

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/339492054>

Mobile Apps for Human Nutrition: A Review

Chapter · January 2020

DOI: 10.4018/978-1-7998-2521-0.ch007

CITATIONS

0

READS

1,571

5 authors, including:



Muhammad Abbas Khan

Khyber Pakhtunkhwa Agricultural University, Peshawar

2 PUBLICATIONS 0 CITATIONS

[SEE PROFILE](#)



Syed Tanveer Shah

Khyber Pakhtunkhwa Agricultural University, Peshawar

63 PUBLICATIONS 216 CITATIONS

[SEE PROFILE](#)

Some of the authors of this publication are also working on these related projects:



Physiological indices, biomass and economic yield of maize unflunced by humic acid and nitrogen levels [View project](#)



Kampala Inspire Hackathon The SmartAfriHub [View project](#)

Chapter 7

Mobile Apps for Human Nutrition: A Review

Muzamil Ahmad

 <https://orcid.org/0000-0003-3173-6814>

The University of Agriculture, Peshawar, Pakistan

Muhammad Abbas Khan

The University of Agriculture, Peshawar, Pakistan

Mairaj Bibi

Bolan University of Medical and Health Sciences, Pakistan

Zia Ullah

The University of Agriculture, Peshawar, Pakistan

Syed Tanveer Shah

The University of Agriculture, Peshawar, Pakistan

ABSTRACT

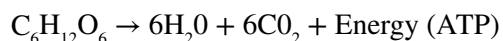
Lack of proper diet causes many diseases like night blindness, gum death, rickets, osteomalacia, etc. Similarly, undernutrition will cause a low intelligence quotient (IQ), osteoporosis, anemia, scurvy, pellagra, etc. Over-nutrition will result in obesity, Type II diabetes mellitus, and ischemic heart diseases. Also, the unhygienic intake of food, intake of food on no fixed time, intake of fast food intake of other unhealthy stuff can lead to irregularities in the human body. Adopting healthy habits, physical activity, exercise, sports, and walking can lead to a healthy lifestyle of an individual. In addition, today's busy schedule and less time availability restricts individuals to visit the doctors or nutritionists. Many mobile applications were developed for monitoring and calculating an energy level as well as healthy nutrition. This review chapter has assessed the use and features of various mobile phone health applications, which helps individuals to overcome and monitor the above-mentioned health-related issues.

DOI: 10.4018/978-1-7998-2521-0.ch007

1. INTRODUCTION

The main purpose of this review paper is to educate those who are facing hurdles in visiting physicians for their regular health checkups and ask for their regular nutritional balance, due to any reason such as belonging to remote areas, having a busy schedule, having no knowledge about varieties of apps used in assessment of Human Nutrition. They always need a reliable and efficient source that is time saving, costless and provide them an easy way for nutritional assessment on their doorsteps to maintain a balance nutrition and healthy life, therefore, keeping in view the above, the use of smart gadgets and mobile apps and their progression in innovation plays a vigorous role in maintaining a balance nutrition and equip one to have enough knowledge about the usage and function of variety of collected nutritional apps on a single click (Boushey, Spoden, Zhu, Delp, & Kerr, 2017). This review includes a variety of nutritional apps along with their workflow regarding diet coach, food diary, weight loss, calories counter and pregnancy applications.

Along with this, it is mandatory to know the basic knowledge of human nutrition. Human Nutrition is the area of Medical Sciences which deals with nutrients and their influences on human routine eating, health and exercises. Nutrition or nutrients provide growth and development to human beings as well as to plants. In Nutrition mostly appropriate diet is that which contains the micro and macronutrients. Furthermore, in nutrition we study about nutrients which give energy, e.g., when an individual takes some food, it separates in smaller molecules which discharges energy in the form of Adenosine Tri Phosphate (ATP) as shown in the reaction below.



The reaction above shows that nutrients undergo catabolism process to give us energy. Similarly, nutrients are essential in human life for example, a fetus is totally reliant on her mom for nutrition. Insufficient nutrition causes diseases, influences growth and nourishment of a child. A poor diet with a smaller amount of iron causes iron deficiency which results in tiredness and retard in attention in studies. The absence of vitamin A causes night blindness, the absence of vitamin C causes gum bleeding, the absence of vitamin D causes rickets in kids and osteomalacia in adults, and the absence of meats causes macrocytic anemia and so on (Organization, 2000).

Furthermore, both abundance and insufficiency of nutrients causes diseases like low IQ, osteoporosis, anemia, scurvy, pellagra, night blindness and so forth and over nutrition brings about obesity, Type II diabetes mellitus (Because of Intake of Abundance Glucose), ischemic (heart sicknesses) (Because of Intake of Overabundance Cholesterol) (Alamgir, Sami, & Salahuddin).

2. BACKGROUND

Even many papers published on nutritional mobile phone applications, no studies yet have been analyzed that covers the functions of various nourishing applications, altogether. Before, individuals utilize conventional dietary evaluation strategies (Pen or Paper), which required day by day recording of every food consumed and its vitality content (Jospe, Fairbairn, Green, & Perry, 2015).

This strategy for recording was challenging especially to get precise outcomes for revealing relationship between diet and health. Besides, record keeping trouble (Either because of lapse of memory or

Mobile Apps for Human Nutrition

wrong estimation of food size), tediousness, perpetual storage absence, non-simple access to printed record for worldwide analysts, laboriousness for resource inadequate nations, insufficient dietary content knowledge etc. brought about poor checking of individual's nutrition (Boushey et al., 2017).

Furthermore, the conducted surveys demonstrated that individuals are eager to spend cost on effective nutritional assessment systems (for example paid mobile phone applications), also, adjustment to mobile phones applications, which are used for digitalizing nutritional evaluations, has given a chance to assess intake of nutrients and giving feedback (Carter, Burley, Nykjaer, & Cade, 2013).

3. OBJECTIVE

The study conducted aims to review the primary functions of nutrition related prominent mobile phone applications accessible in Google Play Store, and so forth and to divert and redirect the frame of mind of individuals (who are eager to get advantages of mobile phone applications used to upgrade human health for example professional health students, market and the scholarly world and so on.) towards the use of mobile phone applications.

4. HUMAN NUTRITION APPS

In this section the functions of numerous human nutrition mobile applications are discussed. Some of the best apps that help in monitoring human health will be scrutinized for better results.

4.1 Calorie Counter by Fatsecret

The least demanding to utilize calorie counter and best weight reduction and eating less junk food applications available. The best part is that Fat Secret is freely available. This application monitor one's food, weight and exercise, using the world's most elevated quality nutrition and food database and make connect with a worldwide network of individuals hoping to roll out an improvement to remain fit and healthy to accomplish one's objectives.

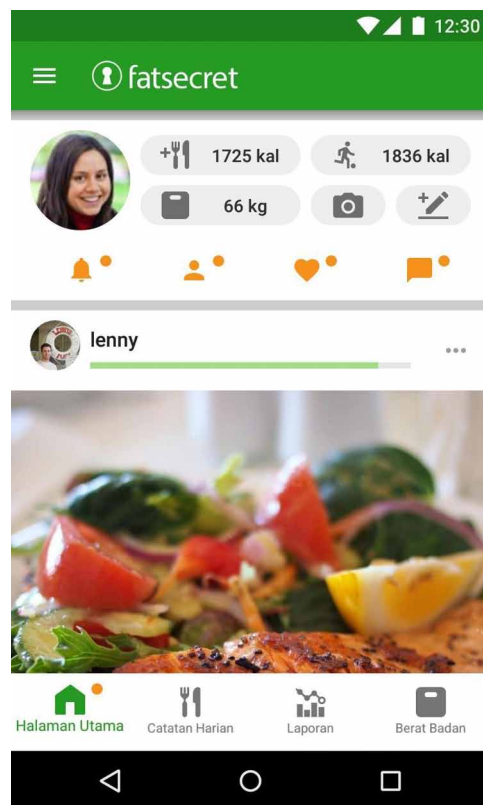
The application synchronizes with Fat Secret Professional, the most advantageous approach to share one's food, exercise, and weight with his/her favored health expert. An individual's health expert will get free access to straightforward and useful assets to screen his performance and furnish one with input, guidance, and backing. The Calorie Counter application is shown in the Figure 1.

Fat Secret is quick, easy to utilize and includes coordination with outside services and instruments to enable one to prevail with his eating routine:

- A standardized tag scanner and auto-complete capacities.
- An eating routine schedule to see one's calories expended and consumed.
- An awesome network that is prepared to offer help and turbo charge one's weight reduction.
- Image acknowledgment of foods, dinners, and items so one can take photographs with the camera and monitor nutrition with pictures.
- A weight tracker.
- Detailed announcing and objectives for every one of one's calories and macros.

