This is a rough outline of a clinical study. Be as detail and specific as possible, so that we can be very clear about what can be done and what can be achieved. This will also help the clinical coordinator, app developers and backend data structure/analyses. This begins from the landing page where participants sign up to the end of the study. Some parts are very detail and some need more input. Please try to put your input – if some parts are not clear, indicate them. If you think some parts are too complicated and can be simplified, try to edit in this document. If a few things are impossible or too difficult to implement for small gain, we may delete them.

**Study advertisement** (where to advertise?) Which demographic group to target? What is our goal

**Landing Page**

* 1. Landing page is connected to a specific coordinator and a study. [Can Andolasoft set up a mock landing page, so that we can test the sign up step]

If a coordinator is running multiple studies ( say feeding pattern and sleep, feeding pattern and heart function, feeding pattern and diabetes etc.) the landing page will list all studies that are currently recruiting and the prospective participant can select only one study and go the next page.

* 1. Landing Page Content (specific to a given study)
     1. IRB approved text describing the study
     2. Questionnaires for inclusion and exclusion criteria.
        1. Questions about the smartphone **[Q1]**, if the participant knows the basic operations of a smartphone, three other apps they have downloaded etc. If they answer Yes they have a compatible smartphone and know the basic function of the phone, they go to next. Else …. **[thank you note 1]** “thanks for your interest..”
        2. Next inclusion/exclusion criteria **[Q2]** will be study specific. No personal information is to be given in the inclusion/exclusion criteria (no name, or contact). But the participants will input anthropometric data **[Q3]** their gender, age, weight, height, race etc.
     3. Message after inclusion and exclusion criteria are met.
        1. If the person does not meet the eligibility criteria- then **[thank you note 2]** “Thank you for your interest… but …..”
        2. If the participant passes the preliminary screen, there will be a message saying along the line **[Message 1]** “you meet the criteria for participating in the study. The study will involve visit to the lab, after 3 weeks another visit to the lab, etc. (Overview of the study without giving out the details but to say how long and what it involves.) Would you like to participate in the study?”
        3. If the person says NO – then … **[thank you note 3]** “ thank you for ….”
        4. If the person says, may be – I will think about it, but need to talk to someone?
        5. If the person says yes – then the next page appears which will have more strict encryption for personal information:
  2. This page will be more encryption as it will collect the following personal information. **[Q4]**

Name

Contact number

Email

Alternate phone number

Consent whether we can email/text or phone to set up appointment for an informed consent and introduction to the app.

A Captcha and

Submit

* + 1. What is sent to the server? – All information from the sign up page (1.3. - phone information, answers to inclusion, exclusion criteria, anthropometric data, name, email etc.
  1. What happens next?
     1. The sign up information is shown in the system.
     2. The study coordinator gets an alert in her/his email – **[message 2]** “someone signed up”.
     3. The person gets an email **[message 3]** that someone will contact him/her shortly.

