"/> Less than 1 <input type="checkbox"/> 1 to 2 <input type="checkbox"/> More than 2
How long have you been smoking? (Write a number in years ²)	
Are you regularly exposed to secondhand smoke ³ ?	<input type="checkbox"/> Yes <input type="checkbox"/> No
How many days per week do you consume alcohol ⁴ ?	<input type="checkbox"/> 0 <input type="checkbox"/> 1 to 3 <input type="checkbox"/> 4 to 6 <input type="checkbox"/> 7
How many standard alcoholic drinks ⁴ do you consume per week?	<input type="checkbox"/> None <input type="checkbox"/> 1 to 2 <input type="checkbox"/> 3 to 4 <input type="checkbox"/> 5 to 7 <input type="checkbox"/> More than 7
How would you describe your current level of physical activity?	<input type="checkbox"/> Sedentary (less than 30 min of moderate physical activity per week) <input type="checkbox"/> Little active (30 to 89 min of moderate physical activity per week) <input type="checkbox"/> Moderately active (90 to 149 min of moderate physical activity per week) <input type="checkbox"/> Active (150 min of moderate physical activity or more per week)
On average, how many minutes per day do you engage in physical activity?	<input type="checkbox"/> Less than 15 minutes <input type="checkbox"/> 15 to 29 minutes <input type="checkbox"/> 30 to 60 minutes <input type="checkbox"/> More than 60 minutes
On average, how many days per week do you engage in physical activity?	<input type="checkbox"/> Less than 2 days <input type="checkbox"/> 2 to 4 days <input type="checkbox"/> More than 4 days
What is your average daily sedentary time ⁵ ?	<input type="checkbox"/> Less than 5 hours <input type="checkbox"/> 5 to 10 hours <input type="checkbox"/> More than 10 hours
How many hours per day do you engage in prolonged sitting ⁶ ?	<input type="checkbox"/> Less than 2 hours <input type="checkbox"/> More than 2 hours
<p>¹ Suppose that 1 pack includes 20 cigarettes.</p> <p>² Zero if you have never smoked and one if you smoke less than 1 year.</p> <p>³ Daily exposure to the tobacco smoke of others at home, work, or public places</p> <p>⁴ Frequency of drinking alcoholic beverages (e.g., 354 ml can/bottle of beer, 118ml glass of wine, 44ml shot of hard liquor).</p> <p>⁵ Sedentary time refers to periods when an individual engages in very low physical activity or movement (sitting at work, at school, at home, in a car/bus/train, and during leisure time (e.g., watching TV, playing video games, using the computer, reading, socialising)). It includes any time spent in activities with minimal energy expenditure.</p> <p>⁶ Prolonged sitting specifically refers to extended periods of sitting without breaks or movement. It highlights the negative effects of sitting for long stretches without interruptions or physical activity.</p>	

Table 3. Diet questions of the mobile app behavioural questionnaire.