Mobile Apps for Human Nutrition

*Figure 1. Calorie counter by Fatsecret
(FatSecret, 2019)*



- A simple to utilize a food diary to plan and monitor what an individual is eating.
- Photo collection. (Photo diet, Food snap, Instant calorie)
- A diary to record one's progress.
- Reminders for suppers, weigh-ins, and diaries.
- Notifications for help, remarks, and followers.
- Fantastic plans and dinner thoughts.
- Sharing and communicating with one's expert on the choice.
- Samsung Health, Google Fit and Fit bit exercise monitoring integration.
- An activity diary to record every one of the calories they consume.

4.2 Calorie Counter Pro by Mynetdiary

One of the most worthwhile restorative applications is MyNetDairy. This Application is tied in with searching for caloric worth, eating fewer carbs, and exercise. This application, truth be told, has helped individuals in getting thinner. A large number of clients have lost 0.6kg weight week by week and 12.27kg in the initial a half year. Individuals using this application stay fit and sound by knowing how much calories they are getting from sugars, proteins, and fats and afterward as indicated by the caloric estimations of these macronutrients, individuals choose the low fitting caloric eating regimen. In the

Mobile Apps for Human Nutrition

event that somebody has the information that Carbohydrates give 4.1kcal, proteins give 4.1kcal, fats give 9kcal, they will like to accept sugars and proteins more when contrasted with fats. Getting warnings from this application in an individual's mobile phone. An individual will set its different times of eating, exercise, rest and rest. The Figure 2 shows the Calorie Counter PRO application.

4.3 My Diet Diary Calorie Counter by MedHelp

Arrive at one's weight objective quicker with My Diet Diary, one's eating routine, and wellness partner. The most effortless approach to get in shape, keep up the weight or put on weight. The exquisite and least complex weight reduction application to follow one's food, calories, work out, weight, cholesterol, carbs, calories consumed, other nutrition information. Demonstrated accomplishment as a large number of individuals worldwide has use this application to arrive at their weight objective. The Figure 3 shows My Diet Diary Calories Counter.

My Diet Diary Calorie Counter provides the following features:

- Daily eating fewer carbs tips.

Figure 2. Calorie counter PRO by MyNetDiary (Inc, 2019)

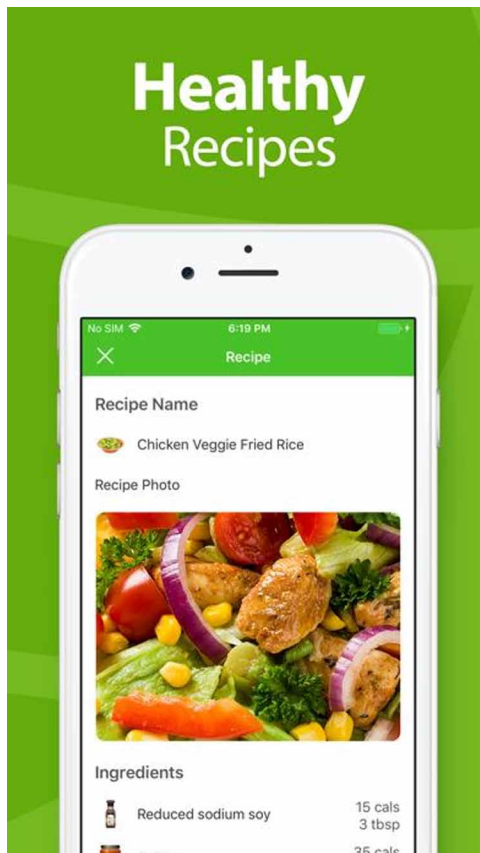
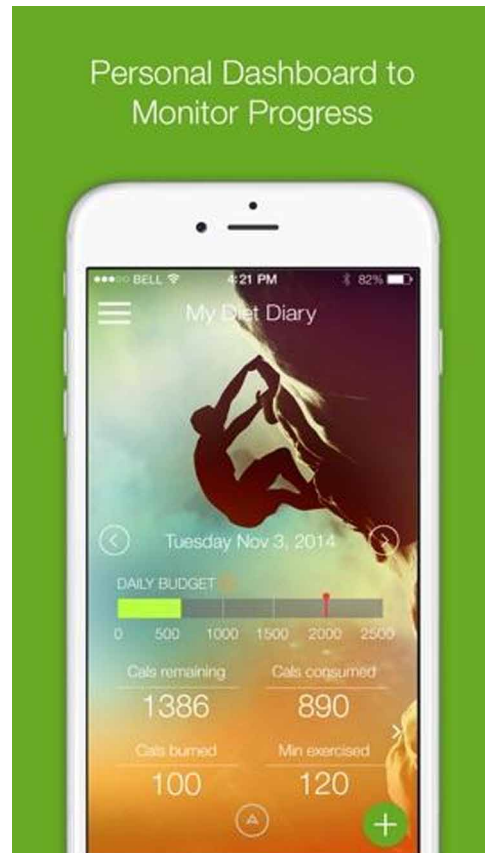


Figure 3. My diet diary calorie counter by MedHelp (StayWell, 2019)



Mobile Apps for Human Nutrition

- Add food from our database of 150,000+ foods and solid plans for regardless of what diet you are on: Atkins, sans gluten, Paleo, Jenny Craig, Weight watchers, and so on.
- Automatically give insights regarding each and every food: protein, gluten, carbs, calories, nutrients, cholesterol, and minerals.
- Easy to peruse reports and charts to view patterns.
- A day by day calorie counter and track other food information (protein, carbs, cholesterol, sugar, fiber, and so on).
- The most straightforward approach to follow what an individual eat and see a full wholesome outline.
- Journal to follow one's everyday work out, calories consumed, and minutes worked out.
- Detailed everyday journal synopsis to see one's general improvement and how to improve.
- Set weight reduction objective and utilize individual's calorie tracker to begin following their calorie spending plan and diet.
- Daily diet and wellness tips.
- Reminders to enable one to remain on track.
- Connect and see one's average improvement from your Fit bit, Jawbone Up, or other action Global Positioning System (GPS) beacons or step tallying.
- View weight diagrams, calories expended graphs, diet rundown, and reports following one's weight reduction.
- Calculate all out micro and macronutrients.
- Connect one's fit bit, Jawbone Up and more for a far-reaching perspective on the entirety of his wellness and nourishing data.
- Not on eating routine? Have diabetes? Utilize a sustenance log, diary, and tracker to see a breakdown of calories from carbs and fats.
- Log more than 65 activities to see calories consumed and calories lost.
- See calories and fat one ignited with our progression counter.
- Track cardio, strolling, biking, running, advance counter, and the sky is the limit from there.
- Daily wellness tips.
- Basal Metabolic Rate (BMR) calculator and Body Mass Index (BMI) mini-computer.

4.4 Ultimate Food Value Diary - Diet & Weight Tracker

Everybody is extraordinary and all one's weight reduction adventures are similarly unique so this application gives an individual the decision to pick the arrangement that suits them and it is illustrated in the Figure 4.

Settle up with stunning highlights:

- Food, Alcohol, Exercise, and Daily objective adding calculator.
- Standardized barcode scanner greater than three million standardized identifications.
- Boundless nourishment and exercise top choices.
- Configurable in metric and majestic.
- Worth estimator - Calculate nourishment esteems dependent on simply the calorific worth.
- Cloud information reinforcement and reestablish with programmed reinforcements and the capacity to duplicate information between Android gadgets.

Mobile Apps for Human Nutrition

Figure 4. Ultimate food value diary - diet & weight tracker
(Ltd, 2019)

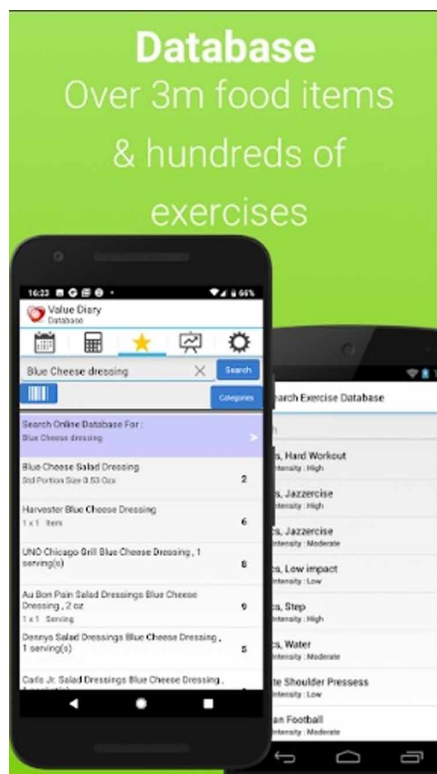
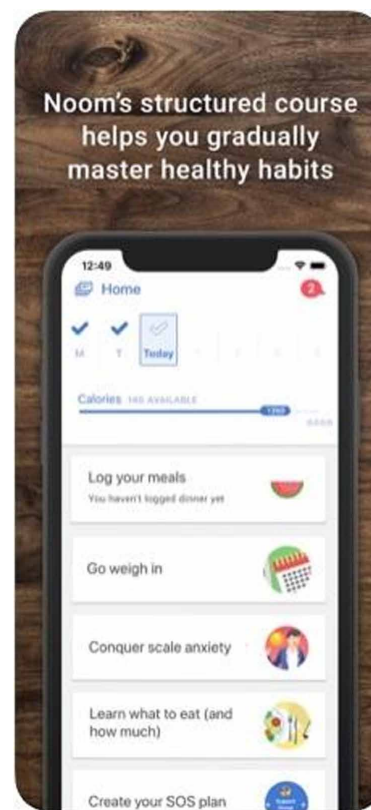


Figure 5. Noom weight loss coach
(Noom, 2017)



- Online Food and Restaurant with a huge number of food and cafe things, loaded with everyday nutrition, tidbits and liquor things.
- Capacity to track body estimations
- Dinner Maker enabling one to amass things as a supper with programmed divide computation.
- Track sound decisions, in addition, to record one's everyday notes.
- Weight reduction following diagrams, target and achievements.
- Worked in food and exercise databases.
- Pedometer support - Record one's means on his wellness band or smart watch and have the application consequently convert them to exercise earned inside the application for all plans - matches up with Fit bit and Google Fit.