1. Setting up first appointment and app activation.
   1. Appointment for informed consent and baseline measurements. The coordinator selects a few potential dates and times for informed consent and the system generates an automatic message **[message 4]** asking the participant to select a data/time within 24 h.
   2. **[message 4]** There is a link embedded in the email to confirm or decline. If the person declines, there is a link to **[a page]** where the person says why s/he declines. Whether s/he needs another time for appointment or not interested in the study.
   3. Final confirmation is sent **[message 5]** with direction to the office, parking information and walking information to the lab. If lost, whom to text/call.
   4. One day before the appointment, a reminder **[message 6]** is sent along with direction. If the person wants to cancel there is a link to cancel – same as above.
   5. During the appointment.
      1. The coordinator or a designate will administer Informed consent. Consent date and the person consented will be recorded in the database. If the person does not consent, that is also recorded in the database.
      2. Unique ID generation – coding the participant. The system generates a unique participant ID. [First three alphaneumeric study code, followed by YYMM and a four digit number]. Although we had initially thought of a more complex alphaneumeric code, the clinical coordinators don’t like such codes.] The system also generates an activation code. A*ll past and future information is now linked to this unique participant ID.*
      3. App activation.
         1. App download
         2. App activation
      4. All key events specific to the participant is also populated in the calendar. Date signed up, date app activated, date of beginning of baseline, date of end of baseline etc.
      5. Anthropometric data is recorded. Height, weight, body composition (lean%, fat%, water%, and rest%), blood pressure (Systolic, diastolic), heart rate. Entered to database.
      6. If an actiwatch or any other device is given to the person, that device serial number is also included in the database and the device is activated. Date of data collection (starting date and end date) are also entered. Sampling frequency (30sec, or 1min) is also entered.
      7. Questionnaires: At least one Nutrition and wellness questionnaire is administered **[Q5]**. (is it done from the app or from a website? How to connect the answers to the unique ID?). How are answers to the questionnaires entered to the database. (If the person says s/he eats or drinks total X times or more, that information is entered in the field used for everyday validation. See sections on what happens after the beginning of the baseline)
      8. For current medications and supplements - If the person is taking any medication or supplement, it is also recorded in the database.
      9. The coordinator explains the app, the actiwatch (or any other device if given to the participant), demonstrates some features of the app. If there are current medications or supplements, the coordinator can show how to set reminder for medications/supplements.
      10. Next appointment is set for the end of the baseline period. The coordinator shows the participant the calendar function in the app.
2. Baseline monitoring.
   1. If there is a specific day of the week when the baseline starts, the day before, the system will send an automatic email prompting to start. The email will also have a link to a page that will have the instructions for using the app. The page will have a short video/animation/flowchart/power point of the app description.
   2. On day 1 of the baseline, the system will send the first push notification.
   3. On day 2 of the baseline the following notifications will be sent – based on day 1 progress
      1. If the person logged at least the number of events that the person said s/he eats in a day (**X**), an encouraging note prompting the use to continue recording eating events.
      2. If the number of events recorded in the day 1 was less than **X** (or 0) . The note will gently prompt the user to log every event and a link to the app demo or (ANY SUGGESTION HERE? [ this text needs to be crafted well]
      3. On day 3- end of baseline period:
         1. On day 3 if the person continues to record events, there will be an encouraging note.
         2. Every day there will be a push notification and the response to push notification will be logged.
         3. If there number of events logged is more than X for 3 consecutive days, the person will not receive any more push notification unless the number of events/day drops to less than X. [**PLEASE COMMENT**]
         4. If there is no event AND no response to push notification for one complete day, there will be a different message. [**PLEASE COMMENT**].
         5. If there is no event AND no response to push notification for 2 complete day, there will be a different message. [**PLEASE COMMENT**]
      4. One day before the baseline ends, the system will send an automatic reminder for the upcoming appointment and the person has to confirm or request a change (same as before). Detail direction etc. will also be given.
      5. Every day, the system will send a summary at 5am local time to the coordinator (and any other person about the study). In the back-end there should be a mechanism to add these emails. What will be the content of this email?
3. Second appointment
   1. On the morning of the appointment the system will generate a report for the person’s eating habit. Which parameters will be included? And the Coordinator will decide if the person is eligible for participation in the study.
