


# Digital trends in healthcare – the potential impact on NAFLD management

Alexandra Fulford

# Disclosures

- I received payment from Sanofi for the development of this work



**We live in a  
digital world**

There are thousands of health apps

50,000+

Health apps<sup>1,2</sup>

1. Statista, 2021. Available at: <https://www.statista.com/statistics/779919/health-apps-available-google-play-worldwide/>, accessed May 2021;

2. Statista, 2021. Available at: <https://www.statista.com/statistics/779910/health-apps-available-ios-worldwide/#:~:text=This%20statistic%20displays%20the%20number,increase%20over%20the%20previous%20quarter.>, accessed May 2021

And millions of downloads

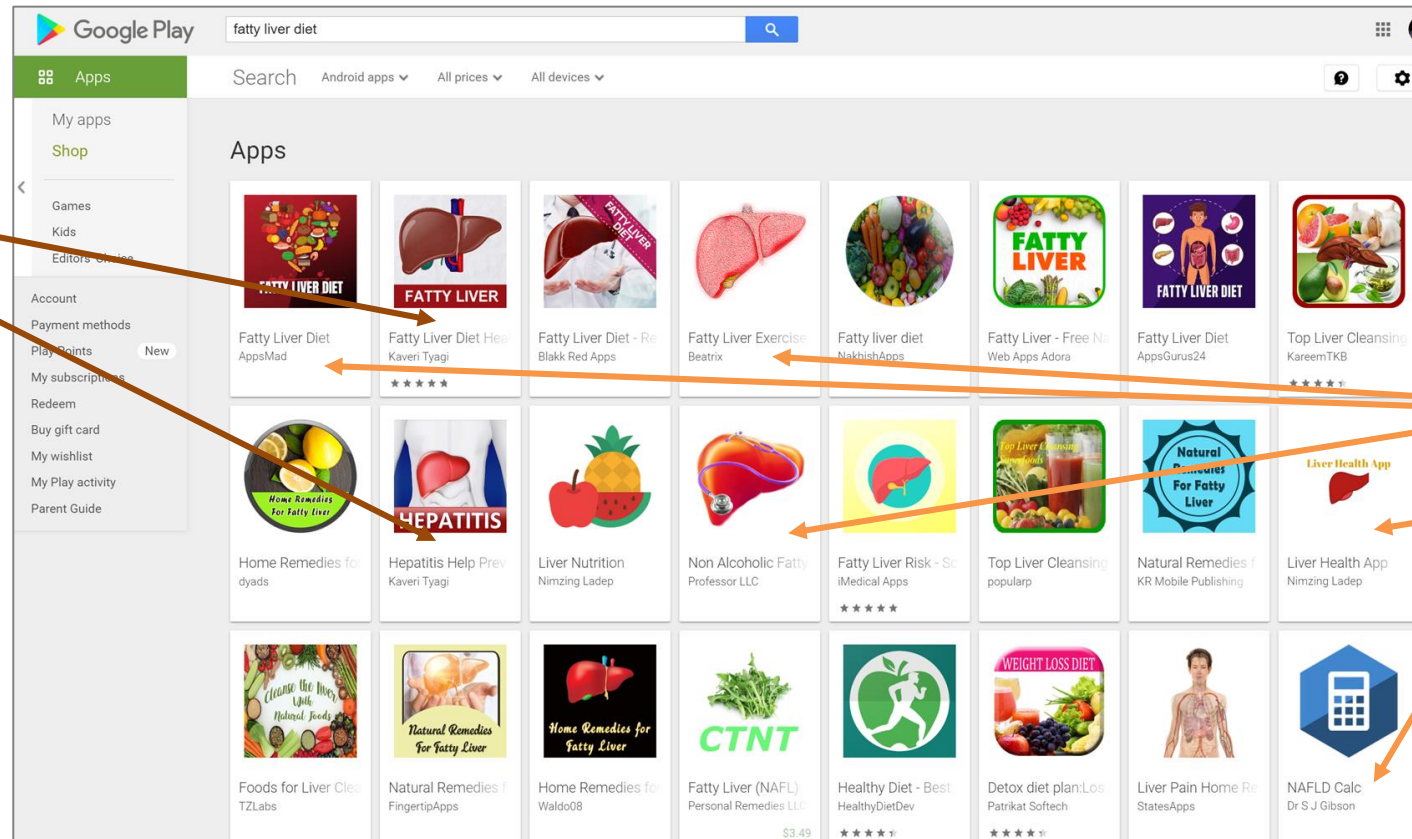
**10 million+**

**Weight Watchers downloads Google Play<sup>1</sup>**

1. Google Play, 2021. Available at: [https://play.google.com/store/apps/details?id=com.weightwatchers.mobile&hl=en\\_GB&gl=US](https://play.google.com/store/apps/details?id=com.weightwatchers.mobile&hl=en_GB&gl=US), accessed May 2021