4.5. Noom Weight Loss Coach

Noom's demonstrated brain research-based methodology distinguishes one's profound established considerations and triggers and constructs a custom course of action to enable one to shape sound propensities, quicker.

Mobile Apps for Human Nutrition

Included in the New York Times, Women's Health, Shape, Forbes, ABC and then some, the Figure 5 shows the application having just helped more than 45 million individuals overall form health propensities and accomplish their health objectives.

Individuals who use Noom lose a normal of 18 pounds in only four months. Figure out how to explore one's condition, challenge one's considerations, ace triggers, and defeat any boundary that may come to one's direction.

Regardless of whether it's passionate eating, yearnings at late morning, trouble with social eating, or a sweet tooth. Noom's experimentally supported arrangement will enable one to make an arrangement to beat any hindrance and practice more advantageous propensities until one have aced them.

This Application gives the accompanying element:

- Flexible training intended to enable one to set and accomplish his short-and long term objectives.
- Tools to follow one's weight, nourishment, work out, circulatory strain, and glucose across the board place.
- An interactive substance with over 250+ new articles, including pick one's-own-experience style advisers to apply Psych Tricks of this application into one's everyday life, flawlessly.
- Scientifically-demonstrated brain science way to deal with "stunt" one's body into structure solid propensities, quicker.
- Custom feast + exercise Plans accessible to take one's advancement to the following level.
- Smarter innovation to distinguish one's difficulties progressively and keep him on track.
- Personalized criticism from one's mentor dependent on him.
- This application has most complete food database, with over a large portion of a million new and refreshed nutrition logging choices and scanner tags to make one's experience far and away superior.

4.6. Nutrition Lookup

This application get quick, solid wholesome data in a hurry. Spark People's Nutrition Lookup application is an advantageous and simple approach to settle on the most advantageous decision inevitably. Fueled by Spark People's broad nutrition database, this little however compelling application enables one to look into wholesome data for many food at the dash of a catch.

What one Get with Nutrition Lookup:

- Detailed healthful data for more than 3 million foods.
- Easy-to-comprehend charts that show the breakdown of calories, starches, fats, and proteins for any accessible food.
- Bar code filtering for a straightforward query of bundled foods. One can open camera from inside this application, examine the Universal Product Code (UPC) name and discover the food right away. Nutrition Lookup application are shown in Figure 6.

Mobile Apps for Human Nutrition

Figure 6. Nutrition lookup
(SparkPeople, 2016)

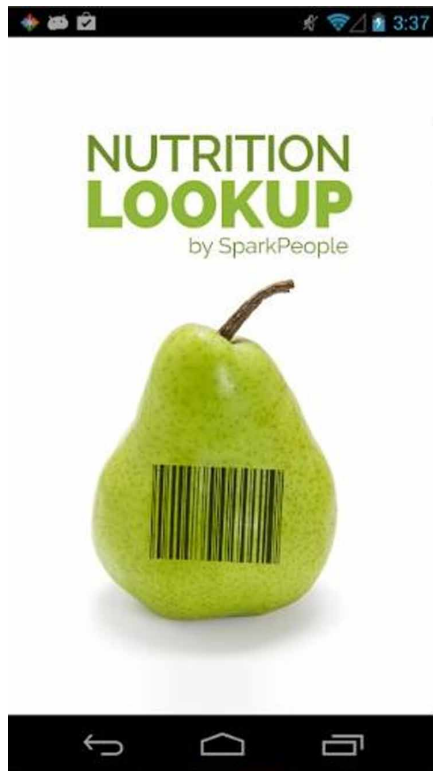
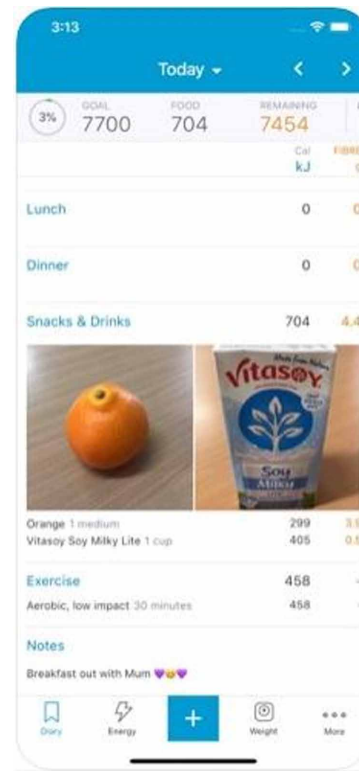


Figure 7. Easy diet diary
(Ltd, 2012-2019)



4.7. Easy Diet Diary

Simple eating routine diary is another restorative application shown in the Figure 7 gets more fit of individual, its works like a connector, here individual records his dietary eating routine record just as exercise and weight and afterward subsequent to doing this they counsel their dietary diary to a dietician, nutritionist and to a health experts, so by doing this, individuals get sound life tips and stay solid forever.

4.8. Nutritionist-Dieting Made Easy

The most thorough and restoratively significant application to control weight and exercise. Nutritionist recommends the correct food and tells the amount that one ought to eat. So this nutritionist application that is mentioned in the Figure 8 has changed the way of life of individuals particularly the manner in which they eat.

4.9. Map My + App (Walk, Run, Ride, Fitness)

Among the most effective applications, this is a walk, run, ride, and wellness significant application. Here individuals are propelled that they can get more fit from multiple points of view like strolling, running,

Mobile Apps for Human Nutrition

Figure 8. Nutritionist-Dieting made easy
(Outlier, 2015)



Figure 9. Map my + app (walk, run, ride, fitness)
(MapMyFitness, 2019)



riding and cycling after each supper or whenever of the day. So by doing this they will be fit and will have a solid life until the end of time. The Figure 9 shows Map My plus App.

4.10. Body Tracker - Body Fat Tracker

With regards to rapidly and effectively computing one's muscle versus fat ratio, nothing beats Body Tracker. Clients are guided bit by bit through the whole procedure. Muscle versus fat computations can be taken in record time - with no preparation.

Body Tracker is astoundingly simple to use, regardless of whether one have no related knowledge computing his muscle to fat ratio. All one need is a measuring tape, fat caliper, or muscle versus fat scale, and Body Tracker will tell one precisely the best way to take his estimations. Simply enter estimations, and Body Tracker will do every one of the counts for an individual - and spare his outcomes. On the off chance that one don't have a clue how to take caliper or tape estimations, simply see the pictures or video included inside Body Tracker.

Body Tracker gives one a decision of a few techniques to compute one's muscle to fat ratio and clearly shows in the Figure 10.

Mobile Apps for Human Nutrition

Figure 10. Body tracker - body fat tracker (LLC, 2012)

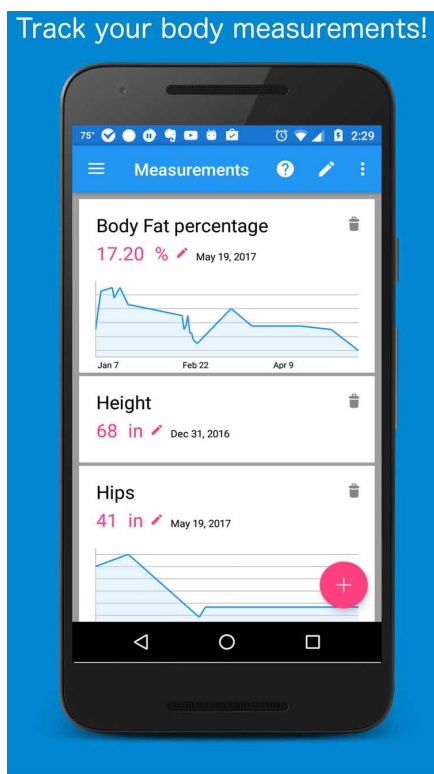


Figure 11. Perfect produce (SparkPeople, Perfect Produce, 2013)



4.11. Perfect Produce

One need to eat more foods grown from the ground, yet wind up now and again confounded in the producing path or the kitchen? How would one pick the best grapefruit? How would one shield avocados from turning darker so rapidly? How would one appropriately store apples? Also, what precisely does fennel resemble? (Furthermore, how would one set it up?) So much produce such a large number of inquiries. That is the reason Spark People made Perfect Produce, a speedy and simple instrument that demystifies the produce area of the general store. Haul out this application at the grocery store or in the kitchen. Sound supper arranging and shopping for food recently turned into that a lot simpler.