      1. Criteria to progress to intervention: Typically sends at least 5 events per day for at least 2/3rd of the days, did not have significant drop in the number of events/day between the first week and the last week, Eating interval more than 14 h, Eats more into late night (end of the eating interval after 10pm).
      2. During the appointment, the participant will return the actiwatch (if given to the person). Data will be downloaded and visualized for sleeping duration. If the person turns out to be a shift worker, s/he may not qualify for the intervention.
      3. Anthropometric data (weight, waist circumference, hip circumference, blood pressure, body composition (if possible) will be recorded and entered into the system. If there is more than 1% change in body weight in the baseline period, the person will not qualify for the intervention.
      4. Payment for the first part of the study will be made in cash if it was mandated by IRB.
   2. If the person qualifies for the intervention –
      1. S/he will be asked if s/he is interested in the intervention – s/he will be informed of the intervention and the risk/benefit etc. before the informed consent.
      2. Informed consent for the intervention.
      3. Information on the intervention – powerpoint slides and additional information on the app.
      4. Additional questionnaires (to be decided)
      5. Appointment for blood work and direction to the center will be given. If the person has to schedule his/her appointment with the blood collection center, it will be noted in the database. The official intervention will not begin until after the blood collection.
      6. Intervention app activation. This will be delayed until after the blood collection date.
      7. If the person is to be given a watch- watch activation and entry in the database.
   3. On the day before the blood sample appointment, there will be an automatic email and direction to the blood collection center.
   4. On the day after the scheduled blood collection day, the coordinator will confirm with the participant that the blood work was done. This will clear all requirements for start of the intervention.
   5. On the day before the intervention begins,
      1. There is an automatic email about the beginning of the intervention and a link to withdraw.
      2. Intervention portion of the App is activated. Now the person can visualize his/her own feedogram and other feedback in realtime. Can enter his/her own body weight, heart rate and other parameters (to be decided).
      3. Encouraging note after the first day of intervention. This note contains something different.
      4. Encouraging note on the second day of intervention
      5. Encouraging note on the third day of intervention
      6. Questionnaire on the first three days of intervention
   6. After 1 week of intervention
      1. Encouraging note after the first week of intervention
      2. Analyze data and send them their comparatives in baseline and in the first week of intervention. (What to include?) Eating timing parameters and tag cloud, caloric content and other nutrition parameters.
      3. Prompt the participant to take a weight measure.
   7. After 2nd week of intervention
      1. Analyze data and send them their comparatives in baseline and in the first week of intervention. (What to include?) Eating timing parameters and tag cloud, caloric content and other nutrition parameters.
      2. Encouraging note after the second week of intervention
      3. Prompting the participant to take a weight measure
   8. After 3rd week of intervention
      1. Encouraging note after the third week of intervention
      2. Prompting the participant to take a weight measure.
      3. Weekly summary
      4. Return the actiwatch if it was given.
      5. Pay for the visits
   9. After 4th week of intervention
      1. Encouraging note after the third week of intervention
      2. Prompting the participant to take a weight measure.
      3. *Monthly summary*
      4. Ask the participant if they can improve their nutrition or increase their fasting duration by one more hour.
   10. After 5th week of intervention
       1. Encouraging note after the third week of intervention
       2. Prompting the participant to take a weight measure.
       3. Weekly summary
       4. Continues till 7th week.
       5. Send reminder for a 8 week appointment
   11. After 7th week of intervention
       1. Encouraging note
       2. Prompting the participant to take a weight measure.
       3. Coordinator schedules appointment to visit the lab in the 8th week
   12. 8th week appointment
       1. Record anthropometric data
       2. Coordinator Reviews progress with the participant and gets feedback. If there is room for improvement, the participant may be advised to extend the intervention till 16 weeks.
       3. Coordinator schedules the final 12 week appointment
       4. Coordinator schedules the final 12 week blood draw
       5. Activity watch is activated and entered to the system
   13. 12th week appointment
       1. A day before the appointment the system sends a reminder.
       2. A final report on eating pattern is generated
       3. On the day of the appointment
          1. Coordinator gives the final questionnaire
          2. Anthropometric data is collected and entered into the system
          3. Sleep data is collected from the Actiwatch and saved in the database
          4. Participant is paid
          5. The blood data is accessed from the clinic and entered into the system
          6. Blood data report is generated.