# There are a number of liver diet apps<sup>1</sup>

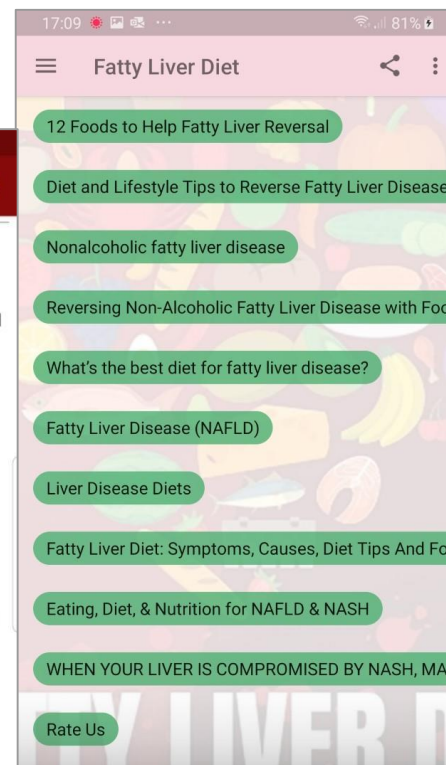
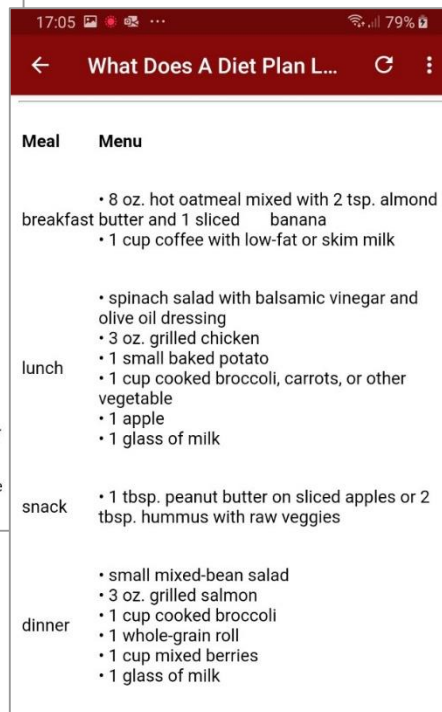
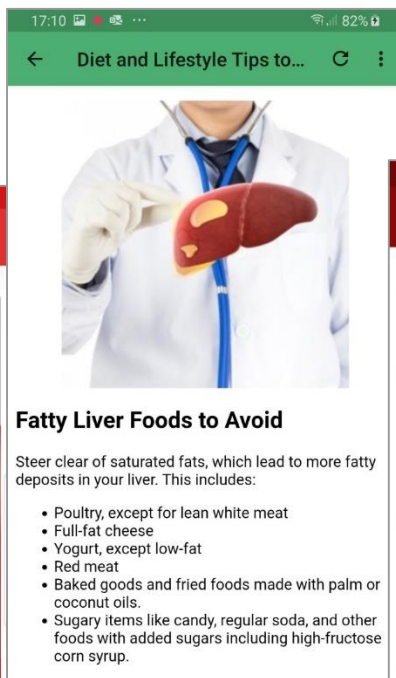
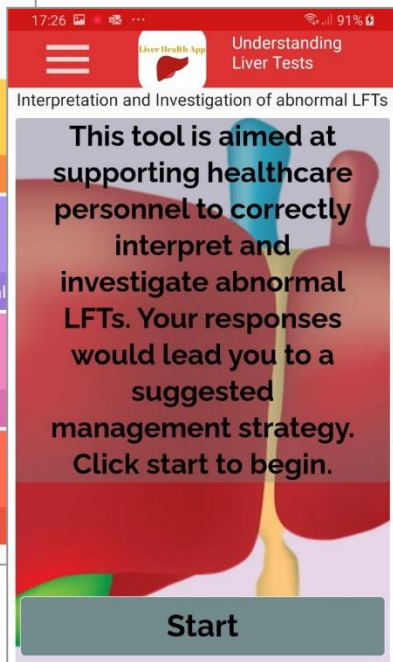
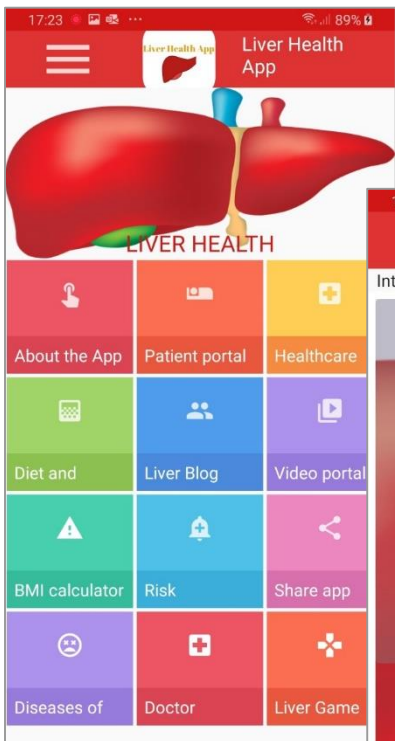
10K+



1K+

1. Google Play, 2021. Available at: [https://play.google.com/store/search?q=fatty%20liver%20diet&c=apps&hl=en\\_GB&gl=US](https://play.google.com/store/search?q=fatty%20liver%20diet&c=apps&hl=en_GB&gl=US), accessed May 2021