Made by Spark People, the web's greatest eating regimen webpage, Perfect Produce is shown in the Figure 11.

Thousands of solid plans with foods grown from the ground as the fundamental fixing.

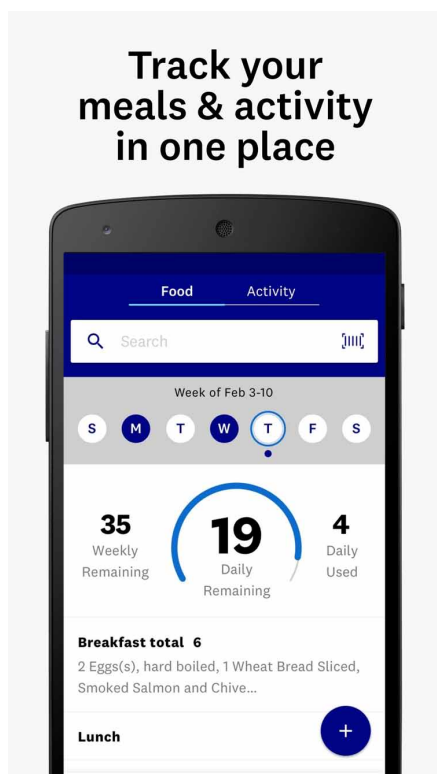
Information on purchasing, putting away and setting up every one of the foods grown from the ground found in many grocery stores.

The capacity to scan for items dependent on dietary substance discover nutrition high in fiber, calcium, or vitamin C, and that's just the beginning.

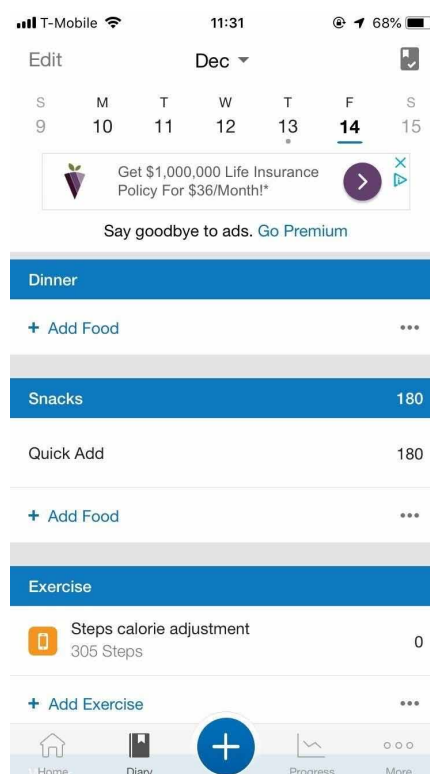
Eating at any rate 5 servings of foods grown from the ground day by day is probably the most ideal approaches to get in shape and eat healthy, as indicated by the individuals and specialists at Spark People.

Mobile Apps for Human Nutrition

*Figure 12. WW (Formerly Weight Watchers)
(Weight Watchers, International, Inc., 2019)*



*Figure 13. MyFitnessPal
(LLc, 2009-2019)*



This application makes getting your “five per day” simpler, and, with plans of this application, makes them considerably more delicious and fascinating to eat.

4.12. WW (Formerly Weight Watchers)

With this latest WW (Formerly Weight Watchers) application depicts in the Figure 12. one would have access to this user friendly fitness and food tracker, a huge number of delectable recipes, and the help one have to get more fit and build healthy addiction for the life.

- Recipes.
- With 4K plus WW recipes, deciding what to eat is easy. Choosing what to eat is simple. Browse by choosing classifications, for example, “Fast and easy” to find out delectable meals to fulfill any taste. Construct and store dishes one like to make remaining on track easier.
- Fitness & Food Tracker.

Effectively track what one eat by using the Scanning of Barcode or searching of this application database about two lac twenty five thousands of foods. Supported by science of human nutrition, Smart Points system will guide one to a healthy dieting which can contains a lot of fruits, protein and vegetables.

Mobile Apps for Human Nutrition

Review an individual's fitness objectives with the activity tracker. It will tell one the best way to synchronize his fitness mobile and covert his day by day moves into Fit Points, the application measurement for activity.

4.13. MyFitnessPal

Here is another application about weight reduction and a healthy life. In this application, clients change diet with interims that how many staples will be taken in breakfast lunch and in supper. Before the day's over, he/she will ascertain the entire day's calories and check whether he/she has accomplished the everyday objectives or not. This application which is shown in the Figure 13 helped many individuals to stay fit and solid.

4.14. Pregnancy Health & Fitness

Pregnancy Health and Fitness step by step including all the data hopeful mother requirements for a solid pregnancy from origination until birth. Just enter one's infant's expected date in this application to get to week by week refreshes about one's body, her child's development and master tips for a fit and solid pregnancy.

This application gives an all-encompassing interpretation of pregnancy health and could be seen by an individual in the Figure 14. Including Fetal Development Images.

See what one's infant resembles as one's pregnancy advances, alongside insights concerning one's infant's weight, size, and improvement. Additionally, get nourishment rules to enable one to eat the best supplements infant needs at explicit occasions.

A Week-by-Week Countdown realize what side effects and changes to expect, including normal solutions for basic pre-birth protests as one's body prepare to carry one's infant into the world.

- *Pre-birth Articles and Tips*

There is such a long way to go regarding pregnancy, labor, and conveyance (regardless of whether one will have a homebirth or clinic birth) that it can appear to be overpowering. That is the reason that the team of this application has taken their best articles and consolidated them into simple to-peruse, straightforward tips so one can learn on their timetable.

SparkPeople.com is a main sound living site that has helped a large number of individuals get in shape, get fit and improve their health since 2001. The enlisted dietitians of this application affirmed fitness coaches and pre-birth health and wellness specialists built up this proof-based Pregnancy Health application to enable ladies to proceed with their smart dieting and exercise propensities during pregnancy and past - on the grounds that solid children start with sound mothers.

- *Exercise Demonstrations for Expectant Moms*

The affirmed maternity wellness specialists of this application made a progression of safe activities and exercise advisers for assistance the mom-to-be remain fit, put on the appropriate measure of weight, and advance generally speaking maternal health.

Mobile Apps for Human Nutrition

Figure 14. Pregnancy health & fitness
(SparkPeople, Pregnancy Health & Fitness, 2016)

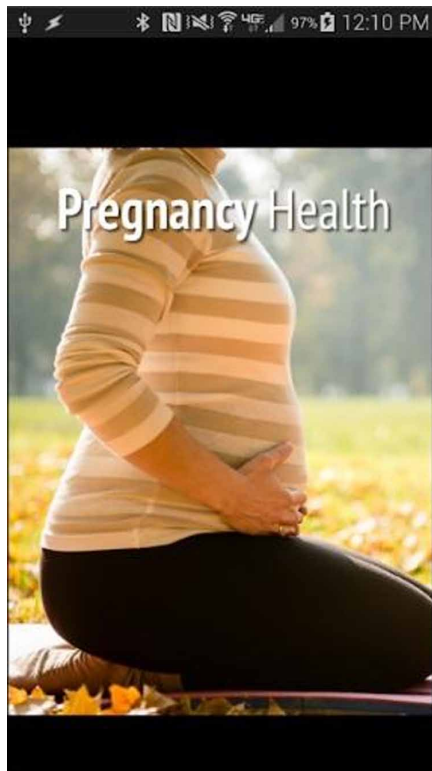
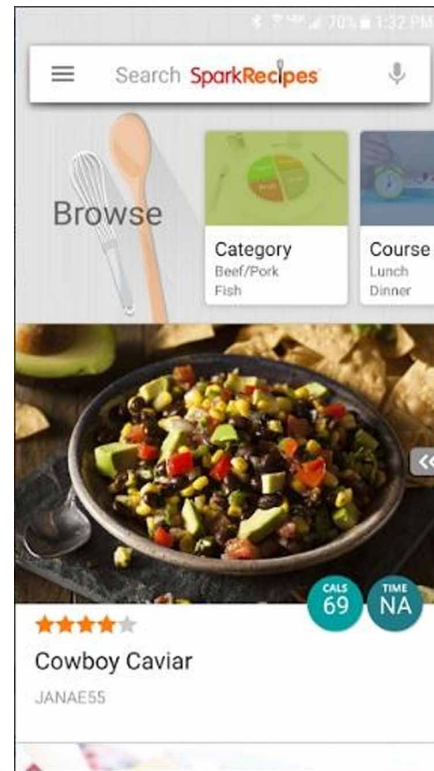


Figure 15. Healthy recipes & calculator
(SparkPeople, Healthy Recipes & Calculator, 2017)



4.15. Healthy Recipes & Calculator

An individual is a single tick away from more than 500,000 plans from the world's biggest solid plans site, SparkRecipes.com. These plans have been attempted and tried by home cooks simply like you, and this application is intended to make it simple for an individual to prepare top choices in any place he go as show in the Figure 15. Make eating tasty, nutritious suppers a snap - all without burning up all available resources.