Diet (mark with an x)	
How often do you consume fruits ¹ and vegetables ¹ in your meals?	<input type="checkbox"/> Daily <input type="checkbox"/> Several times a week ² <input type="checkbox"/> About once a week <input type="checkbox"/> Rarely ³ <input type="checkbox"/> Never
How often do you eat processed meat (sausages, bacon, etc.)?	<input type="checkbox"/> Daily <input type="checkbox"/> Several times a week <input type="checkbox"/> About once a week <input type="checkbox"/> Rarely <input type="checkbox"/> Never
How often do you include low-fat dairy products in your diet?	<input type="checkbox"/> Daily <input type="checkbox"/> Several times a week <input type="checkbox"/> About once a week <input type="checkbox"/> Rarely <input type="checkbox"/> Never
How often do you consume white meat, such as poultry or fish?	<input type="checkbox"/> Daily <input type="checkbox"/> Several times a week <input type="checkbox"/> About once a week <input type="checkbox"/> Rarely <input type="checkbox"/> Never
How often do you eat whole grains ⁴ ?	<input type="checkbox"/> Daily <input type="checkbox"/> Several times a week <input type="checkbox"/> About once a week <input type="checkbox"/> Rarely <input type="checkbox"/> Never
How often do you consume sugary drinks ⁵ ?	<input type="checkbox"/> Daily <input type="checkbox"/> Several times a week <input type="checkbox"/> About once a week <input type="checkbox"/> Rarely <input type="checkbox"/> Never
How often do you consume sugary desserts ⁶ ?	<input type="checkbox"/> Daily <input type="checkbox"/> Several times a week <input type="checkbox"/> About once a week <input type="checkbox"/> Rarely <input type="checkbox"/> Never
How often do you eat fast food ⁷ ?	<input type="checkbox"/> Daily <input type="checkbox"/> Several times a week <input type="checkbox"/> About once a week <input type="checkbox"/> Rarely <input type="checkbox"/> Never
<p>¹ Examples of fruit: fresh fruit, chopped, cooked or canned fruit, dried fruit, fruit juice. Examples of vegetables: raw leafy vegetables, cooked, canned, frozen, or chopped vegetables, vegetable juice.</p> <p>² Several times a week: This means that you consume the item more than once in a week, but not every day. It indicates a frequency that is more than occasional but less than daily.</p> <p>³ Rarely: This means you consume the item infrequently, on special occasions, or very seldom. It indicates that the item is not a regular part of your diet.</p> <p>⁴ Whole grain is defined as: cooked brown rice or other cooked grain, cooked 100% whole-grain pasta, cooked hot cereal, such as oatmeal, uncooked whole grain pasta, brown rice or other grain, 100% whole grain bread, 100% whole grain muffin, 100% whole grain ready-to-eat cereal.</p> <p>⁵ Sugary drinks such as soft drinks (excluding diet soda), vitamin drinks, energy drinks, and specialty coffee with syrup (e.g., mocha).</p> <p>⁶ Desserts containing sugar, such as candy, chocolate bars, cake, cookies, and ice cream.</p> <p>⁷ Includes foods from fast food restaurants (e.g., burger, fries, taco), pizza, and instant meals (e.g., instant ramen noodles).</p>	

Table 4. Dietary supplement questions of the mobile app behavioural questionnaire.

Dietary Supplements ¹ (mark with an x)	
How often do you consume omega 3? (Including multivitamin)	<input type="checkbox"/> Never ² <input type="checkbox"/> Rarely ³ <input type="checkbox"/> Often ⁴
Do you take a daily multivitamin supplement?	<input type="checkbox"/> Never <input type="checkbox"/> Rarely <input type="checkbox"/> Often
If not, which supplements do you consume?	<input type="checkbox"/> Vitamin B6 <input type="checkbox"/> Vitamin C <input type="checkbox"/> Vitamin D <input type="checkbox"/> Magnesium <input type="checkbox"/> Calcium <input type="checkbox"/> None of them
How often do you consume these supplements (answer based on the previous question)?	<input type="checkbox"/> Never <input type="checkbox"/> Rarely <input type="checkbox"/> Often
How often do you consume probiotics ⁵ ?	<input type="checkbox"/> Never <input type="checkbox"/> Rarely <input type="checkbox"/> Often
How often do you consume fiber supplements?	<input type="checkbox"/> Never <input type="checkbox"/> Rarely <input type="checkbox"/> Often
How often do you consume folic acid (females only)?	<input type="checkbox"/> Never <input type="checkbox"/> Rarely <input type="checkbox"/> Often
Please write the names of any other supplements you take.	
¹ Dietary supplements are intended to add to or supplement the diet and are different from conventional food. ² Never: Indicates that the supplement is not consumed at all. ³ Rarely: Indicates that the supplement is consumed infrequently or occasionally, but not on a regular basis. ⁴ Often: Indicates that the supplement is consumed frequently or regularly as part of the dietary routine. ⁵ Probiotics are a combination of live beneficial bacteria and/or yeasts.	

Table 5. Stress related questions of the mobile app behavioural questionnaire.