# The majority of these apps are basic and informational

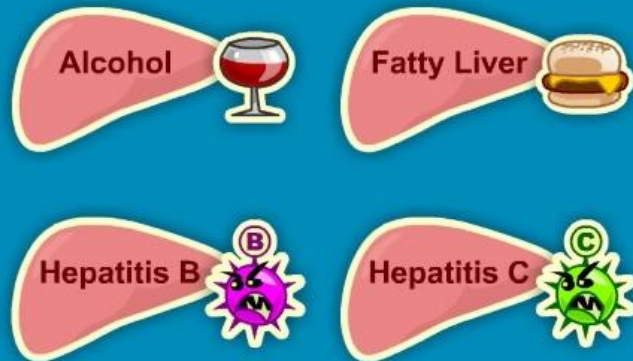


# Love Your Liver is a very basic educational game

## Love Your Liver



Choose a liver disease risk and play in PRACTICE MODE :



OR  
PLAY FOR HIGHEST  
SCORE :

PLAY

Don't let your liver health score fall to 0!



©2009 British Liver Trust

The liver health meter represents the stages of damage that a liver goes through when exposed to one or more of the risk factors over a long period.

Level	Risk factors	
2	Alcohol	Hepatitis B
	Fatty Liver	Hepatitis C

Hi-Score: 000000  
Score: 000000

Liver Health: 100  
Normal  
Inflammation  
Scarring  
Cirrhosis  
Liver failure /cancer

Progress: [Progress bar]  
Time: 1:54

Navigation buttons: Home, Back, Forward, Stop

Google Play 2021. [https://play.google.com/store/apps/details?id=air.uk.org.britishlivertrust.loveyourliver&hl=en\\_GB&gl=US](https://play.google.com/store/apps/details?id=air.uk.org.britishlivertrust.loveyourliver&hl=en_GB&gl=US) Accessed May 2021.

# Broader diet apps are much more sophisticated

INFORMATION

SUPPORT

TRACKING

Interactive database

Access to Professional  
Rewards  
Community

Tracking

Portion size

Food journaling

Information

Fitness trackers / Devices



# Health apps can have a positive impact on liver health

Trial with 108 adults with NAFLD confirmed by steatosis on ultrasound and a body mass index  $\geq 23 \text{ kg/m}^2$



- After 6 months the intervention group:
  - Had a 5-fold higher likelihood of achieving  $\geq 5\%$  weight loss
  - Showed greater reductions in weight, waist circumference, systolic blood pressure, diastolic blood pressure, ALT and AST<sup>1</sup>

ALT, alanine aminotransferase; AST, aspartate transaminase  
Lim SL, et al. JMIR Mhealth Uhealth 2020;8(4):e14802

# Wearable technology is also growing in popularity<sup>1,2</sup>



1. Business Insider, 2021. Available at: <https://www.businessinsider.com/wearable-technology-healthcare-medical-devices?r=US&IR=T>, accessed May 2021;

2. Northwest Primary Care, 2020. Available at: <https://www.nwpc.com/how-smartwatches-could-improve-your-health/>, accessed May 2021