This Application Gives to Clients:

- Discover plans that fit individual's dietary needs: Whether an individual's eating routine is without gluten, low carb or veggie-lover, this application have the plans for individuals. Channel for one's dietary needs and find delectable plans, quick.
- Search application formula database one's own way: Looking for a sound breakfast dish? Need a low-fat pasta dish the children will eat? With Healthy Recipes, it's anything but difficult to locate another formula that possesses all the necessary qualities. Search by dinner, cooking, event, course, or planning time.
- Coordinate with one's wellness following application: all plans one spare to his "Top picks" run-down will naturally be synchronized to wellness following this application in the event that one

Mobile Apps for Human Nutrition

use it also. Show signs of improvement thought of what one eat and how solid it is. Furthermore, track the plans one find in this application is a free diet following application with a tap.

- Spare one's top choices: Found a formula that one adore? Spare it to one "Top picks" list so one can return to it. Need to see these plans from anyplace on the web? Make a free Spark Recipes account and match up one's preferred plans over the entirety of one's gadgets.
- See calories, carbs, and 10 other key supplements for every formula - SparkRecipes.com is a sister webpage to SparkPeople.com, the #1 solid living site in the US. Recognizing what an individual eat is the initial move towards watching what one eat, so all application plans highlight itemized healthful data. We make it simple to figure precisely what's in what one is eating. Searching for low fat, low carb suppers? This application have secured one. Simply searching for simple plans that rush to make? This application have those as well.

4.16. Weight My Diet Weight Tracker

The application is illustrated in the Figure 16 which Provides Weigh My Diet. Weight Tracking, Measurements tracking and Diet Weight Loss Tracking.

Its Features are mentioned below:

Record an individual's weight. (Optionally, individual's weights with cloths and without cloths wearing can be separately recorded.)

It record the weight in Pounds, Kilograms or Stones, and change all figures instantly. One can see a Chart/Graph of the amendments to one's weight time to time with a best fit graph line and so on.

4.17. Best Boiled Egg Diet Plan

In the Figure 17 shown the Best Boiled Egg Diet Plan application which provides a summarized list of egg (ingredient) consumption's benefits and claims that its use will lose 24pounds weight in two weeks. This application provides a 7-days easy and simple Meal plan with new features where an individual can select healthier snacks during the diet to eat them in-between two regular meals.

4.18. Track-Calorie Counter

Nutritionix Track is a tracking application for fitness created and maintained by a group of registered dietitians. Making habit of a day by day fitness tracking is a viable method to progress towards an individual's health objectives, so the mission of the Track application is to remove the truly difficult work from keeping up of individual's food log. The following application of Track-Calorie Counter is shown in Figure 18.

4.19. Simple Diet Diary

Like different applications, the following shown Figure 19 is one of the most simple applications for weight reduction, as the name shown here an individual simply needs to record everyday dietary arrangement in his dairy and as indicated by the determined calories they do practice and along these lines, they get more fit by keeping up the day by day record.

Mobile Apps for Human Nutrition

Figure 16. Weight my diet weight tracker
(zeronica.com, 2015)



Figure 17. Best boiled egg diet plan
(Apps, 2019)



4.20. Healthy Slow Cooker Recipes

Healthy Slow Cooker Recipes from Spark People together the least demanding, most delicious moderate cooker plans from SparkRecipes.com across the board application. It's never been simpler to locate such a straightforward, healthy among unique applications.

In this application which is below illustrated in the Figure 20, You'll find top of the easy plans for soups, bean stews, stews, primary dishes, treats, and that's only the tip of the iceberg, all made right in your moderate cooker. Besides, the plans call for simple, bravo fixings so you can eat well without going through the greater part of your day in the kitchen. This is what else you can anticipate from our application:

Detailed, simple to-adhere to formula guidelines for each formula.

A total food breakdown of each formula, including calories, fat, cholesterol, sodium, protein, carbs and the sky is the limit from there.

Honest formula appraisals from this application enormous network of home cooks.

Simple social coordination with Facebook and Interest, so you can impart your preferred plans to your companions.

A formula box to spare your preferred plans across the board place.

Mobile Apps for Human Nutrition

Figure 18. Track-Calorie counter
(Nutritionix, 2019)

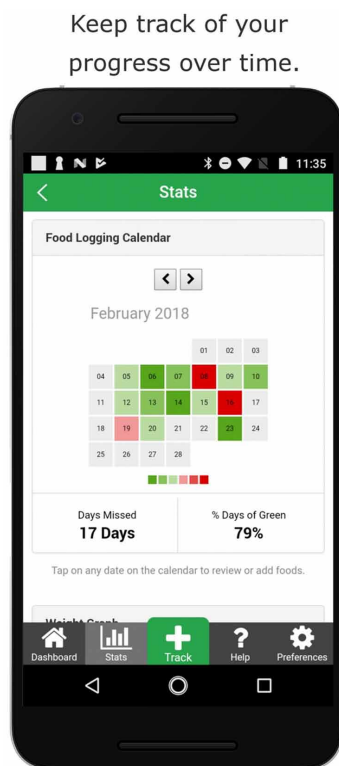
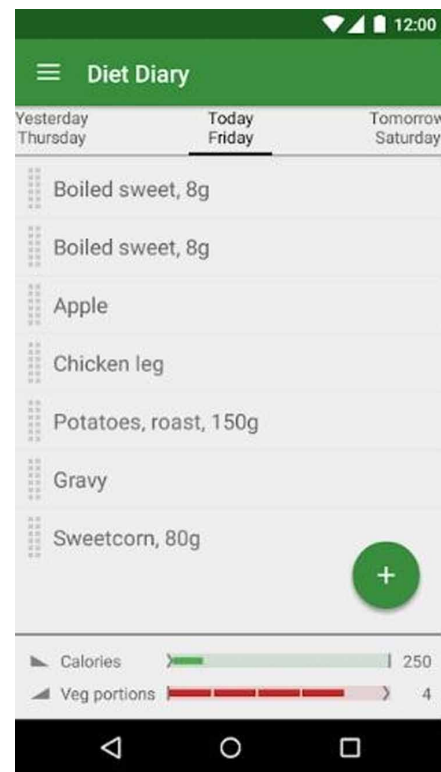


Figure 19. Simple diet diary
(Stone, 2019)



4.21. Dining Note: Simple Food Diary

The Figure 21 shows the pictorial demonstration of another significant application from a medical perspective. Here an individual is instructed to make diet, practice and other day by day exercises (breakfast, lunch, supper, espresso, water consumption, snakes and so on) of day by day schedule. In light of these exercises an individual watches that they have arrived at their objectives of weight reduction or not.

4.22. Health Diet Foods Fitness Help

Health Diet Foods Fitness Help is demonstrated in the Figure 22, which advises individuals to get in chart. Dietician gives health tips with the goal that individuals for magnificence tips will receive these tips of health all-around quickly and will have a solid life. These health tips helps in fixing all the health related issues like stomach issues and many more. Along these tips, managing this will keep up the strong life of individuals.