Stress-PSS4 (mark with an x)	
In the last 2 months, how often have you felt that you were unable to control the important things in your life?	<input type="checkbox"/> Never <input type="checkbox"/> Almost Never <input type="checkbox"/> Sometimes <input type="checkbox"/> Fairly Often <input type="checkbox"/> Very Often
In the last 2 months, how often have you felt confident about your ability to handle your personal problems?	<input type="checkbox"/> Never <input type="checkbox"/> Almost Never <input type="checkbox"/> Sometimes <input type="checkbox"/> Fairly Often <input type="checkbox"/> Very Often
In the last 2 months, how often have you felt nervous and stressed?	<input type="checkbox"/> Never <input type="checkbox"/> Almost Never <input type="checkbox"/> Sometimes <input type="checkbox"/> Fairly Often <input type="checkbox"/> Very Often

RECOMMENDATIONS

After you answer the questions, the app reviews your lifestyle habits. Based on your answers, it provides personalised advice to help lower your behavioural risk of colorectal cancer.

Here is an example on a set of behavioural recommendations to address a user's identified risk factors as provided in the figure below:

1. **Dietary Improvements:** Long-term consumption of red and processed meat is associated with increased CRC behavioural risk. Replace processed snacks with fibre-rich foods like fruits, vegetables, and whole grains.
2. **Physical Activity Guidelines:** Regular physical activity (i.e., occupational, recreational, transportation) has been associated with decreased CRC behavioural risk. Try to exercise for at least 150 minutes per week.
3. **Lifestyle:** Smoking cessation counselling is strongly recommended.

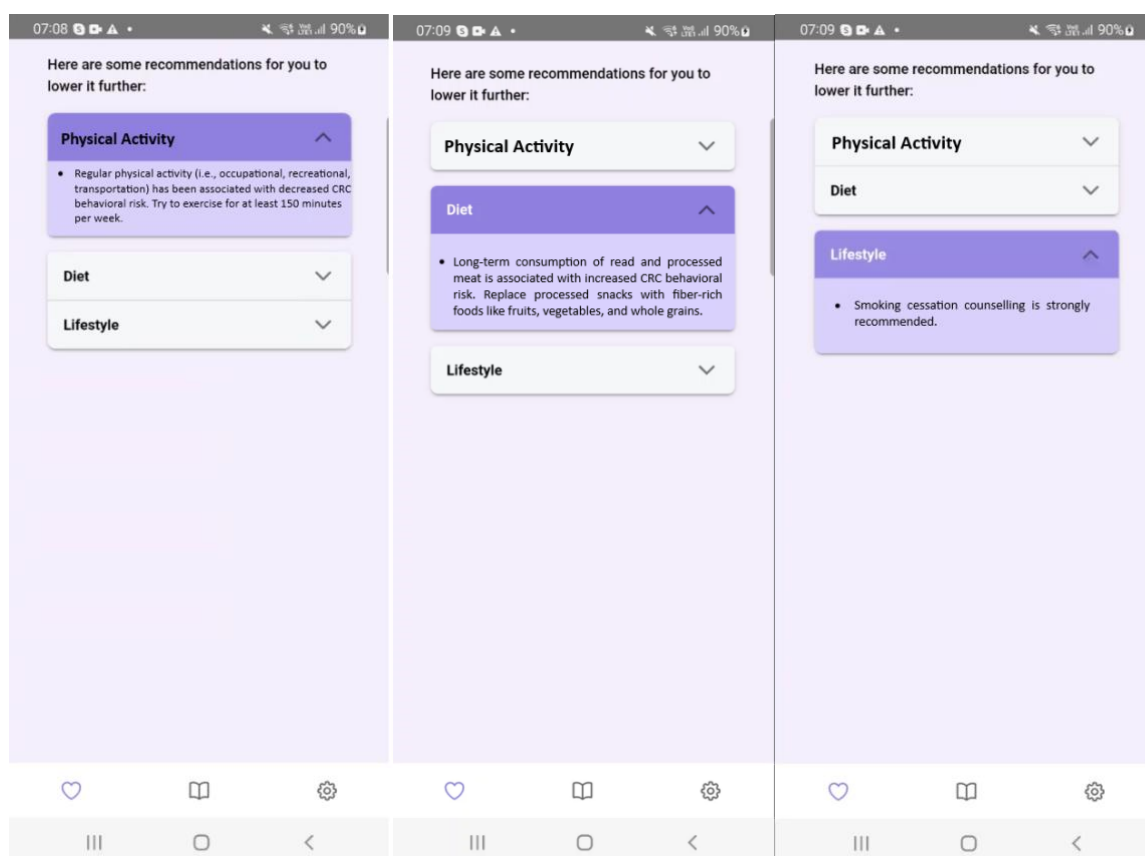


Figure: Recommendations as provided in the mobile application.