# Do you use digital technologies in your clinical practice?

1

Yes, often

2

Yes, occasionally

3

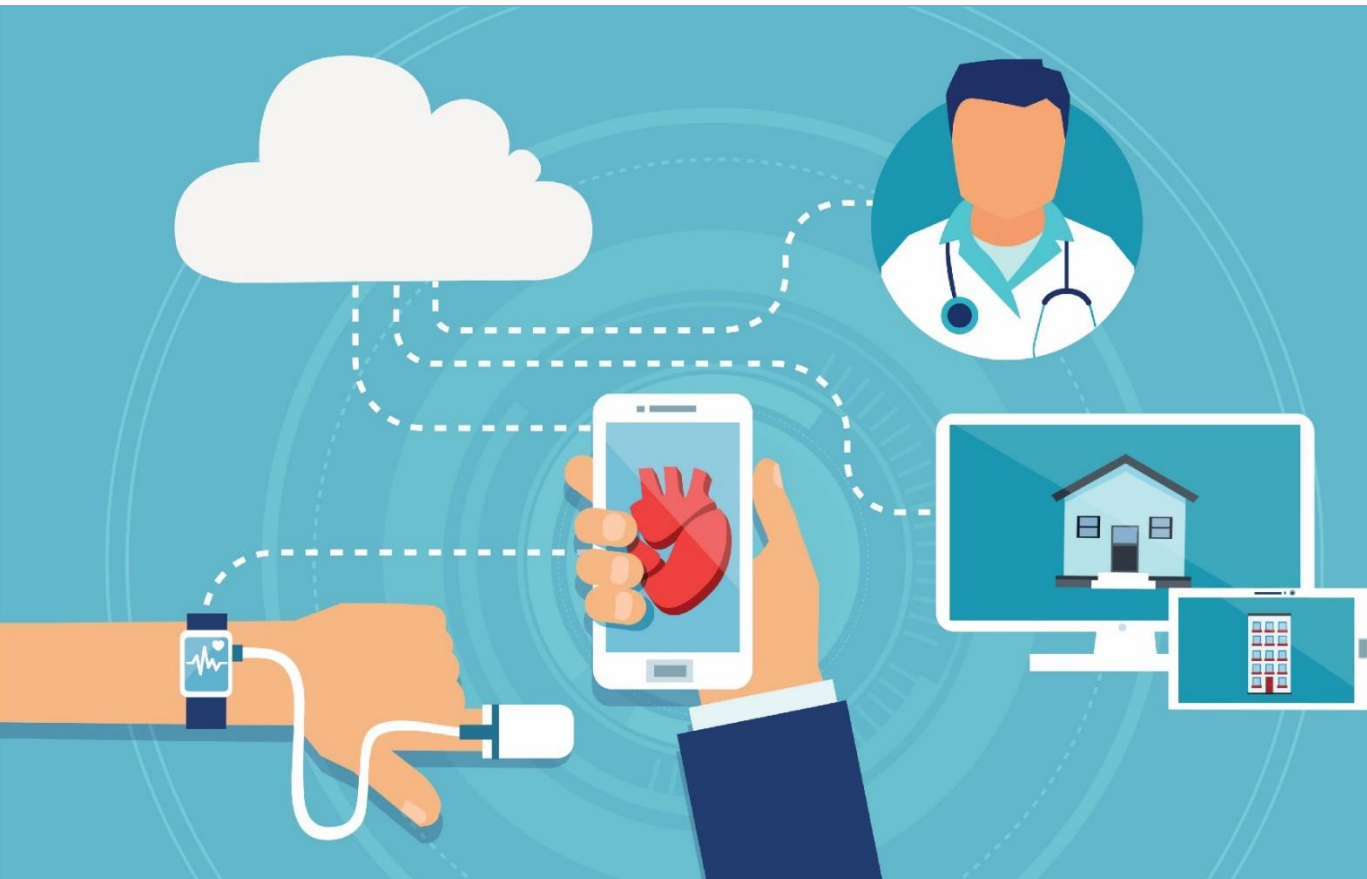
No

# Technology will drive a change in behaviour



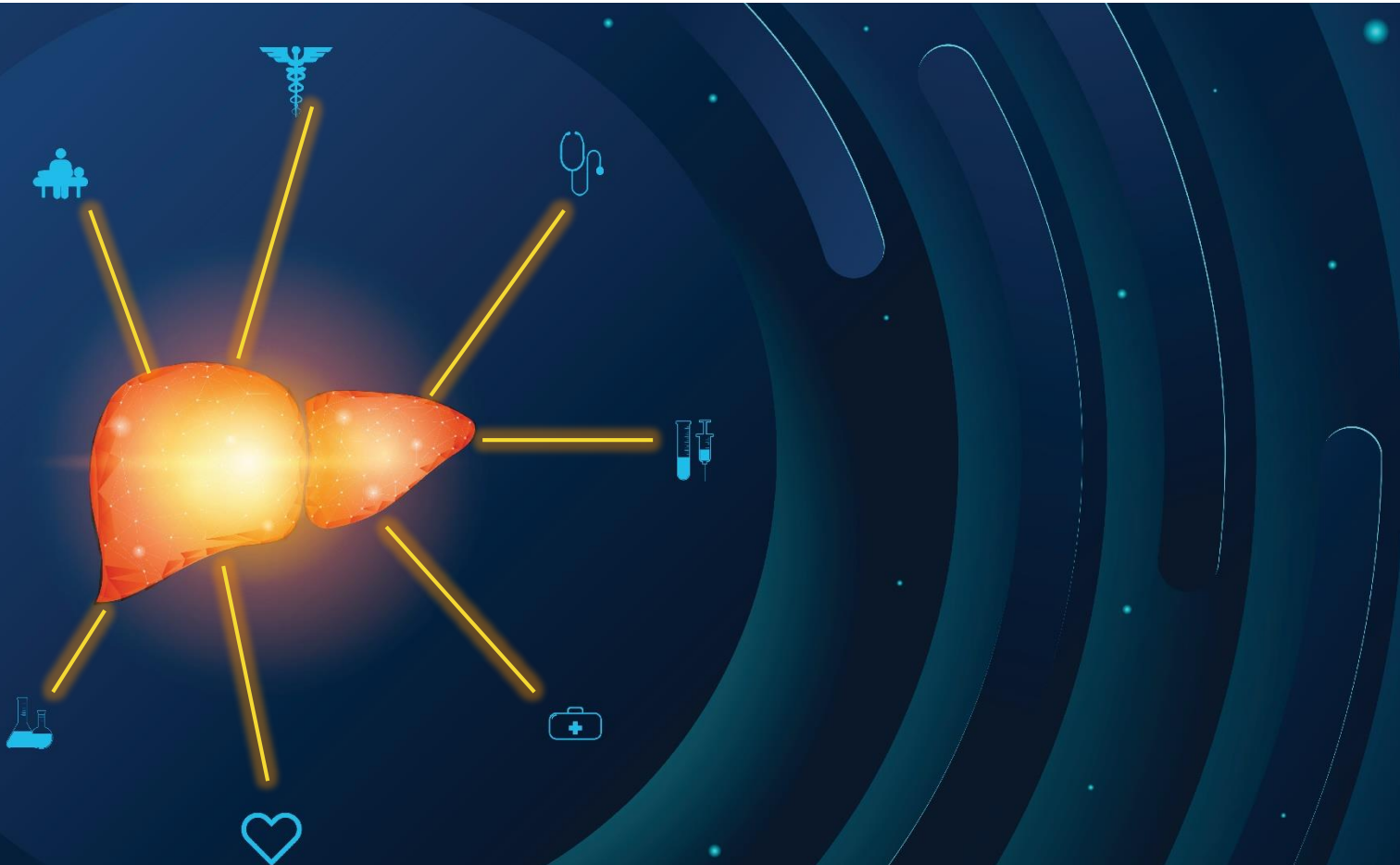
**Face to face  
diagnosis and  
monitoring**