4.23. Health, Nutrition and Diet Guide

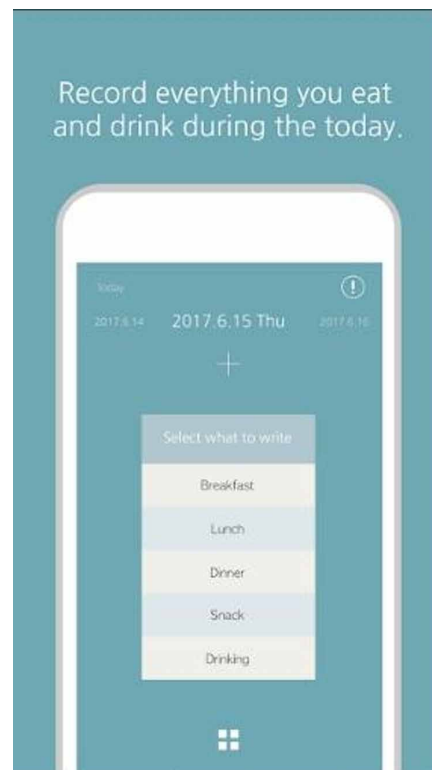
The Figure 23 shows the approaching picture of this application of Health, Nutrition and Diet Guide, the dietician backing to keep up the health of individuals by giving tips for the counteractive action of

Mobile Apps for Human Nutrition

*Figure 20. Healthy slow cooker recipes
(SparkPeople, Healthy Slow Cooker Recipes, 2016)*



*Figure 21. Dining note: simple food diary
(In, 2018)*



infections like hypertension, diabetes mellitus, tension, hypersensitivities, and sleep deprivation, and so forth, so, an individual after these tips will have a solid way of life. These tips keep up a sound life as well as lessen weight.

4.24. Smoothie Recipes: 500+ Healthy Smoothies

This application, illustrated in Figure 24, contains extraordinary determinations of smoothie plans that will most likely fulfill your sense of taste with flavorful ingredients. It gives simple ingredients and headings to solid organic product plans which is ideal for the conscious health users. This application has a tremendous accumulation of 500+ smoothie plans from around the world. It's possible but difficult to explore and locate your enticing smoothie formula and start setting it up right away.

Sound Smoothie Recipes has the majority of your answers a basic fingertip away. Look at it to discover which smoothie you like the most.

4.25. BodyFast Intermittent Fasting: Coach, Diet Tracker

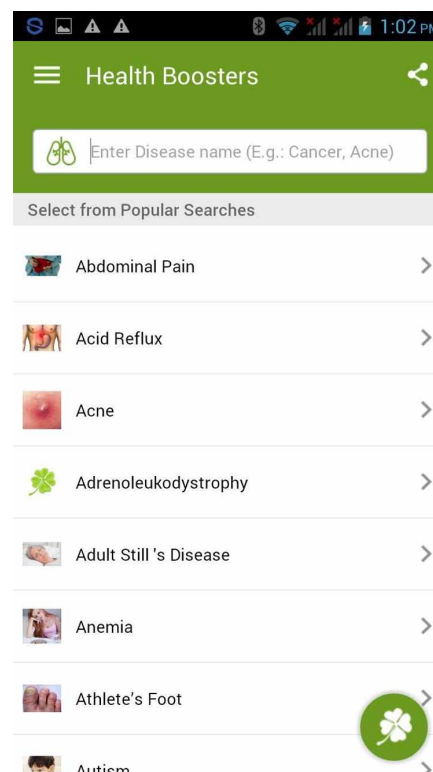
Intermittent fasting is another method for weight reduction. Here individuals are educated in an instructing focus on intermittent fasting or you can say that fasting on exchange days. Fasting is useful and causes weight reduction to many degrees and it misfortune weight as well as keep from numerous different

Mobile Apps for Human Nutrition

Figure 22. Health diet foods fitness help
(RecoveryBull.com, 2019)



Figure 23. Health, nutrition and diet guide
(Facts, 2018)



sicknesses like diZero Calories - fasting tracker for weight reduction and diabetes mellitus. The Figure 25 helps in easy access to this application.

4.26. Zero Calories - Fasting Tracker for Weight Loss

Zero Calories - fasting tracker, describe in the Figure 26, is additionally similar to the previously mentioned applications which aids in weight reduction yet the distinction here is that here the individual is educated to expand the fasting time and length of the fast.

4.27. YAZIO Calorie Counter, Nutrition Diary & Diet Plan

Calorie Counter application by YAZIO that is shown in Figure 27, is another restorative application for weight reduction. Here individuals are educated to note every day food intake like proteins, fats, water consumption and espresso just as exercise and afterward calculate the full day by day calories that the individual has consumed by doing every one of these exercises thus the most ideal method for getting more fit.

Mobile Apps for Human Nutrition

Figure 24. Smoothie recipes: 500+ healthy smoothies (chavan, 2019)

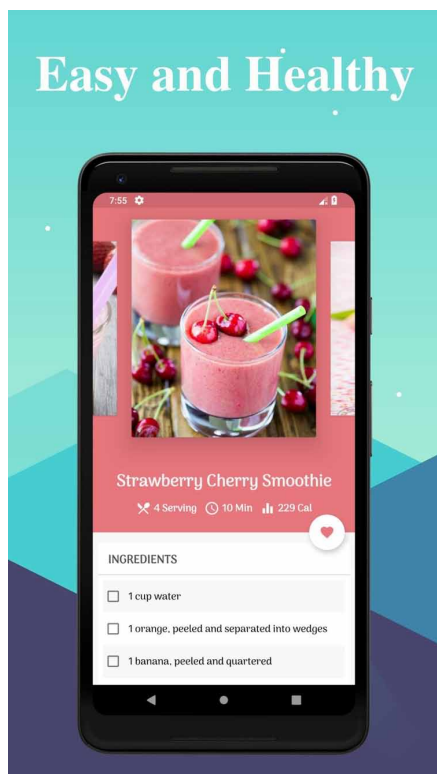
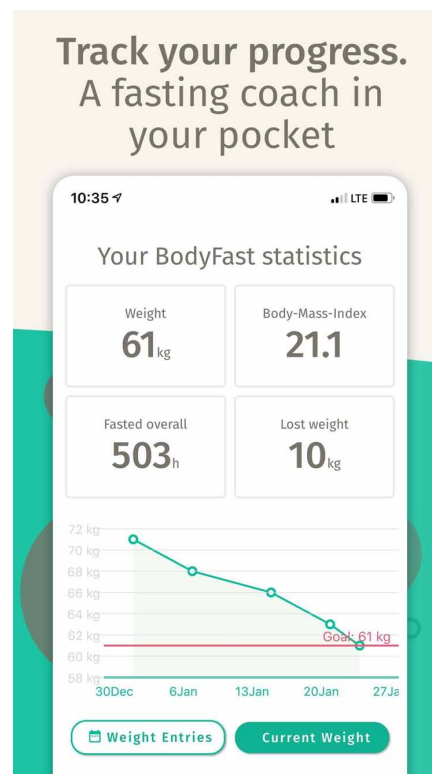


Figure 25. BodyFast intermittent fasting: coach, diet tracker (UG, 2019)



4.28. Total Keto Diet: Low Carb Recipes & Keto Meals

This is a comparative sort of application as referenced previously. Here people are educated to utilize low carbs plans so that if there will be low glucose level in blood, an ever-increasing number of fats will be catabolized and will create increasingly more ketone bodies so the principle advantage to individual utilizing this application, mentioned in the Figure 28, is that all fats in body will be catabolized and fit weight will be diminished and individual can get in shape through this component all-around effectively.

4.29. Cronometer

This is the most exact, far-reaching nutrition tracker available in the market. This application, illustrated in the Figure 29, has helped over 25 lac individuals find their nutrition and meet weight reduction objectives.

A Highlight of this Application:

- Track more than 60 micronutrients – the most comprehensive information available in the market.
- It is the sole nutrition tracker that gives precise information curated from checked sources.
- All food presented by the clients to the database is checked for exactness by the staff.

Mobile Apps for Human Nutrition

Figure 26. Zero calories - fasting tracker for weight loss (development, 2019)

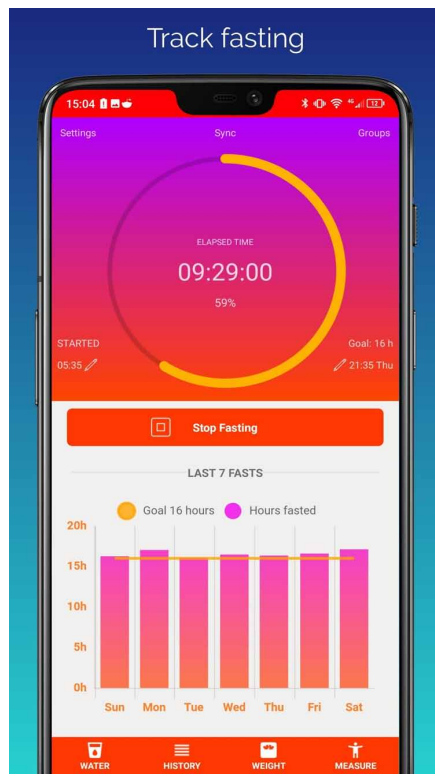
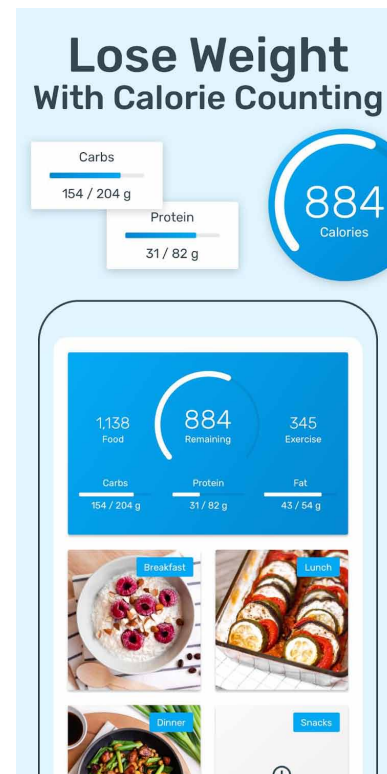


Figure 27. YAZIO calorie counter, nutrition diary & diet plan (GmbH, 2018)



- This application ensures privacy and protection of the whole data of individuals and don't share or sell the data to outsiders.
- Compare custom biometrics as well as nutrients in graphs and view trends after some time.
- The Free form of this application gives more nutritional data than some other application.