You also get links to information and articles, as well as advice on who to contact if you want to learn more or need extra help.

The app offers helpful resources that match the personalised advice it gives—like articles about the benefits of eating more fibre, tips for getting started with exercise, and simple ways to handle stress.

An example on this information, is illustrated in this Figure:

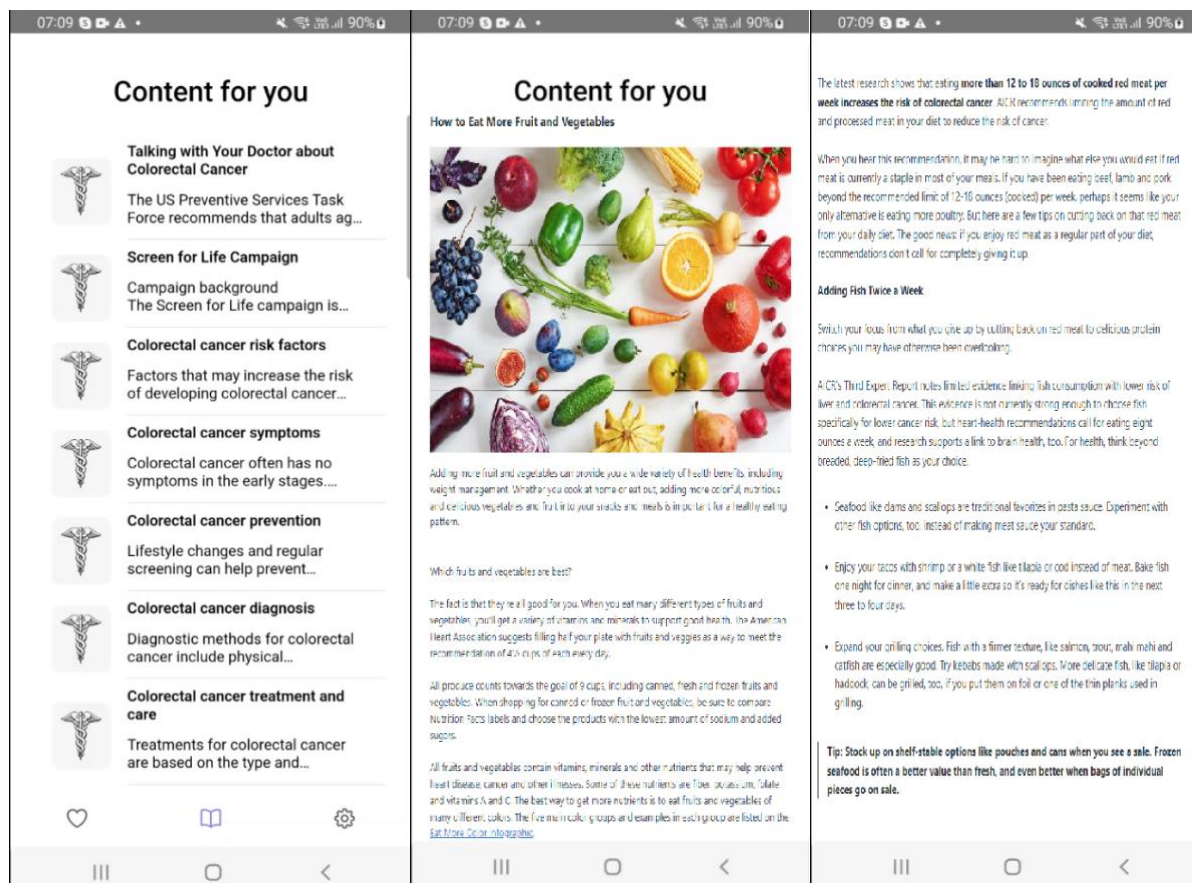


Figure 2: Content relate to the recommendations provided from the PIM.