**From 16 weeks to 1 year what will happen? How to keep the person engaged.**

**List of reports. [PLEASE EXPAND AND MARK HOW THEY ARE MEASURED]**

1. **Intervention feedback to the participant** (Reports visible to the participants during the intervention to promote behavior change; this will be elaborated later)
   1. **TAB** Feedogram (also includes all food pictures)
   2. Water consumed/day (cups of water)
   3. **TAB** Worldle
   4. **TAB** Body weight change (weekly measurement) from high chart
2. **Daily report to the coordinator** (see attached Excel). This a summary email that will go out to the coordinator every morning after 4am at the study location local time. If the coordinator is running two different studies, then it will show up the study title and then these parameters. When the study coordinator first builds the study and populates different fields. This is also a field where s/he can indicate the email(s) where the reports will go. Sometimes, the coordinator and the investigator will also get the email. Example: SP is the lab chief who is responsible for running the study and MK is the coordinator in the lab who actually meets with participants and runs the day to day business. Both SP and KT and may be another person who is standby (when MK is on leave) will get the daily updates. This daily reporting starts from the day the first participant signs up on the landing page.
   1. STUDY TITLE
   2. New sign ups waiting for response. A list of the following. Since they are waiting for the study, they don’t have a PID, and we cannot show name or contact info in the daily email. So, list the following.
      1. Gender Age Weight Height BMI
   3. Today's appointments. Just the number of people scheduled for office or lab visits.
   4. Tomorrow's appointments. Just the number of people scheduled for office or lab visits.
   5. Active participants
      1. First list the participants ID (PID) of baseline and then list the participants in intervention.
      2. For each participant indicate the median number of events/day and the number of events in the last 1 day
   6. Inactive over 1 day
      1. First list the participants ID (PID) of baseline and then list the participants in intervention.
      2. For each participant indicate the median number of events/day and the number of events in the last 1 day (of course this is 0).
   7. Inactive for 2 days
      1. First list the participants ID (PID) of baseline and then list the participants in intervention.
      2. For each participant indicate the median number of events/day and the number of events in the last 1 day (of course this is 0).
   8. Other Active Participants
      1. This is just a list of participants who are not in the active study. This list will include some beta testers (may be the coordinator himself), participants who are in-between baseline and intervention and those who have completed intervention and are still collecting data, they are allowed to collect data.
   9. Total number of pictures and text in the last 24 h
   10. Number of Pictures to be annotated (pictures that came without any food or beverage annotation)
   11. Total number of pictures and text since beginning of the study (this includes all baseline, intervention, other participants etc.)
   12. Total number of pictures since the beginning of the study that needs to be annotated.
3. **Reports at the end of the study for statistical analyses**
   1. Anthropometric
      1. Weight (and BMI)
      2. Waist to Hip ratio
      3. Body composition (% fat or lean)
   2. Food intake
      1. Eating duration
      2. Fasting duration
      3. Weekend jetlag
      4. Last calorie of the day
      5. Number of meals/day
      6. Water intake
      7. Caloric intake
      8. Nutrition quality (protein, carb, fat)
      9. Caloric intake during the day
      10. Caloric intake at night
   3. Sleep/Activity
      1. Total sleep/day
      2. Time of sleep onset
      3. Time of waking up
      4. Total activity counts/day
      5. Total activity during daytime
      6. Activity at night
   4. Light exposure
      1. Bright Light (>500Lux) exposure duration (min/day)
      2. Medium light (100-500Lux)
      3. Dim light (10-100 Lux)
   5. Blood chemistry
      1. Lipid panel (this is a standard lipid panel test parameters from any blood lab. It is better to show the values and the reference range. If the value is lower or higher than what is recommended, it should show those values highlighted or bolded.)
         1. Total cholesterol
         2. Triglyceride
         3. HDL cholesterol
         4. VLDL Cholesterol
         5. LDL cholesterol
      2. Comprehensive metabolic panel
         1. Serum Glucose
         2. Serum Creatinine
         3. Blood Urea Nitrogen (BUN)
         4. Alkaline phosphatase, S
         5. ALT
         6. AST
         7. Bilirubin
         8. Globulin
         9. Serum Albumin
         10. Total Serum protein
         11. Serum calcium
         12. Serum CO2
         13. Serum Chloride
         14. Serum potassium
   6. Subjective measures (these are from a questionnaire)
      1. Feeling energetic at morning
      2. Feeling energetic during the day
      3. Food hangover at morning
      4. Hunger at night

**Other questions?**

App activation from enterprise version.

* How to do an enterprise version? Who will apply for this? Can a small company apply for this? Or should Salk apply for this?
* If multiple locations are involved, how to manage the enterprise version?
* How to manage location specific changes in the clinical trial protocol?

Will the server save the device id of the phone?

Can the informed consent be on the app? Can at least the informed consent text be on the app tab?

Can one use docusign to do informed consent?

Will there be a user site (webpage) for the following? Alternatively, they have to do some or all of these only from the mobile device.

* Answer the questionnaires.
* Visualize their weekly/daily and real time progress
* Annotate their own food items
* Set up appointments and send feedback (like mychart)
* See their own progress

If there is a website, how to personalize it? They have to put the participant code and a password or they can set up their own login and password? This has to be checked with HIPAA guideline as well.

Will 24 h recall questionnaire be included as one of the questionnaires?