4.30. Diet Diary

It is one of the easiest application to use for weight reduction. This application records the day by day diet and exercise, water uptake and game and so forth of an individual and also check every day calories that the individual has consumed in doing these exercises. So along these lines an individual can get in shape all things considered. The pictorial demonstration of this application is in the Figure 30.

5. CONCLUSION

Nowadays mobile devices and smart gadgets are assumed as playing crucial role in keeping up healthy life of the individuals in a sense to alert, aware and persuade the individuals towards the use of mobile applications especially nutrition related mobile applications to make balance nutrition and a healthy

Mobile Apps for Human Nutrition

Figure 28. Total keto diet: low carb recipes & keto meals
(Tasteaholics, 2019)

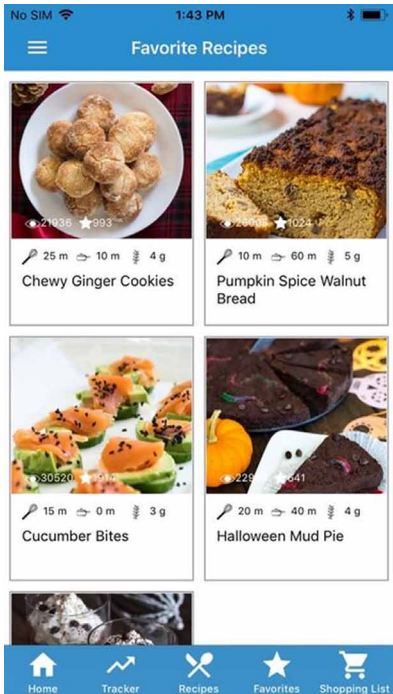


Figure 29. Cronometer
(Inc. C. S., 2019)

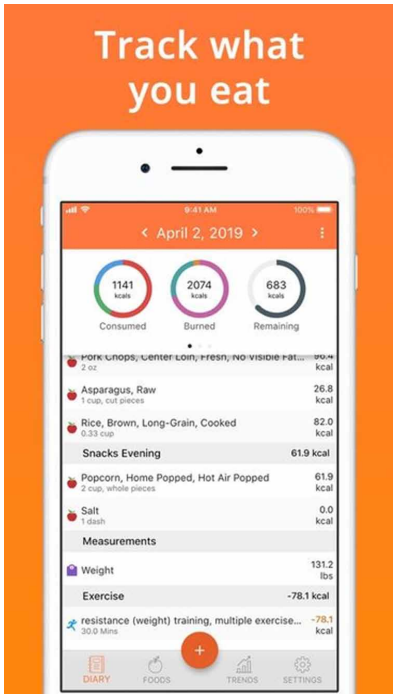
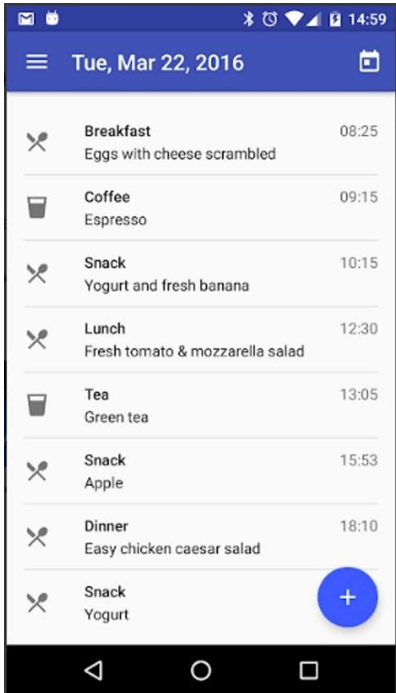


Figure 30. Diet diary
(Yapan, 2017)



Mobile Apps for Human Nutrition

life style. Similarly, if individuals wants to remain healthy, they ought to eat according to the need and activities they performing and keep themselves from overabundance eating. The paper review deciphers the very vital role of these health apps available to a lay man to monitor and sustain good health. These apps help users to have a vigilant eye on their routine diet. Furthermore one should make propensity for daily exercise all through the use of above mentioned mobile phone applications which would definitely improve health and overcome health related issues.

REFERENCES

Alamgir, K., Sami, U., & Salahuddin, K. (2018). Nutritional complications and its effects on human health. *J. Food Sci. Nutr.*, 1(1), 17–20.

BodyFast UG. (2019, August 5). *BodyFast Intermittent Fasting: Coach, Diet Tracker*. Retrieved from <https://play.google.com/store/apps/details?id=com.bodyfast&hl=en>

Borisoft - Software development. (2019). *Zero Calories - fasting tracker for weight loss*. Retrieved from <https://zerocaloriesfasting.com/index.html>

Boushey, C., Spoden, M., Zhu, F., Delp, E., & Kerr, D. (2017). New mobile methods for dietary assessment: Review of image-assisted and image-based dietary assessment methods. *The Proceedings of the Nutrition Society*, 76(3), 283–294. doi:10.1017/S0029665116002913 PMID:27938425

Boushey, C. J., Spoden, M., Zhu, F. M., Delp, E. J., & Kerr, D. A. (2016). New mobile methods for dietary assessment: review of image-assisted and. *New technology in nutrition research and practice* (p. 12). Dublin: *Proceedings of the Nutrition Society*.

Carter, M. C., Burley, V. J., Nykjaer, C., & Cade, J. E. (2013). Adherence to a smartphone application for weight loss compared to website and paper diary: Pilot randomized controlled trial. *Journal of Medical Internet Research*, 15(4), e32. doi:10.2196/jmir.2283 PMID:23587561

Carter, M. C., Burley, V. J., Nykjaer, C., & Cade, J. E. (2013). Adherence to a Smartphone Application for Weight Loss. *Journal of Medical Internet Research*, 15(4). PMID:23587561

Cronometer Software Inc. (2019, August 28). *Cronometer*. Retrieved from <https://play.google.com/store/apps/details?id=com.cronometer.android.gold&hl=en>

Cylonblast Mobile Apps. (2019, August 31). *Best Boiled Egg Diet Plan*. Retrieved from <https://play.google.com/store/apps/details?id=com.cylonblastmobileapps.bestboiledeggdiet&hl=en>

Organic Facts. (2018, January 16). *Health, Nutrition & Diet Guide*. Retrieved from <https://play.google.com/store/apps/details?id=com.organicfacts.app&hl=en>

FatSecret. (2019). *Play Store: Calorie Counter by FatSecret*. Retrieved from <https://play.google.com/store/apps/details?id=com.fatsecret.android>

Fenlander Software Solutions Ltd. (2019, August 30). *Ultimate Food Value Diary - Diet & Weight Tracker*. Retrieved from <https://play.google.com/store/apps/details?id=com.fenlander.ultimatevaluediary&hl=en>

Mobile Apps for Human Nutrition

Ja Kaun In. (2018). *Dining Note: Simple food diary*. Retrieved from <https://apps.apple.com/us/app/dining-note-simple-food-diary/id1194971321>

Jospe, M. R., Fairbairn, K. A., Green, P., & Perry, T. L. (2015). Diet app use by sports dietitians: A survey in five countries. *JMIR mHealth and uHealth*, 3(1), e7. doi:10.2196/mhealth.3345 PMID:25616274

Kiran Chavan. (2019, September 8). *Smoothie Recipes: 500+ Healthy Smoothies*. Retrieved from https://play.google.com/store/apps/details?id=com.kiransmoothie.kiranchavan.juicerecipe&hl=en_US

Linear Software LLC. (2012). *Body Tracker - body fat calc*. Retrieved from <https://apps.apple.com/us/app/body-tracker-body-fat-calc/id581557588>

MapMyFitness. (2019, September 7). *Map My Fitness Workout Trainer*. Retrieved from <https://play.google.com/store/apps/details?id=com.mapmyfitness.android2&hl=en>

MyNetDiary Inc. (2019). *Calorie Counter PRO MyNetDiary*. Retrieved from <https://apps.apple.com/us/app/calorie-counter-pro-mynetdiary/id352247139>

NoomInc. (2017). *Noom*. Retrieved from <https://apps.apple.com/us/app/noom/id634598719>

Nutritionix. (2019, June 7). *Track - Calorie Counter*. Retrieved from <https://play.google.com/store/apps/details?id=com.nutritionix.nixtrack&hl=en>

World Health Organization. (2000). Nutrition for health and development: a global agenda for combating malnutrition.