## To more mobile and device driven remote healthcare



**Face to face  
diagnosis and  
external device  
monitoring**

# To fully connected care using implantables



**External device  
diagnosis and  
implantable  
monitoring<sup>1,2</sup>**

1. Labiotech.eu, 2020. Available at: <https://www.labiotech.eu/in-depth/biosensors-health-monitoring/>, accessed May 2021; 2. Kim J, et al. Nat Biotechnol 2019;37:389–406

# These new technologies will shift healthcare into the home

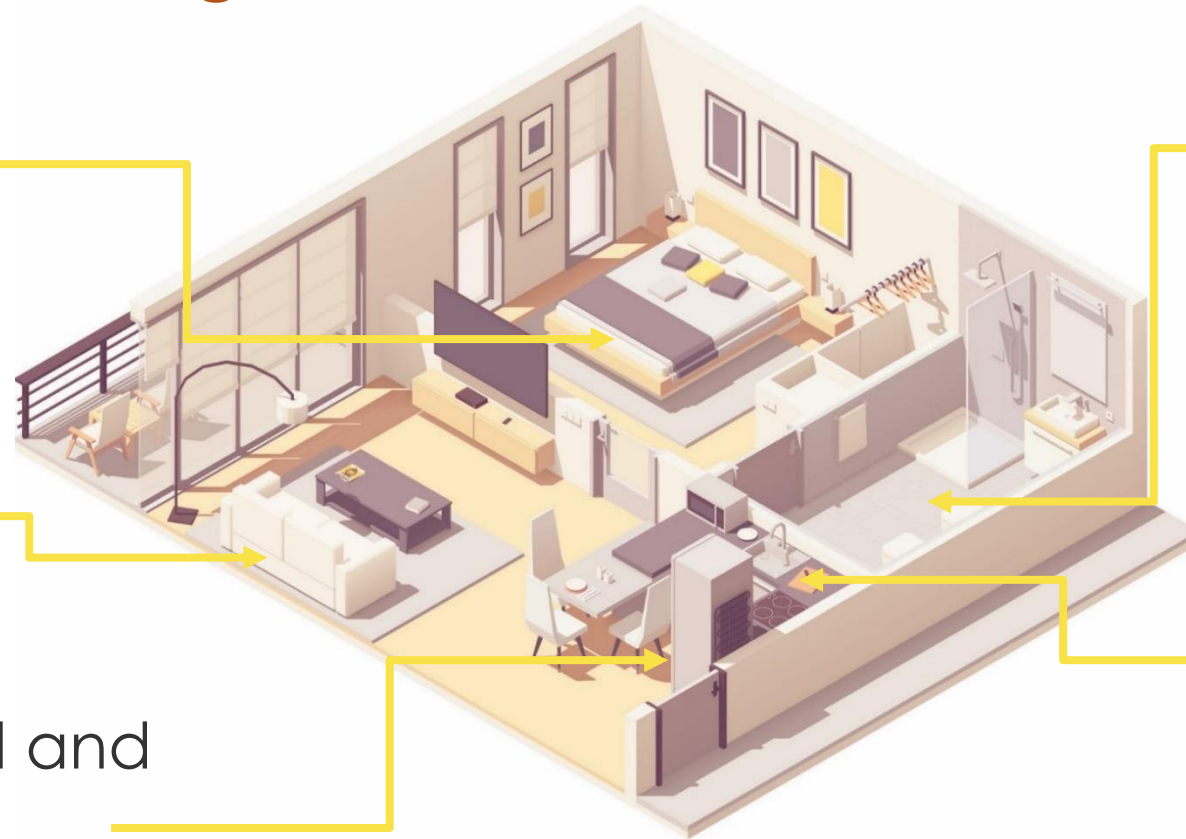
Sleep tech:  
Sleep tracking

Biosensors:  
Monitoring<sup>1,2</sup>

Smart Fridge: Food and diet tracking

Smart Toilet:  
Monitoring and diagnostics<sup>4</sup>

Smart Scales:  
Monitoring and diagnostics<sup>3</sup>



1. Med-technews, 2020. Available at: <https://www.med-technews.com/news/patch-for-detection-and-monitoring-of-covid-19-testing-fast/>, accessed May 2021;