Outlier. (2015, July 22). *Nutritionist-Dieting made easy*. Retrieved from <https://play.google.com/store/apps/details?id=com.nutritionist.development&hl=en>

RecoveryBull.com. (2019, May 4). *Health Diet Foods Fitness Help*. Retrieved from https://play.google.com/store/apps/details?id=com.medical.guide_health.diet.tips&hl=en

SparkPeople. (2013, January 30). *Perfect Produce*. Retrieved from <https://play.google.com/store/apps/details?id=com.sparkpeople.android.produce&hl=en>

SparkPeople. (2016, August 26). *Healthy Slow Cooker Recipes*. Retrieved from https://play.google.com/store/apps/details?id=com.sparkpeople.SlowCookerRecipes&hl=en_US

SparkPeople. (2016, August 24). *Nutrition Lookup - SparkPeople*. Retrieved from <https://play.google.com/store/apps/details?id=com.sparkpeople.foodLookup&hl=en>

SparkPeople. (2016, November 8). *Pregnancy Health & Fitness*. Retrieved from https://play.google.com/store/apps/details?id=com.SparkPeople.pregnancyHealth&hl=en_US

SparkPeople. (2017, August 13). *Healthy Recipes & Calculator*. Retrieved from <https://play.google.com/store/apps/details?id=com.sparkpeople.android.cookbook&hl=en>

StayWell. (2019). *My Diet Diary Calorie Counter*. Retrieved from <https://play.google.com/store/apps/details?id=org.medhelp.mydiet&hl=en>

Stone, M. (2019, February 8). *Simple Diet Diary*. Retrieved from <https://play.google.com/store/apps/details?id=com.rarepebble.dietdiary&hl=en>

Mobile Apps for Human Nutrition

Tasteaholics. (2019, August 4). *Total Keto Diet: Low Carb Recipes & Keto Meals*. Retrieved from <https://play.google.com/store/apps/details?id=com.totalketodiet.ketodiet&hl=en>

Under Armour, Inc. (2019). *MyFitnessPal*. Retrieved from <https://apps.apple.com/us/app/myfitnesspal/id341232718>

Watchers, W. International, Inc. (2019, September 9). *WW (formerly Weight Watchers)*. Retrieved from <https://play.google.com/store/apps/details?id=com.weightwatchers.mobile&hl=en>

Xyris Software (Australia) Pty Ltd. (2019). *Easy Diet Diary*. Retrieved from <https://apps.apple.com/au/app/easy-diet-diary/id436104108>

Can Yapan. (2017, November 25). *Diet Diary*. Retrieved from <https://play.google.com/store/apps/details?id=com.canyapan.dietdiaryapp&hl=en>

YAZIO GmbH. (2018). *YAZIO — Diet & Food Tracker*. Retrieved from <https://apps.apple.com/us/app/yazio-diet-food-tracker/id946099227>

zeronica.com. (2015, May 16). *Weight Tracker “Weigh My Diet”*. Retrieved from https://play.google.com/store/apps/details?id=com.zeronica.weighmydiet&hl=en_GB

ADDITIONAL READING

Balapour, A., Reyachav, I., Sabherwal, R., & Azuri, J. (2019). Mobile technology identity and self-efficacy: Implications for the adoption of clinically supported mobile health apps. *International Journal of Information Management*, 49, 58–68. doi:10.1016/j.ijinfomgt.2019.03.005

Braz, V. N., & de Moraes Lopes, M. H. B. (2019). Evaluation of mobile applications related to nutrition. *Public Health Nutrition*, 22(7), 1209–1214. PMID:29734965

Dallinga, J., Janssen, M., Van Der Werf, J., Walravens, R., Vos, S., & Deutekom, M. (2018). Analysis of the features important for the effectiveness of physical activity–related apps for recreational sports: Expert panel approach. *JMIR mHealth and uHealth*, 6(6), e143. doi:10.2196/mhealth.9459 PMID:29914863

Elavsky, S., Knapova, L., Kloczek, A., & Smahel, D. (2019). Mobile Health Interventions for Physical Activity, Sedentary Behavior, and Sleep in Adults Aged 50 Years and Older: A Systematic Literature Review. *Journal of Aging and Physical Activity*, 1–29. PMID:30507266

Fallaize, R., Franco, R. Z., Pasang, J., Hwang, F., & Lovegrove, J. A. (2019). Popular Nutrition-Related Mobile Apps: An Agreement Assessment Against a UK Reference Method. *JMIR mHealth and uHealth*, 7(2), e9838. doi:10.2196/mhealth.9838 PMID:30785409

Ferrara, G., Kim, J., Lin, S., Hua, J., & Seto, E. (2019). A Focused Review of Smartphone Diet-Tracking Apps: Usability, Functionality, Coherence With Behavior Change Theory, and Comparative Validity of Nutrient Intake and Energy Estimates. *JMIR mHealth and uHealth*, 7(5), e9232. doi:10.2196/mhealth.9232 PMID:31102369

Mobile Apps for Human Nutrition

Harvey, J., Smith, A., Goulding, J., & Illodo, I. B. (2019). Food sharing, redistribution, and waste reduction via mobile applications: A social network analysis. *Industrial Marketing Management*. doi:10.1016/j.indmarman.2019.02.019

Neriah, D. B., & Geliebter, A. (2019). Weight Loss Following Use of a Smartphone Food Photo Feature: Retrospective Cohort Study. *JMIR mHealth and uHealth*, 7(6), e11917. doi:10.2196/11917 PMID:31199300

Villinger, K., Wahl, D. R., Boeing, H., Schupp, H. T., & Renner, B. (2019). The effectiveness of app-based mobile interventions on nutrition behaviours and nutrition-related health outcomes: A systematic review and meta-analysis. *Obesity Reviews*, 20(10), 1465–1484. doi:10.1111/obr.12903 PMID:31353783

KEY TERMS AND DEFINITIONS

Adenosine Tri Phosphate (ATP): Adenosine triphosphate is an intricate natural-synthetic that gives vitality to drive numerous procedures in living cells, for example, muscle compression, nerve drive spread, and substance union.

Anemia: Disease that occurs due to low Red Cell Count (RCC), characterized by tiredness, confusion, lack of concentration, pallor.

Dementia: Dementia is definitely not a specific infirmity. It's a general term that delineates a social event of symptoms related with a reduction in memory or other thinking aptitudes outrageous enough to lessen a person's ability to perform customary activities.

Diabetes Mellitus (DM): Diabetes mellitus is disabled insulin discharge and variable degrees of fringe insulin obstruction prompting hyperglycemia. Early manifestations are identified with hyperglycemia and incorporate polydipsia, polyphagia, polyuria, and obscured vision.

Diarrhea Dementia Death (DDD): Determination of pellagra is troublesome without the skin sores and is regularly encouraged by the nearness of trademark ones.

Hemolytic Anemia: Hemolytic frailty is a confusion where red platelets are crushed quicker than they can be made. The annihilation of red platelets is called hemolysis. Red platelets convey oxygen to all pieces of your body. On the off chance that you have a lower than typical measure of red platelets, you have sickliness.

Hypertension: Hypertension (HTN or HT), generally called as high blood pressure (HBP), is a long haul ailment where the circulatory strain in the courses is diligently raised. Hypertension normally does not cause side effects.

Insomnia: Lack of sleep because of neurological disorders.

Lipolysis: Breakdown of lipids into fatty acids and glycerol.

Night Blindness: Night blindness is one of the feature of vitamin A deficiency in which the person can see properly at night because of deficiency of Rhodopsin (the main product of vitamin A) that play a vital role in visual cycle.

Osteomalacia: A disease occurs in adults because of deficiency of Vitamin D.

Pellagra: A disease characterized by DDD i.e. diarrhea, dementia and death, caused by deficiency of Niacin (vitamin B3).

Rickets: A disease occurs in children because of deficiency of Vitamin D Causes bowing of legs.

Mobile Apps for Human Nutrition

Scurvy: disease characterized by bleeding gums, bleeding from mucosal surfaces because of deficiency of vitamin C, this can be cured by taking citrus fruits and vitamin C supplements.

Wernicke-Korsakoff Syndrome: (WKS): it is a neurological issue. Wernicke's encephalopathy and Korsakoff's psychosis are the intense and incessant stages, separately, of a similar ailment. WKS is brought about by an insufficiency in the B nutrient thiamine. Thiamine assumes a job in using glucose to create vitality for the cerebrum.