2. Sheikh M, et al. npj Flex Electron 2021;5(9): <https://doi.org/10.1038/s41528-021-00107-x>;

3. Techradar, 2021. Available at: <https://www.techradar.com/uk/news/your-withings-smart-scale-can-now-tell-you-the-age-of-your-heart>, accessed May 2021;

4. MedicalNewsToday, 2020. Available at: <https://www.medicalnewstoday.com/articles/smart-toilet-recognizes-users-and-checks-for-signs-of-disease>, accessed May 2021

## This brings a number of implications

Empowered patients

24/7 connection and monitoring

Increases in data volume and access



## And will impact patient expectations



Telemedicine

x



Data sharing and  
connected health

x



App and health-  
tech advice

x



## Some tips to support you with these digital trends



**Trial** the technology yourself



**Ask** your patients and ask the HCP community



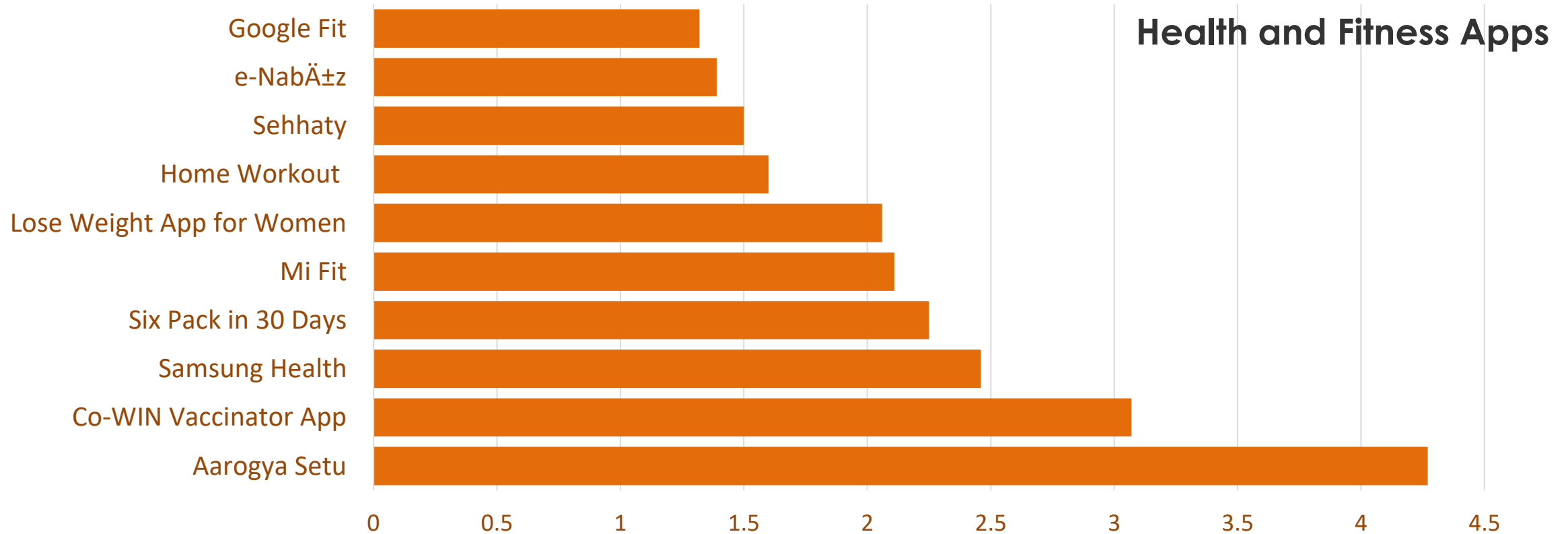
**Stay up to date** with trends - e.g. follow [The Medical Futurist](https://medicalfuturist.com/magazine)<sup>1</sup>

1. <https://medicalfuturist.com/magazine>

**Thank you**

# Appendix

# Number of Global Downloads Google Play April 2021<sup>1</sup>



1. Statista, 2021. Available at: <https://www.statista.com/statistics/690887/leading-google-play-health-worldwide-downloads/>, accessed May 2021



### Loselt<sup>1</sup>

- The app calculates your daily calorie budget.
- Users can track food, weight, and activities to reach goals
- Features include barcode scanning, tracking food by taking a photo with Snap It, and a status bar if counting macros



### MyFitnessPal<sup>2</sup>

- Includes an enormous food database, a barcode scanner, and recipe importer,
- Ensures tracking food is fast and easy. The app tracks your nutrients and counts calories
- It offers food insights to help make healthier choices
- User can also log exercise and steps, as well as find support and motivation from the community.



### WW (Weight Watchers)<sup>3</sup>

- The app gives access to food and fitness trackers, thousands of recipes, and a supportive community.
- A barcode scanner and enormous database to track what is eaten, and monitor fitness goals with the activity tracker.
- A nutritional science-backed system will also guides toward a healthier diet.
- One review of 39 studies found that people who participated in Weight Watchers achieved at least 2.6% greater weight loss after 1 year than those who didn't<sup>4</sup>

1. Lose It, 2021. Available at: <https://www.loseit.com/>, accessed May 2021; 2. MyFitnessPal, 2021. Available at: <https://www.myfitnesspal.com/>, accessed May 2021;

3. Weight Watchers, 2021. Available at: <https://www.weightwatchers.com/uk/ww-app>, accessed May 2021;

4. Wee C. Ann Intern Med 2015;162:522–523 [Epub ahead of print 7 April 2015]. doi:10.7326/M15-0429



### Noom<sup>1</sup>

- CBT behaviour change app
- Noom uses a psychology-based approach to identify deeply held thoughts and beliefs about nutrition and exercise. Then it builds a customized approach to help you create healthy habits.
- The app helps track weight, food, exercise, blood pressure, and blood sugar all in one place.



### Lifesum<sup>2</sup>

- Provides information showing how diet integrates with other habits to help to reach health and fitness goals.
- Your Life score serves as a source of motivation and lets users log healthy meals, exercise, water, and more.
- Has database of hundreds of recipes and includes a quiz to find recipes best suited to goals
- Lifesum also supports macronutrient and net carb tracking
- The premium version, syncs with several other health apps and devices, including Apple Health, Fitbit, Google Fit, Withings, and more.



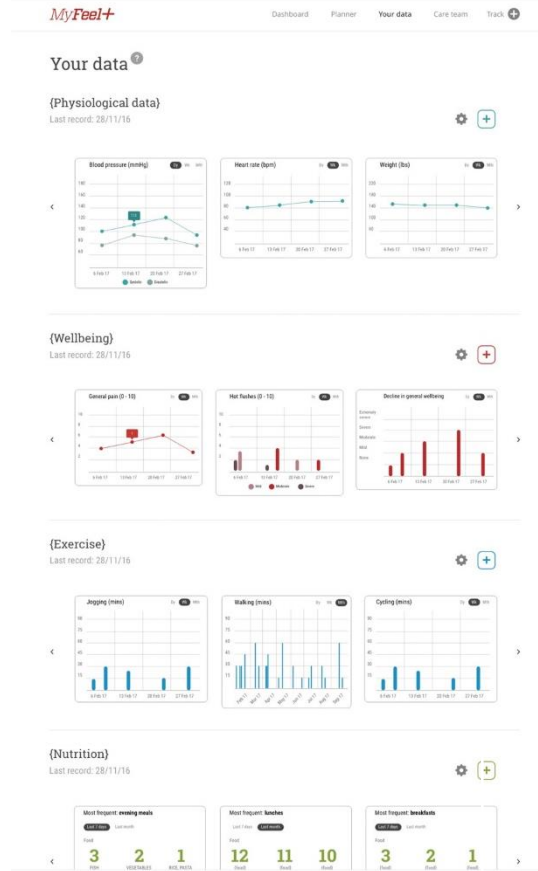
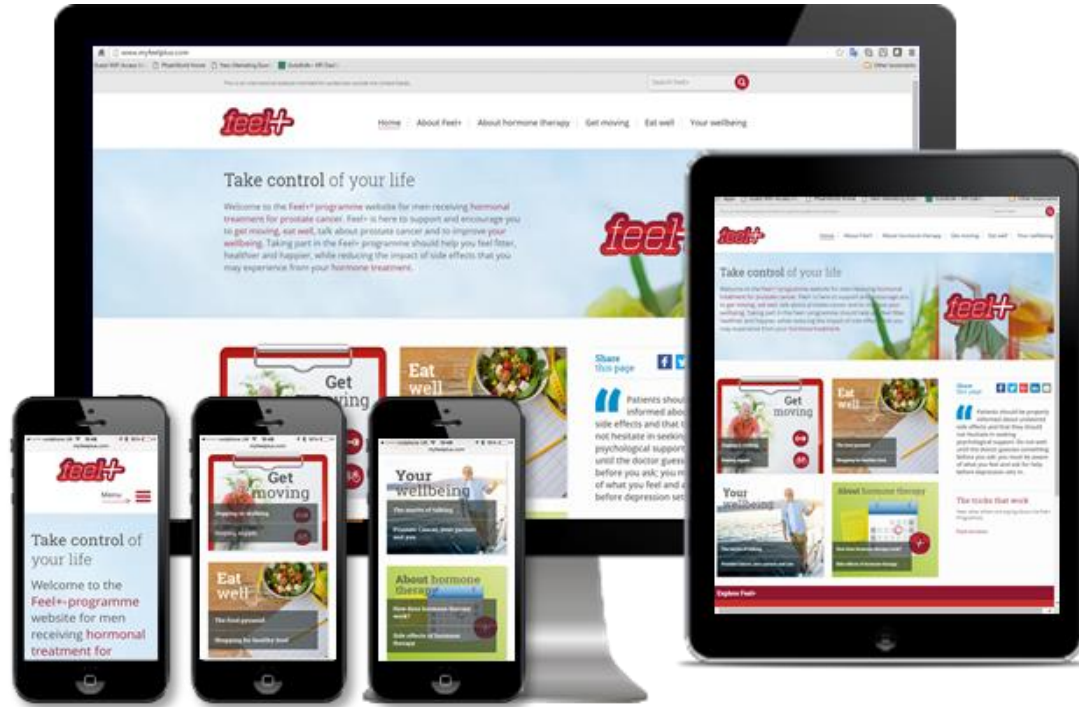
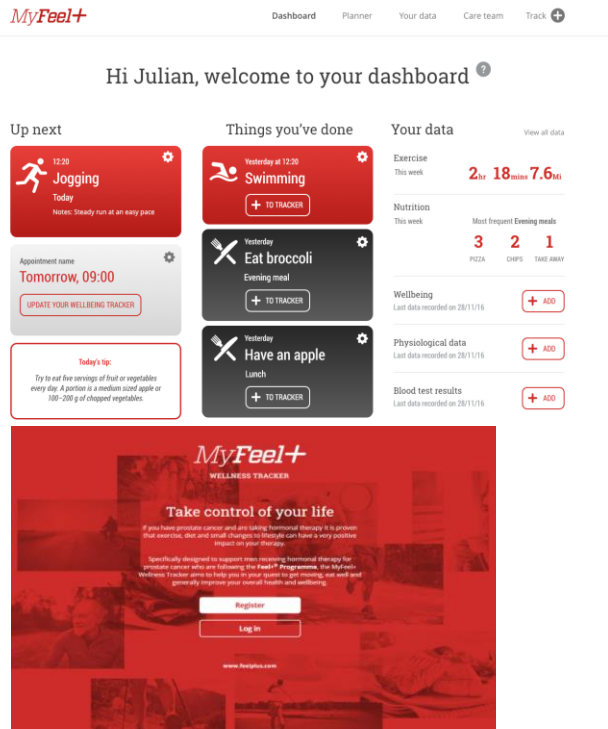
fatsecret

### Fatsecret<sup>3</sup>

- Australian app that includes nutritional information, including for foods, brands and restaurants
- Provides healthy receipts
- Includes food and exercise diary for tracking and a weight chart and journal to monitor progress
- Support provided by large global community

1. Noom, 2021. Available at: <https://www.noom.com/#/>, accessed May 2021; 2. Lifesum, 2021. Available at: <https://lifesum.com/>, accessed May 2021;

3. Fatsecret, 2021. Available at: <https://www.fatsecret.com/>, accessed May 2021



**feel+**

Interactive, personalised website and web application helping men with prostate cancer on hormonal therapy manage their side effects and live fitter, healthier lives.<sup>1</sup>

Localised to **9 countries**  
**41,000 users** to date  
**96%** of registered patients **still active after 3 months**  
 Finalist in **eyeforpharma's 'Most Valuable Collaboration'** award

1. Feel+, 2021. Available at: <https://www.feelplus.com/>, accessed May 2021

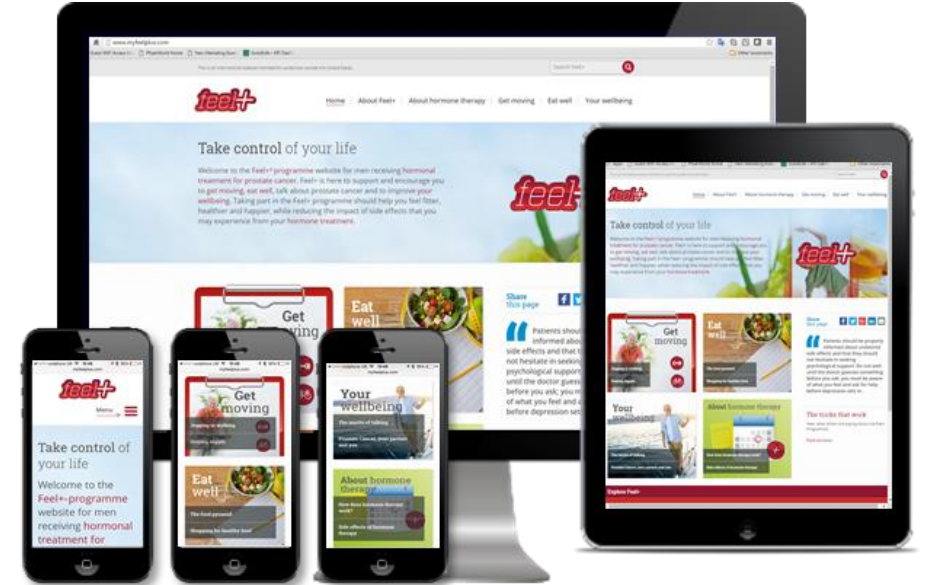


Monique Kasa-vubu, Specialist Nurse in Oncology, Cliniques Universitaires Saint Luc, Brussels



Julian,  
Feel+ Programme  
Participant

My idea of exercise until two years ago was to leave my flat,



## Advice Videos (Feel+ for Prostate Cancer)

Helping men with prostate cancer on hormonal therapy manage their side effects and live fitter, healthier lives via patients and nurse advice. Encouraging men to take up the well-ness tracker as part of their treatment.<sup>1</sup>

1. Feel+, 2021. Available at: <https://www.feelplus.com/>, accessed May 2021